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## Comparing Obstetricians' and Neonatologists' Approaches to Periviable Counseling

**Brownsyne Tucker Edmonds, MD, MS, MPH<sup>1</sup>, Fatima McKenzie, MS<sup>1</sup>, Janet E. Panoch, MA<sup>1</sup>, Amber E. Barnato, MD, MPH, MS<sup>2</sup>, and Richard M. Frankel, PhD<sup>3</sup>**<sup>1</sup>Department of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, IN<sup>2</sup>Division of General Internal Medicine, Department of Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA<sup>3</sup>Mary Margaret Walther Center for Research and Education in Palliative Care, IU Simon Cancer Center, Indianapolis, IN

### Abstract

**Objective**—Compare the management options, risks and thematic content that obstetricians and neonatologists discuss in periviable counseling.

**Study Design**—Sixteen obstetricians and 15 neonatologists counseled simulated patients portraying a pregnant woman with ruptured membranes at 23 weeks gestation. Transcripts from video-recorded encounters were qualitatively and quantitatively analyzed for informational content and decision-making themes.

**Results**—Obstetricians more frequently discussed antibiotics ( $p=0.005$ ), maternal risks ( $<.001$ ), and cesarean risks ( $<.005$ ). Neonatologists more frequently discussed neonatal complications ( $p=.044$ ), resuscitation ( $p=.015$ ), and palliative options ( $p=.023$ ). Obstetricians and neonatologists often deferred questions about steroid administration to the other specialty. Both specialties organized decision-making around Medical Information, Survival, Quality of Life, Time, and Support. Neonatologists also introduced themes of Values, Comfort or Suffering, and Uncertainty.

**Conclusion**—Obstetricians and neonatologists provided complementary counseling content to patients, yet neither specialty took ownership of steroid discussions. Joint counseling and/or family meetings may minimize observed redundancy and inconsistencies in counseling.

### Introduction

Counseling women facing periviable pregnancy complications may be among the most challenging conversations in medicine. The conversations are emotionally charged because they involve delivering 'bad news' to a family that may have previously expected a joyful

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Corresponding Author: Brownsyne Tucker Edmonds, MD, MS, MPH, 550 N. University Blvd., UH 2440, Indianapolis, IN 46202, Phone: 317-944-1661, [btuckere@iupui.edu](mailto:btuckere@iupui.edu).

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and uncomplicated delivery experience. They are cognitively challenging because they require knowledge of statistics on survival, risks of disability and the communication of marked prognostic uncertainty. And they are ethically challenging because they involve value-laden, high-stakes ‘life, death, and disability’ decisions about resuscitation.

Previous studies have considered the role of neonatologists in counseling families about resuscitation and extreme prematurity.<sup>1, 2, 3, 4, 5, 6, 7</sup> Indeed, these providers have extensive experience with emotional, value-laden decision-making in the face of prognostic uncertainty. Fewer studies have considered the role of obstetricians, who are the first line of counseling and communication in these clinical situations. Moreover, because periviable care is provided in a multispecialty manner in which obstetricians direct maternal management (e.g., delivery) and neonatologists direct neonatal resuscitation or palliation, the obstetrical community is increasingly recognizing the importance of improving how obstetricians and neonatologists communicate with patients facing periviable delivery decisions.<sup>8, 9, 10</sup>

The purpose of the current study was to explore how obstetricians and neonatologists communicate with these patients. Because such conversations are difficult to study in real-time due to their infrequent and unscheduled nature, we used a high-fidelity simulated encounter. Specifically, we identified and quantitatively compared the management options and risks that obstetricians and neonatologists discussed when counseling patients facing periviable delivery and qualitatively compared the thematic content of the discussions.

## Methods

### Study Design

With approval from the Indiana University Institutional Review Board, we conducted an exploratory single-center simulation study. The parent study sought to identify the effect of patient race and insurance status on the quality of periviable counseling and involved obstetricians and neonatologists each evaluating and counseling two cases differing only in race and insurance status. For the purpose of the current study, we analyzed one case (the first encounter) per physician subject.

### Case

The case, developed by a multi-disciplinary team of physicians, including neonatology, maternal-fetal medicine, and palliative care specialists, depicted a 31 year-old woman presenting with preterm premature rupture of membranes (PPROM), not yet laboring, at 23 weeks gestational age. The clinical components of the simulation were further refined in a series of pre-tests with 3 physician volunteers. We trained standardized patients (SPs) to play the patient role based on detailed profiles. Consistent with previous simulation work,<sup>11</sup> the actresses received more than 10 hours of training and feedback to ensure standardization.

### Study Population

We recruited faculty and fellows from the Indiana University School of Medicine Department of Obstetrics and Gynecology (OB/GYN) divisions of General Obstetrics and

Gynecology and Maternal-Fetal Medicine (MFM) and from the division of Neonatology at Riley Hospital for Children through in-person presentations at faculty meetings; e-mails to Departmental distribution lists; and calls or visits to physicians' offices. Those ineligible included OB/GYN's no longer practicing obstetrics and obstetricians and neonatologists who participated in case development or pilot testing. As an academic medical center, periviable complications are typically diagnosed and initially managed by OB/GYN residents supervised by generalist attending physicians. MFM fellows and/or faculty, as well as, neonatology are then consulted. Neonatal consultation is initially conducted by neonatology fellows or clinical nurse-specialists supervised by attending neonatologists.

In qualitative studies, thematic saturation is customarily reached with 10–15 participants in relatively homogeneous populations.<sup>12</sup> Therefore, our target for recruitment was 16 OB/GYNs and 16 Neonatologists among 37 eligible obstetricians and 45 eligible neonatologists. Study participation took 2 hours and included: completion of simulation encounters; completion of a self-administered demographics survey; and a debriefing interview. Study participants received \$100 as compensation.

### Coding

We directly observed and video-recorded each SP encounter, then transcribed the audio portions of the recordings verbatim. We conducted our analysis in two parts. First, we performed an initial content analysis using a modified version of the checklist developed by Braddock et al. for analyzing informed, shared decision-making.<sup>13</sup> This checklist assessed counseling content such as whether diagnosis, prognosis, selected management options (e.g. resuscitation, comfort care, steroids, mode of delivery based on prior research<sup>14</sup>), and their attendant risks/benefits. Scoring was based on whether the counseling content was absent (0-points), mentioned (1-point), or explained (2-points). Two investigators (BTE, FM) independently scored the encounters using the checklist and resolved all discrepancies by consensus. Second, we qualitatively analyzed transcripts of the encounters using a modified grounded theory approach.<sup>15</sup> We created an initial codebook of 'organizing principles' that providers suggested patients consider when making periviable management decisions. We then reviewed the transcripts and amended the codebook in an iterative fashion to reflect new observations as additional themes emerged. After finalizing the codebook, two trained reviewers (FM, JP) independently coded all transcripts to ensure reliability of the coding scheme. We resolved coding discrepancies between reviewers by consensus. We used NVivo 10, a qualitative software program designed to facilitate thematic content analysis, to provide summative reports of coding frequencies in terms of 'sources,' or number of transcripts in which the code was identified, and 'references' or number of occasions that the code was identified. We report the most frequent themes that emerged from the analysis.

### Statistical Analysis

We conducted univariate analyses to describe our study population; then performed Chi square tests to test the association between physician specialty and the presence or absence of categories of counseling content. We conducted all analyses using SPSS version 21.0.

## Results

Subjects included 16/37 (43%) eligible obstetricians and 15/45 (33%) eligible neonatologists. We summarize participant characteristics in Table I.

### Counseling content: presentation of treatment options and risks

We present the content of the periviability counseling sessions and compare the presence or absence of discussion of diagnosis, prognosis, and management options by specialty in Table II.

There were no differences in discussion of steroid administration, risks to baby, or cesarean section by specialty. Obstetricians more frequently discussed antibiotics ( $p=0.005$ ), maternal risks ( $<.001$ ), and, with regards to cesarean, the need for, and risks associated with, a classical cesarean section ( $<.005$ ). Neonatologists were more likely to discuss short term complications for the baby ( $p=.044$ ), resuscitation ( $p=.015$ ), and palliative management options ( $p=.023$ ).

When posed with questions from the SP, obstetricians and neonatologists frequently deferred management conversations to the other specialty. For example, both obstetricians and neonatologists deferred questions about steroid administration to the other specialty; neither taking ‘ownership’ of this particular management option.

In one transcript, a neonatologist counseled the SP: *I think the obstetrician needs to talk to you about [steroids] . . . I don't want to tell you what the obstetrician is going to do because once again I say one thing and they say something else then you are in the middle and will be really confused. [NEO-8]*

In another encounter an obstetrician counseled the SP: *Again, [regarding steroids] because I'm not the primary provider for the baby, I always consult with the intensive care unit neonatologists who are experts at caring for babies at this gestational age. [OB-2]*

### Decision-Making Themes

Nearly all counseling discussions ( $>90\%$  of ‘sources,’ or transcripts) addressed Medical Information; Survival; Quality of Life; Time and Support and this did not differ by specialty. Half of counseling discussions addressed Values, Comfort or Suffering, and Uncertainty, principally those discussions led by neonatologists. We present the coding frequencies for each theme, in aggregate and by specialty, in Table III.

**Medical Information, Survival, and Quality of Life**—Medical information and Survival were the most frequent themes that emerged—referred to in 100% of encounters a total of 344 and 284 times, respectively. Medical Information included talk about a range of topics, such as: diagnosis; prematurity; management options; risks and benefits; neonatal interventions; and intensive care hospitalization. Discussions of Medical Information often included extremely detailed descriptions of treatment interventions, resuscitation procedures, or neonatal intensive care experiences. For example,

There's a substance called surfactant. It's not, it makes our lungs open so that when we let our breath out, our lungs don't collapse. Well, when the surfactant is not there, it collapses and it is harder to- to make it open again, to- to- to keep it open. So, we give it through this, through the tube that we are going to be putting in the wind pipe and then, since lungs are not mature, the machine is going to be doing the work for the next few weeks, at least few weeks. And, no matter what you do, no matter how gentle you are, it's gonna cause lung damage. The oxygen itself causes some damage, the machines cause some damage. Um, uh, and then, of course, feeding them is a problem. . . . [N-10]

Though related to Medical Information, we coded Survival and Quality of Life (QOL) discussions separately to allow for a direct assessment of the emphasis placed on each during the course of counseling. Survival (284 references) was applied to any prognosis talk related to neonatal survival or death. QOL was identified in 28 transcripts (90%), and referred to a total of 139 times. The code applied to any explicit usage of QOL language, as well as other talk of disability, impairment, or long term functional status.

Survival talk ranged from more general—at times, vague—verbal descriptions of risk such as, “*When someone is 23 weeks, the survival rate is kind of low [O-15]*, to specific percentage point estimates of mortality and morbidity such as, “*You know, the survival is only about 22%...*” [N-13]. Notably, providers' estimates varied from ‘no survival’ to 50% survival among both obstetricians and neonatologists. QOL talk mostly focused on the possibility of long-term disability. Some physicians gave more clinical descriptions of impairment:

So, most babies born at this age, if they do survive, will have some form of what we consider a developmental delay and what I mean . . . is that the baby, some of those children end up having problems with blindness or deafness, motor problems like cerebral palsy or movement problems where they can't walk well, thinking problems, even mental retardation, and then sort of more mild spectrum things, developmental delays and . . . their ability to sort of interact with their environment and be part of it and have a good quality of life . . . [N-15]

Other physicians gave more lay descriptions of impairment:

Because everybody wants a smart kindergartener who is running and athletic. Everybody does. I don't know anybody that doesn't. How much of that child....that dream, are you willing to forego so that you can have a child that survives? [N-5]

Some ‘Quality of Life’ talk focused on the mom's and/or family's QOL.

If that was to happen, how do you think you would handle it? Do you think you would manage? . . . It's kind of like what are the goals in your life, as well as what you can take . . . [O-15]

**Time**—Time was a theme that almost all physicians discussed (29 transcripts, 285 references), but they did so in three distinct ways: 1) Time to make an informed decision: “*You have time to think about what you want to do. There's no rash decision, especially when someone is stable, and to talk to your family and make an informed decision, [O-15];*

2) the importance of time in neonatal prognosis: *I will tell you that every day counts. Maybe make it tomorrow or the next day, every day counts for maturing the baby. [N-2]; and 3) 'Time with the baby' as a consideration regarding comfort care: Maybe with these numbers, the best thing is to make whatever time we have with [her] be comfortable and be a time when you guys can spend time together. [N-1]*

**Support for Decision-Making**—Finally, almost all physicians (29 transcripts) indicated that Support was critical to the decision-making process. Support tended to be discussed in terms of family and friends, but patients were also referred to hospital social workers, clergy and nurses as sources of support:

When I'm finished talking to you, you can talk to [your fiancé]. If he has questions, I can come back and talk to him. But, it's eventually a decision that the 2 of you can come up with together about exactly what you want us to do for that initial stabilization. [N-12]

**Values, Comfort/Suffering, Uncertainty**—Roughly half of all encounters included discussions of patient/family Values (n=7), Comfort/Suffering (n=5), and Uncertainty (n=6). References to these themes were more frequent among neonatologists as compared to obstetricians (see Table III). In fact, neonatologists made nearly twice as many references to Values, Comfort/Suffering, and Uncertainty as their obstetrics colleagues.

Most neonatologists explicitly acknowledged that resuscitation decisions depended largely on what parents and families valued. Recurring themes included the concepts that it's a '*personal decision*' for which there's '*no right answer*' but rather, it '*depends on your values*' and that '*loving parents*' might choose resuscitation or comfort care based on what '*feels right*' for them. One neonatologist explained,

Other people will maybe have opinions, but it's not up to others to decide this . . . I think whatever you decide out of your love . . . is the right decision [N-11]

Comfort and suffering were typically discussed in the context of 'comfort care' discussions. Neonatologists frequently spoke in terms of holding the baby and keeping the baby warm and comfortable. More often, physicians spoke in terms of providing comfort rather than avoiding pain or suffering, but some, like in the following example, made reference to both:

[I]f you don't want your baby to face possible suffering, it is very reasonable to say we will keep her comfortable and with you, and we won't support her, and she will then die . . . We would keep her comfortable and close to you, and you can certainly see her and hold her. [N-11]

Finally, providers acknowledged Uncertainty, both in terms of the uncertainty of the antepartum course and timing of labor, as well as uncertainty about the neonatal outcomes and the potential spectrum of impairment. In trying to relay these prognostication challenges, physicians often evoked the imagery of a 'crystal ball':

None of us have a crystal ball. I always say I let you and baby pick the birthday just simply because we don't know when labor is going to start . . . [O-12]

[T]he outcome is so uncertain. . . . You don't have a crystal ball to say which baby is going to do this and which baby is gonna do that. [N-10]

## Discussion

We set out to describe and compare the content of periviable counseling encounters conducted by obstetricians and neonatologists in simulated patient encounters. In doing so, we found that obstetricians and neonatologists provided complementary counseling content to patients, but in some cases, neither specialty took ownership of some treatment options, for example, steroid administration. We also identified an 'organizing framework' that both obstetricians and neonatologists used, which consisted of: Medical information; Survival; Quality of Life; Time; and Support. In comparing the content of obstetricians' and neonatologists' counseling sessions, we also identified a set of additional principles—Values, Comfort/Suffering, and Uncertainty—which were primarily introduced by neonatologists.

Boss and colleagues conducted one prior simulation-based study of 10 neonatologists counseling standardized patients laboring at 23 weeks.<sup>16</sup> They identified similar themes in their qualitative analysis noting that neonatologists emphasized: Medical Information, Parents' Goals and Values, Decision-making, and Empathy and Relationship Building in their interactions with SPs. Our work builds upon theirs by incorporating obstetricians in order to compare and contrast their counseling style with their neonatology colleagues. We found that obstetricians' and neonatologists' approaches were topically and thematically complementary and emphasized Medical Information, Survival, and Quality of Life while also highlighting time pressures and the need for social support. Neonatal resuscitation decisions were more often discussed by neonatologists, and in that setting, neonatologists additionally introduced content related to Values, Comfort/Suffering, and Uncertainty. These are particularly important concerns to have addressed in light of previous work which found that parents tended to value religion, spirituality and hope in their decision-making and place relatively little weight on prognostic information regarding morbidity and mortality.<sup>17, 18, 19, 20</sup>

Our study has limitations that must be considered in interpreting our findings. As a qualitative study performed at a single center with a relatively small number of study participants, our findings are not generalizable to other institutions or care settings. Moreover, physicians willing to participate in this type of study may differ from other physicians in important ways that may limit their representativeness. Qualitative methods are not intended to generate generalizable knowledge, but rather, to create new knowledge in content areas where little is known, and to generate hypotheses to inform future research. The simulated nature of the study also introduces the possibility of Hawthorne effects and social desirability biases. If these types of biases were operating, one might expect physicians to act more in line with what they believe to be 'ideal' communications behaviors, falsely 'elevating' the caliber of communication. Finally, while some question the verisimilitude of simulation, previous work has shown that it can realistically recreate the clinical and emotional context of actual counseling encounters.<sup>16</sup> This was confirmed in our



debriefing interviews with study participants, where all but two found the clinical case and SP performance to be very familiar and realistic.<sup>21</sup>

Obstetricians and neonatologists provide complementary counseling content to patients. We observed overlap in the topics covered, yet, we also noted important areas in which they supplemented one another's expertise. Interestingly, we also observed a mutual reluctance to take 'ownership' on the topic of steroid administration, perhaps because of the sentiment that has been expressed that neonatologists 'make the rules' even though obstetricians 'write the orders'.<sup>14</sup> Institutional differences in antenatal steroid administration may reflect variation in the quality of communication that occurs between obstetricians and neonatologists in and across their respective institutions. Notably, when physicians deferred to another specialty, patients' questions/concerns went unanswered or unattended during the entire encounter. From a patient's perspective, these types of deferrals may relay a sense of disjointedness or disconnectedness, rather than a 'team' approach to care. Moreover, failing to attend to these concerns may impede patients' decision-making. Joint counseling efforts and/or family meeting models could capitalize on the complementarity of multispecialty counseling while minimizing redundancy and inconsistencies that we observed. Joint counseling might also ensure that counseling occurs in adequate depth and breadth to facilitate informed decision-making in periviable care. Such interventions warrant further study.

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**Table I**

## Study Population (N=31)

	<b>N</b>	<b>Percentage</b>
Age	30–69 (range)	44.0 (mean)
Years in Practice	1.5–40 (range)	12.2 (mean)
Specialty		
OB/Gyn Generalist	12	38.7
Maternal Fetal Medicine (MFM)	2	6.5
MFM Fellow	2	6.5
Neonatologist	9	29.0
Neonatology Fellow	6	19.3
Race/Ethnicity		
White	22	71.0
Black	5	16.1
Asian	3	9.7
Biracial or Multiracial	1	3.2
Sex		
Male	9	29.0
Female	22	71.0
Marital Status		
Single, never married	2	6.4
Married or partnered	26	83.9
Divorced or separated	3	9.7
Parenting		
Yes	24	77.4
No	7	22.6
Religious Affiliation		
Catholic or Protestant	19	61.3
Jewish	1	3.2
Hindu, Buddhist, Muslim	4	12.9
Other	3	9.7
None	4	12.9
Ever Sued		
Yes	14	45.2
No	16	51.6
Missing	1	3.2

Table II

## Counseling Content Compared by Specialty

N=31 (16 OB; 15 Neo)	OB N(%)	Neo N (%)	p
<b>Diagnosis</b>			
Explained	15 (93.8)	10 (66.7)	.056
Mentioned	1 (6.3)	5 (33.3)	
Absent	0 (0)	0 (0)	
<b>Risk to Baby</b>			
Explained	14 (87.5)	13 (86.7)	.135
Mentioned	0 (0)	2 (13.3)	
Absent	2 (12.5)	0 (0)	
<b>Risk to Mom</b>			
Explained	13 (81.3)	1 (6.7)	<.001
Mentioned	1 (6.3)	3 (20.0)	
Absent	2 (12.5)	11 (73.3)	
<b>Survival</b>			
Explained	11 (68.8)	15 (100)	.061
Mentioned	3 (18.8)	0 (0)	
Absent	2 (12.5)	0 (0)	
<b>Short-term Complications</b>			
Explained	6 (37.5)	11 (73.3)	.044
Mentioned	1 (6.3)	2 (13.3)	
Absent	9 (56.3)	2 (13.3)	
<b>Disability</b>			
Explained	7 (43.8)	10 (66.7)	.300
Mentioned	5 (31.3)	4 (26.7)	
Absent	4 (25.0)	1 (6.7)	
<b>Quality of Life</b>			
Explained	0 (0)	1 (6.7)	.188
Mentioned	2 (12.5)	5 (33.3)	
Absent	14 (87.5)	9 (60.0)	
<b>Classical Cesarean</b>			
Explained	9 (56.3)	1 (6.7)	.005
Mentioned	1 (6.3)	0(0)	
Absent	6 (37.5)	14 (93.3)	
<b>Patient's Values &amp; Goals</b>			
Explained	1 (6.3)	1 (7.1)	.432
Mentioned	4 (25.0)	7 (46.7)	

<b>N=31 (16 OB; 15 Neo)</b>	<b>OB N(%)</b>	<b>Neo N (%)</b>	<b>p</b>
Absent	11 (68.8)	7 (46.7)	
Antibiotics			.005
Explained	10 (62.5)	1 (6.7)	
Mentioned	1 (6.3)	2 (13.3)	
Absent	5 (31.3)	12 (80.0)	
Steroids			.294
Explained	16 (100)	14 (93.3)	
Mentioned	0 (0)	0 (0)	
Absent	0 (0)	1 (6.7)	
Cesarean Delivery			.574
Explained	4 (80.0)	0 (0)	
Mentioned	0 (0)	0 (0)	
Absent	1 (20.0)	1 (1)	
Neonatal Resuscitation			.024
Explained	6 (37.5)	12 (80.0)	
Mentioned	5 (31.3)	3 (20.0)	
Absent	5 (31.3)	0 (0)	
Palliation/Comfort Care			.036
Explained	6 (37.5)	12 (80.0)	
Mentioned	3 (18.8)	2 (13.3)	
Absent	7 (43.8)	1 (6.7)	

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**Table III**

Thematic Content: Coding Frequencies by Specialty

Theme	Total		OB (N=16)		Neo (N=15)	
	Sources	References	Sources	References	Sources	References
Medical Information	31	344	16	187	15	157
Survival	31	284	16	127	15	157
Quality of Life	28	139	13	53	15	86
Time	29	285	15	155	14	130
Support	29	203	16	117	13	86
Values	18	89	7	29	11	60
Comfort/Suffering	15	43	5	10	10	33
Uncertainty	14	44	6	12	8	32