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Research Article

Learning the Skill of Antenatal Consultation at the Threshold of Viability: *A Framework for Trainees*

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Abstract

Background: An objective of Neonatal-Perinatal Medicine (NPM) training is learning skills for antenatal consultation at the threshold of viability (<26 weeks' gestation) (ACTV). However, there is no suggested educational curriculum.

Objectives: To evaluate: 1) antenatal consultation at the threshold of viability (ACTV) training in Canada; 2) parental needs and expectations, and physician considerations for ACTV.

Study Design: Mixed methods study. Qualitative methods informed by grounded theory traditions. Data collection included: a survey of Canadian Neonatal-Perinatal Medicine (NPM) Program Directors; a questionnaire for physicians in the Neonatal Intensive Care Unit (NICU) at British Columbia Women's Hospital; and transcripts of focus groups (NICU physicians and parents of extremely premature babies).

Results: Training in ACTV is insufficient, focusing on medical information rather than communication. One-third of Canadian NPM programs have formal training, employing: role modeling, direct observation and supervisor feedback. ACTV may be urgent (Labour and Delivery Room); semi-urgent (Antepartum Wards); or non-urgent (Outpatient); each with different goals. Consultations consisting of preparation, interaction and decision-making phases are best provided in two or more sessions, tailored to parents' self-identified needs. The discussion respects parents' religious and cultural background, appreciates their emotional turmoil and provides them with support.

Conclusion: ACTV training, particularly in communication skills, is inadequate across Canada. This proposed framework could serve as a basis for building an educational curriculum for ACTV.

ABBREVIATIONS

AC: Antenatal Consultation; ACTV: Antenatal Consultation at the Threshold of Viability; F: Neonatology Subspecialty Residents or Clinical Fellows; H: Hospitalists; N: Neonatologists; NICU: Neonatal Intensive Care Unit; NPM: Neonatal-Perinatal Medicine; P: Parents; WH: British Columbia Women's Hospital.

INTRODUCTION

In an antenatal consultation (AC), when meeting parents in a setting of possible preterm delivery at the threshold of viability (<26 weeks' gestation), there are many considerations: ethical [1], recommendations from national societies [2-4], local [5] and published outcome data [6-8]. There are no evidence-based guidelines for performing AC. AC goes beyond providing information; it explores values and beliefs, including decisions about level of care: intensive or palliative [9].

Although AC is an objective of training for Canadian trainees in Neonatal-Perinatal Medicine (NPM) [10], Boss identified a perceived inadequacy of Fellows' training and preparation for communicating with families around decision-making [11]. Communication skills are essential components of AC [12], and communication skills' workshops have been proposed for NPM [13]. Simulation has been proposed as a teaching tool for AC skills, whereby the information and interaction can be observed

and assessed [14], but to the best of our knowledge there is no literature about the actual AC process, nor how best to teach this skill.

The aim of this study was to assess the nature of training for antenatal consultation at the threshold of viability (ACTV) in Canadian NPM training programs and to examine the approach to ACTV.

METHODS

Research Inquiry

This study used a mixed methods design [15]. Qualitative methods were informed by grounded theory traditions. Our understanding of the ACTV process was developed inductively through an iterative process [16]. Data collection and analysis, although explained separately, were undertaken simultaneously. Data analysis informed subsequent methodological refinements and validation of focus group data.

Setting and Participants

This study took place in the Neonatal Intensive Care Unit (NICU) at British Columbia Women's Hospital (WH) in Vancouver, Canada, between September 2008 and August 2009. The Institutional Review Board approved the study.

Random sampling of a purposive sample was used to choose participants that were the most capable of providing in-depth information about the studied phenomenon by limiting selection bias [17]. The populations of interest were parents who had received AC due to preterm labour at the threshold of viability and physicians working in the NICU, who had performed ACTV: attending Neonatologists (N), Neonatology Subspecialty Residents or Clinical Fellows (F), and Pediatric Hospitalists (H). Involving participants from various stakeholders in ACTV allowed for data triangulation, aiding in establishing validity of study results [18].

All NICU physicians, except for study investigators, were eligible to participate in the study. English-speaking parents (P) were eligible to participate in the study if their baby/babies were clinically stable.

Data Collection

1) A semi-qualitative survey consisting of four open-ended questions about ACTV training was sent to all thirteen Canadian NPM Program Directors.

2) A quantitative questionnaire was sent to all physicians working and training in the NICU, which contained demographic questions about participants, and both multiple choice and open-ended questions addressing the participant's experience and training in the field of AC.

3) Focus groups consisted of 60-90 minute group discussions with 4-9 participants, based on open-ended questions about ACTV and the teaching of this competency [19]. The questions employed were refined through the course of the study based on ongoing data analysis. Focus groups were moderated by one of the investigators (AM) and took place in the NICU Conference Room. A second researcher (SA) was scribe for significant issues identified during the focus groups. Discussions were audiotaped and transcribed for analysis.

Focus groups were held separately for each group of individuals involved in AC (N, F, H, P) continuing until saturation of data was achieved [16]. Demographic data was collected by a written introductory questionnaire.

Data Analysis

Data from the semi-qualitative survey described current ACTV training in Canadian NPM programs. Analysis of data from the quantitative questionnaire identified the current state of ACTV training in a large Canadian tertiary care NICU. The ACTV framework was developed using data from the questionnaires and the focus groups.

Quantitative data from the physicians' questionnaire and the Program Directors' survey was analyzed using descriptive statistical analysis consisting of averages and response frequency.

Audiotapes, transcripts and field notes from focus groups were reviewed and coded independently by authors. Coding of researchers was compared and discordance resolved through discussion until consensus was achieved. Data were analyzed using constant comparative analysis for generation of themes and modeling [16]. Each focus group was analyzed individually. Focus groups of parents and physicians were analyzed and compared within their own groups (P1 vs. P2 vs. P3 and N vs. H vs. F), and compared with each other (parents vs. physicians). Further analysis and interpretation led to higher levels of abstraction and to the final theory presented. Member-checking was undertaken with physicians who had participated in the focus groups to ensure comprehension of their view of the phenomenon.

RESULTS

Participants

The semi-qualitative survey was sent to the 13 Canadian NPM program directors of which 12 completed the questionnaire with a response rate of 92%.

The quantitative questionnaire was sent to 10 N, 13H and 5 F. Seven (70%) N, 13 (100%) H and 5 (100%) F responded.

Excluding the study investigators, 10N, 4F, 13H and 18 parents were eligible to participate in the focus groups. Eight (80%) N, 4 (100%) F, 6 (46%) H and 10 (56%) parents consented to the focus groups. Six parents and 8 physicians consented to the study but could not attend the focus groups. Of those who did not consent, two parents refused to participate for personal reasons. Demographics of participants are presented in Table 1 (parents) and Table 2 (physicians).

ACTV Training

In Canada, training formally occurred in 33% of NPM programs. Table 3 presents the proportion of NPM programs that use various learning opportunities and the assessment tools employed. Table 4 presents AC training at WH.

Table 1: Parents' Focus Group Demographic Data.

Parents	Age (years)	Gender (M: male; F: female)	Gestational age at consultation (weeks)	Gestational age at delivery (weeks)	Consulting medical professional	Timing from consultation to delivery
1	30-40	F	25	26	Someone from NICU	10 hours
2	20-30	F	25	26	Don't remember	10 hours
3	20-30	F	25	26	Neonatologist	Unknown
4	20-30	M	25	26	Neonatologist	Unknown
5	30-40	F	25	28	NICU fellow	2.5 weeks
6	30-40	F	24	24	Don't remember	Few days
7	20-30	F	23	23	Neonatologist and NICU resident	24 hours
8	20-30	F	22	24	NICU resident	1 week
9	30-40	M	23	23	Neonatologist	1-2 hours
10	30-40	F	23	23	Neonatologist	Immediately before delivery

Table 2: Physicians' Focus Group Demographic Data.

Physicians	Female: Male Ratio	Mean years experience in the NICU
Neonatologists n = 8	2:6	17.25
Subspecialty Residents or Fellows n = 4	2:2	1.63
Pediatric Hospitalists n = 6	6:0	5

Table 3: Learning opportunities and assessment tools for antenatal consultations at threshold of viability in Canadian NPM training programs (n=12).

Learning opportunity	% programs using the strategy
Medical expertise lecture on premature birth at the threshold of viability	33
Communication & process workshop	17
Role playing – communication skills	25
Role modeling	58
Medical "see one, do one, teach one"	17
Direct observation	58
Feedback	50
Joint consultation with teacher and learner	25
Individual literature review on the case	17
Antenatal consultation rotation	17
Ethics workshop	8
Study of written materiel	17
Discussion with supervisor	58
Assessment tool	
Direct observation	58
Written exam	8
Written consultation	17
Structured oral exam (SOE)	17
Oral structured clinical exam (OSCE)	33
In-training evaluation report (ITER)	25

ACTV FOCUS GROUPS

General ACTV Process: three phases

Participants of the focus groups described three phases to an antenatal consultation:

Preparation phase: parent(s) are notified by the Obstetrics team of the request for a Neonatology consultation:

"I was kind of prepared because when they admitted me upstairs, the nurses told me…that the neonatologist should be coming to talk to me about…things that could potentially happen so that I am prepared." (P 8)

Time permitting, an appointment is arranged at a mutually acceptable time for parent(s) and support person(s). A parent describes the importance of the presence of her husband during

Table 4: ACTV training.

	Neonatologists n = 7	Subspecialty residents or clinical fellows n = 5	Pediatric Hospitalists n = 13
n (%) physicians trained about: Medical information (CanMEDS Medical Expert role)	5 (70)	4 (80)	11 (85)
Process and communication skills (CanMEDS Communicator role)	5 (70)	3 (60)	6 (43)
n (%) physicians that identified training as helpful			
Medical information training	6 (86)	4 (80)	11 (85)
Process and communication skills training	5 (70)	3 (60)	8 (62)
n (%) physicians that are comfortable in performing ACTV	7 (100)	4 (80)	7 (54)

the consultation:

"...you don't really comprehend. You don't really take it all in. I know at the time when I had my consultation I was by myself because at that point my husband had already gone home, it was late in the evening...And I think that's one thing that might have been more helpful, is that both of us had been there. I remember trying to remember which questions I should ask, but it's not really sinking in because you are in this zone of...I don't know. I can't really describe it. It's this zone of confusion." (P 6)

Interaction phase: core phase of the interview process that incorporates three main goals: building a relationship between physician and parents; assessing the parents' understanding of the situation; and delivering accurate information in an appropriate manner. Based on the flow of the interview, these goals are reached in a different order and transition from one to the other proceeds in a circular fashion (Figure 1).

"...the main goal of the consult usually is providing information for the parents and so trying to gauge your consult based on what the reactions are from the parents..." (H 6)

"I'll go in and try to get a sense of where the parents are and what they know just as a starter..." (H 2)

"You are able to feel the sense or the perception that you have worked as a team...that first point of contact...during that very stressful time. It's a good consult if you made an impression; you were able to...guide them through that intensely difficult and scary time." (N 1)

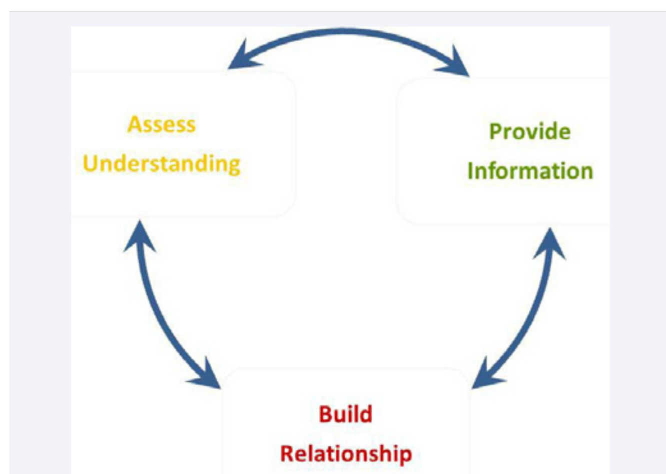

Figure 1 Circular events of the interaction phase.

The consultation might end in a **Decision-making phase** where parents make a decision about level of care. Though this phase is usually not part of the first meeting, in general parents and physicians work towards a decision about intensive or palliative care:

"I understood that he was coming to talk to me, made sure I understand and also to find out...he wanted very much a decision on whether we were going to choose to resuscitate or not." (P 8)

Parents and physicians, as exemplified in the following quote, identified the importance of ACTV being a cyclic process that should be repeated at least twice, if possible. This allows an initial contact with the mother where urgent questions are addressed. Subsequent meetings, preferably including the partner/support person, review and elaborate information, and promote development of the physician-parent relationship:

"They admitted me to the ward and the consultation happened that night. It was all sort of fresh...I think ..., a second consultation ... where someone had come back ..., when my husband was there. As well to ask if there {were} any other questions. That would have been probably a good time 'cause then we would have processed the whole idea that this baby might come early." (P 5)

Three types of ACTV with different priorities

Participants described three different settings in which ACTV is performed:

Urgent consultation: for delivery within hours, AC often takes place in the delivery room. The priority during the interaction phase, as described by one of the Subspecialty Residents or Clinical Fellows in the following quote, is to establish a relationship between the future parent(s) and the Neonatology team;

"I think the most positive thing is meeting the parents before and having a relationship with them and then after when you meet them in the unit it's much easier to talk to them and approach them." (F 3)

Parents all wish to hear survival rates and some want to hear about neurodevelopmental outcomes, if time permits. Mothers felt that this period "*became gray*" (Parent 4), and another parent said:

"Well, all I was looking at was you know her chances of survival, everything else was, it didn't matter at that point....For me I don't

think it would have made a difference to be honest. It was too fast. I was in labor. I was in too much pain. I was feverish, I wanted an epidural. So I couldn't think." (P10)

Semi-urgent consultation: Relates to mothers in threatened preterm labor that could deliver within a couple of days. The AC usually takes place on the antepartum ward. Although there is time to explore all aspects of the interaction phase, the priority is to assess the parents' understanding of the situation. With multiple meetings, it is possible to share information in manageable amounts and ensure understanding of the issues discussed, as each couple incorporates the change in pregnancy status.

"…the one where you can go and get a feel for it {the consultation}, who their family is, where they are at in the current situation and what they are thinking about. Then come back a later time and do a follow-up." (H 1)

Non-urgent consultation: For a mother at higher than normal risk of delivering prematurely, not in preterm labor; usually an outpatient AC. Information is what the parent(s) seek and is the priority in the interaction phase. Information helps to prepare parents for a potentially highly stressful situation;

"More information earlier…yeah maybe when we were here for that surgery {cerclage}…this information is probably the most important for people like us 'cause we were so early…and it was so urgent…for people who are at risk of giving birth really early, they are the ones who need to know this information earlier…" (P 10)

Building the physician-parent relationship

When the physician meets with parents, the emphasis is on building a relationship. As personalities and values from both parties may differ, building a relationship may not be simple.

"*…I think art is how you approach the family … how you provide that first point of contact in a relationship that could span months and …the best consult for me is the one where…you are able to form a bond with the family…*" (N 1)

As Neonatologists and parents meet, information is exchanged. The physician provides factual information, as well as the attendant degree of uncertainty, and the parents share their understanding, values, beliefs, and general world-views.

Emotional turmoil: It is an emotional time for parents, and potentially for physicians. These emotions are different for the physician and the parents (Figure 2). Future parents experience: "*shock*" (P 3); "*surprise*" (P 4); are "*confused, guilty, exhausted and hormonal*" (P 2), "*feeling sick*" (P 10); "*scared*" (P 8) and "*out of control*" (P 9). To face these highly intense emotions, parents coped by focusing on the present situation and concentrating on living one day at a time;

"*…it was pretty awful information about all these things that could go wrong…so you freeze in time and just kind of live in the moment because if you think about all the things that can go wrong…it's a little bit overwhelming."* (P 9)

In response to the emotional turmoil, parents and physicians suggested that Neonatal physicians should offer support and reassurance;

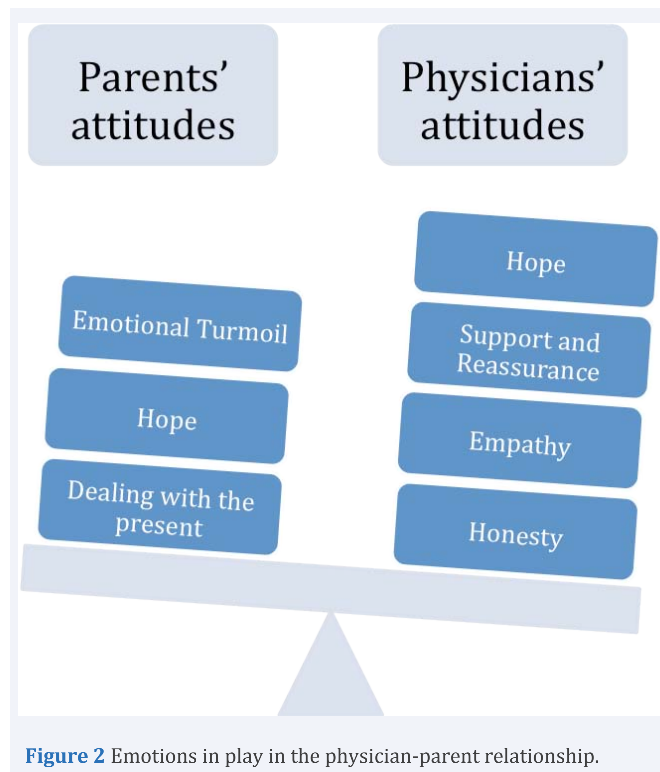

Figure 2 Emotions in play in the physician-parent relationship.

"*…I tell them that (they've) done everything that {they} could … they already feel terribly guilty…"* (H 1)

empathy; *"That's why empathy to me is {the} key. To me doing the antenatal consult, it's not only about reviewing facts and providing information. The main message...that you want the family to know when they leave the room is that you care."* (N 8)

honesty; "*Oh yeah I said don't sugar coat it because you are talking about the rest of our life, the rest of his life...You want to be told that's how it's going to be because chances are it's going to be that bad..."* (P 9)

and hope; "*And even if you are told the worst case scenario, you still find the happy part in it and believe that..."* (P 8)

Hope is a form of reassurance to live through an imminent preterm labor when there is no time to comprehend what is going on. Hope is the impetus for choosing intensive care, particularly if a choice for palliative care might be associated with feelings of guilt. Physicians would like to provide hope to parents but they are worried about providing biased or incorrect information. When possible, they try to provide 'rational' hope based on outcome data or the possibility of delaying preterm labor.

Information delivery

Based on their experience, social situation, education, cultural and religious background, the information provided, how and when it is delivered must be tailored to each parent's needs:

"You kind of have to almost try to read the Mom and Dad because every family is going to be different in that type of situation." (P 5)

Providing all available information is overwhelming and parents may not remember it;

"...we are all trained to be complete, detailed and correct, and... the inexperienced person...makes the mistake of trying to convey too much information...I always tell the trainee: What are your objectives and what are the 3 most important things you would... like to give to this family?...and then of course you may go into more information depending on the feedback you get from the couple you are talking to..." (N 2)

The antenatal consultation at the threshold of viability framework

Results highlight the steps in the AC process that research participants thought physicians should follow, as well as important aspects of operationalizing an ACTV. A general process for AC was described, with three types of ACTV, each requiring a modification of the consultation process to respond to different patient priorities. Two important aspects central to the consultation were identified: building the physician-parent relationship and how the physician delivers information to parents.

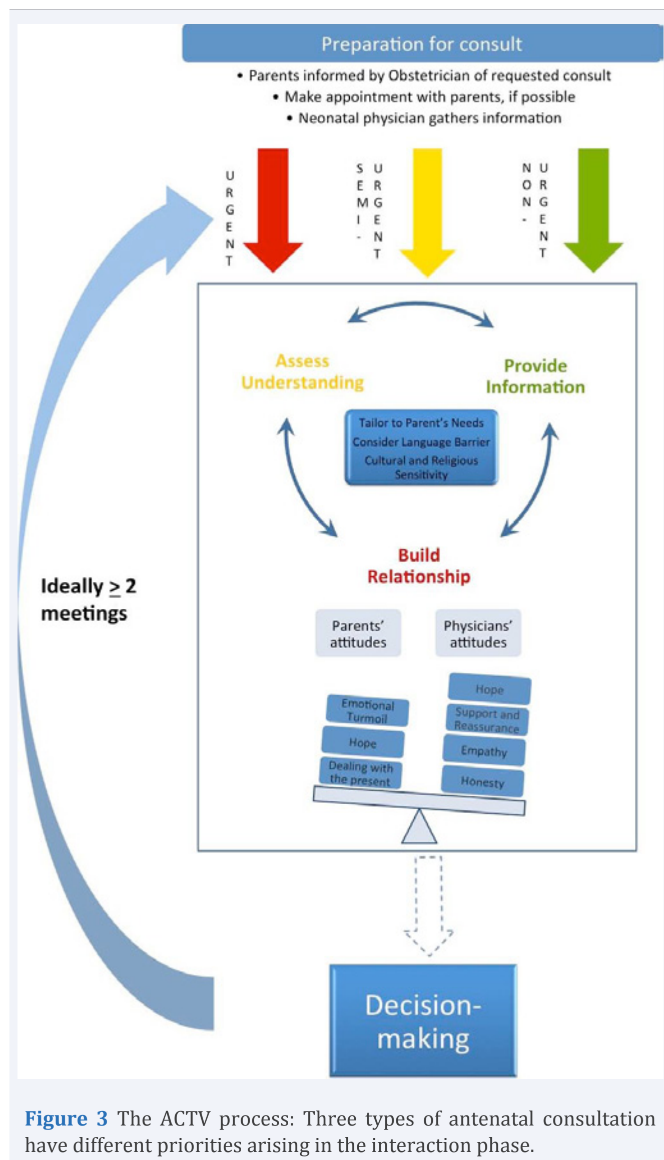

Figure 3 The ACTV process: Three types of antenatal consultation have different priorities arising in the interaction phase.

From inductive analysis of these findings and modeling of the emerging themes described above, a model portraying the understanding of how an ACTV unfolds was developed (Figure 3). This model depicts the relationship between the different elements in a framework, which could be utilized in developing ACTV training.

DISCUSSION

Structured ACTV training is available in only 33% of Canadian NPM Programs and is based on medical knowledge and less on communication skills. The strong emphasis on medical knowledge during NPM training, as well as the amount of literature published on survival and long-term outcome explains findings from Boss and from Payot suggesting that neonatologists tend to concentrate their discussions around medical information [14,20]. However, this information is not central to parental decision-making [9].

The results of this study highlight the steps in the AC process that research participants thought physicians should follow, as well as important aspects of operationalizing an ACTV. A general process for AC was defined, with three types of ACTV, urgent, semi-urgent and non-urgent, each requiring a modification of the consultation process to respond to different patient priorities. Two important aspects central to the consultation were identified: building the physician-parent relationship and how the physician delivers information to parents.

The over-arching goal of an ACTV is an individualized consult. After introducing oneself, the priority in any consultation is to ask parents what they understand of the situation and what they would like to know. We have demonstrated that parents need to establish a trusting relationship with the physician in order to manage the emotional stress embodied in this complex situation and to help parents achieve shared goals. Payot [20] described how tailoring the information to the parents' needs can help parents in decision-making and modifies the directive decision-making process into a shared experience between parents and the physician.

This study is the first to take into account needs and expectations of both parents and physicians to develop a model for ACTV that can be used as a framework for trainees and for teachers. Although this framework does not portray all the possible facets of such a complex medical encounter, it can be compared to the Calgary-Cambridge guide for teaching and learning communication skills in medicine [21]. We identified three phases of an AC similar to their consultation phases. The Calgary-Cambridge guide identifies the importance of understanding the patient's perspective; using empathy and providing support in relationship building, providing the correct amount of information by assessing the patient's starting point and what would be helpful; and achieving a shared understanding. These are important aspects in the interaction phase of the ACTV.

Considering the emotional state of the parents, ACTV could be compared to the clinical situation of giving bad news [22]. Guidelines about how physicians should prepare to give bad news have been published and incorporated into many medical school curricula. Themes described in our study correlate with teaching models on how to deliver bad news such as SPIKES [23],

suggesting that the ACTV framework is an appropriate model for similar complex interactions. In addition, Stokes has suggested the development of scripts, specific training in communication and simulation as useful educational tools [12].

Providing an AC in two or more visits has been shown to reduce parental anxiety and improve understanding [24]. This study is the first to describe three different types of ACTV with priority on a particular aspect of the interaction phase in the consult. The emotional turmoil described in our study has not previously been reported for an AC. However, studies have shown high anxiety levels experienced by couples living through the difficult situation of preterm labour at the threshold of viability [25]. Appropriate support given to parents can aid in decision-making whatever the outcome [26]. The importance of hope, regardless of the prognosis for the infant, has previously been described for parents [20], and was confirmed in our study.

There are limitations to this study. Member-checking was not undertaken with parents, as the babies were no longer in the NICU when data analysis was completed. In our population of parents, men were under-represented, and we suspect that the needs and expectations of ACTV are not the same for mothers and fathers [26]. This study did not include parents that decided to provide palliative care, although Janvier [27] showed that palliative care is rarely chosen for newborns over 23 weeks' gestation, most choosing intensive care. Our study also did not include parents who had an AC but reached full term before delivery, and it would be important to get feedback from this group about the utility of ACTV. Lastly, we relied on self-reporting of effectiveness in performing ACTV, and it would be most useful to elicit feedback from parents, particularly in the evaluation of situations where physicians feel comfortable with their level of training and expertise in this skill. Boss highlights the disparity between the discussions parents recall and what physicians document in an AC [9]. Therefore, further research is warranted in order to evaluate the effectiveness of this process of ACTV.

CONCLUSION

Structured ACTV training is insufficient in Canadian NPM Programs. This study has highlighted the importance of providing formal training during these postgraduate studies. A framework for how to approach an ACTV has been proposed with the goal of providing the most appropriate consultation for parents. Program Directors can use this framework to develop an educational curriculum for ACTV. Future studies should evaluate how trainees can use this framework to learn the process, and the art, of ACTV, and whether this process is helpful for parents in threatened preterm labor at the threshold of viability.

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