WHEN CHILDBIRTH PROGRESS SLOWS OR STALLS: A QUALITATIVE EXAMINATION OF INTERPROFESSIONAL DECISION-MAKING PROCESSES SURROUNDING LABOR DYSTOCIA

by

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ABSTRACT

JODIE LISENBEE. When Childbirth Progress Slows or Stalls: A Qualitative Examination of Interprofessional Decision-Making Processes Surrounding Labor Dystocia.
(Under the direction of DR. JENNIFER B. WEBB and DR. VIRGINIA GIL-RIVAS)

Labor dystocia, a term used to describe slowly progressing labor, is the most common reason for cesarean delivery. Despite global efforts to establish improved practice guidelines over the past decade, there is significant debate in the literature about how to diagnose and manage labor dystocia when it occurs. The present study aims to illuminate 1) the decision-making processes surrounding labor dystocia, which previous literature suggests are complex and involve multiple stakeholders, and 2) the factors clinicians consider as part of these decisions that may contribute to whether a cesarean delivery is ultimately performed. These questions were approached qualitatively using informed constructivist grounded theory methodology. Our informants were obstetricians, family medicine physicians, midwives, and labor and delivery nurses in current practice in metropolitan North Carolina hospitals. We conducted semi-structured interviews that included a graphic elicitation diagramming exercise and collected sociodemographic data via an online survey. Several methodological strategies bolstered the study's rigor and trustworthiness. Four common pathways emerged, capturing the process through which decisions are made in the context of labor dystocia. A Social-Ecological Model of Intrapartum Decision-Making is proposed that represents influential factors at the level of the individual, patient-provider, social context, care team, maternity/hospital setting, and broader macrosystem. Findings advance our understanding of how decision-making processes unfold during a uniquely challenging medical experience and may lead to improvements in equitable, high-quality labor and delivery care.

Keywords: labor dystocia, birth, shared decision-making, interdisciplinary, qualitative

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CHAPTER 1: INTRODUCTION

Cesarean deliveries account for approximately one-third of all births and more than one-fourth of low-risk, first-time births in the United States (U.S.; Osterman et al., 2020). Cesarean delivery is associated with an increased risk of severe maternal morbidity and mortality, and it contributes to numerous long-term adverse health-related outcomes for infants (e.g., asthma, allergies, eczema, Type-1 diabetes, infant bronchiolitis, altered immune development, reduced gut microbiome diversity; Hyde et al., 2012; Sandall et al., 2018) as compared to vaginal delivery. Black birthing persons have the highest rates of cesarean by race (22-64% higher incidence compared to other groups), reflecting striking inequities (Edmonds et al., 2013; Huesch & Doctor, 2015; Valdes, 2021). Healthy People 2030 aims to reduce cesarean births among low-risk women[1] with no prior births, as did Healthy People 2020 and Healthy People 2010 (U.S. Department of Health and Human Services, n.d. [HHS]). This goal is explicitly aimed at low-risk births, which may represent *unnecessary* cesareans while recognizing that cesareans are often medically indicated for preventing maternal/infant injury or death in high-risk pregnancies (HHS). The Healthy People target has been raised each decade after failing to meet the previous goal (Spong et al., 2012). Despite a multi-decade focus, cesarean rates and their associated racial disparities have remained relatively stable for more than ten years since peaking in 2009 (32.9% in 2009 to 31.8% in 2020) after increasing every year since 1996 (20.7%; Huesch & Doctor, 2015; Osterman et al., 2020).

The most common indication for cesarean delivery is “labor dystocia,” which encompasses labor protraction (i.e., slower than expected progress) and labor arrest (i.e.,

[1] Gendered terms including “women” and “maternal” are sometimes used in this manuscript, especially when referencing other literature that uses these terms, to identify people who give birth. The authors acknowledge that many birthing persons may not identify with these terms and laments the limitations of gendered language.

complete cessation of progress; Myers et al., 2020; Obstetric Care Consensus No. 1, 2014). This indication is also commonly referred to as prolonged labor or "failure to progress" (Neal, Ryan, et al., 2015). It is a broad term that encompasses slowly progressing or difficult birth due to various underlying causes and may occur during the first stage of labor (i.e., from the onset of labor until full dilation, both latent and/or active phase) or the second (i.e., pushing phase). Although estimates vary, labor dystocia affects about 20-33% of all laborers (White, Lee, & Beckmann, 2017; Zhu et al., 2006) and accounts for approximately 50-68% of all cesarean deliveries among nulliparous women (i.e., first-time laborers; Gifford et al., 2000; Zhang et al., 2010). Like cesarean rates, labor dystocia disproportionately impacts Black birthing persons indicating a need to examine clinical decision-making in this context (Edmonds et al., 2013). Since labor dystocia is the most common cause of primary cesarean delivery in the U.S. (Barber et al., 2011), research efforts and practice improvements related to this indication may significantly reduce cesarean rates overall (Myers et al., 2020).

Notably, labor dystocia has been referred to as a "relative indication" for cesarean delivery, as opposed to an "absolute indication" (i.e., an emergency; Mylonas & Friese, 2015). Relative indications, which account for an estimated 85% of all cesarean deliveries, require clinician[2] decision-making based on extensive risk assessment (Mylonas & Friese, 2015). When left unrecognized or untreated, labor dystocia poses a significant maternal and infant mortality and morbidity risk, as prolonged labor is associated with a greater likelihood of maternal and neonatal infection, fetal distress, neonatal hypoxia, uterine rupture, and postpartum hemorrhage (Myers et al., 2020). Conversely, preemptive diagnosis may lead to potentially unnecessary

[2] Recent language recommendations encourage use of the term "clinician" rather than "provider" (which is a more commonly used term in the literature currently) to discourage a transactional view of healthcare provision and better reflect the complex interactive processes of diagnosis, treatment, and management of health concerns (Michelfelder et al., 2021).

medical interventions also associated with risk (Boatin et al., 2017), including cesarean delivery, which increases the likelihood of maternal hemorrhage, venous thromboembolism, injury to the bladder and other organs, placenta previa or accreta, and disruptions to maternal-infant bonding (Obstetric Care Consensus No. 1, 2014). According to the World Health Organization (WHO), about one-third of all cesarean deliveries could be considered "potentially avoidable" (Gibbons et al., 2010) and studies suggest that labor dystocia may be one such indication. Thus, exploring decision-making processes in this context may reveal important clues for reducing cesarean rates.

Thus, the present study explores how clinical decision-making processes play out when labor dystocia occurs in hopes of understanding ways that current approaches may be contributing to potentially unnecessary cesarean deliveries. Distinct from most other literature regarding clinical decision-making, these processes occur *during labor and delivery* and are surely impacted by a host of complicating childbirth-related factors. The following sections will begin with a brief review of the vast literature on the diagnosis and management of labor dystocia to highlight the complexity of these processes. The various underlying causes and hypothesized contributors to labor dystocia, which seem to include nearly every imaginable clinical action and sociodemographic factor, will then be discussed. Several theoretical frameworks will be reviewed that may be useful in situating this work within the existing literature, including a model of interprofessional shared decision-making. A detailed description will be provided of the qualitative methods through which investigation of these processes occurred using informed constructivist grounded theory and several strategies that enhanced the study's rigor. After an in-depth reporting of the results and conceptual outputs, interpretations of the findings will be offered, as well as their potential significance for advancing scientific knowledge and improving intrapartum healthcare delivery.

Diagnosis of Labor Dystocia

First, it seems important to ground this research in a brief historical context. The diagnosis of labor dystocia has been a topic of considerable multidisciplinary debate in recent years (e.g., how many hours is *too many* hours in active labor). In the 1950s, a graphical analysis of labor progression referred to as "Friedman's curve" was established as the primary tool used by clinicians to evaluate whether an individual's labor patterns were progressing "normally" based upon a sample of 500 demographically homogeneous women who delivered at a single hospital in New York City in 1954 (Friedman, 1954). These methods were brought under scrutiny in 2014 (Caughey et al., 2014) when research analyzing births from 19 hospitals across the U.S. between 2002-2008 showed many individuals for whom labor progresses more gradually than would be considered "normal" based on Friedman's curve but who are still able to deliver vaginally (Zhang et al., 2010). Scholars believe that this may be due in part to changing maternal characteristics (e.g., higher body mass index, increasing maternal age) and obstetric practices (e.g., higher oxytocin and epidural use, more inductions) since the 1960s (Laughon et al., 2012). Each of these variables is associated with longer labor duration. For example, epidural analgesia increases labor length by 40-90 minutes on average (Goetzl & ACOG Committee on Practice Bulletins-Obstetrics, 2002). Additionally, the original data on which Friedman's curve is based does not represent the racial/ethnic and other sociodemographic diversity seen in modern maternity care practices. These findings indicate that perhaps the diagnostic guidelines used since the 1950s were more reflective of an outdated *ideal* (i.e., without risk factors, uncomplicated) rather than an *average* (i.e., realistic, inclusive of diverse birthing persons) progression of labor, leading to dystocia being "over-diagnosed" (Zhang et al., 2002).

In response to these new research findings from Zhang and colleagues, the medical community recognized a need to update current labor management approaches. In the U.S., the

American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM) released a joint statement recommending that Friedman's curve should no longer be used and providing updated clinical practice guidelines (Caughey et al., 2014). Other leading organizations released similar guidelines; however, each set of recommendations was markedly divergent from the next (Boatin et al., 2017). Further, experts including Friedman and Cohen (2022) have criticized the new guidelines for not meeting requirements to be considered "evidence-based" despite being rooted in new data (Zhang et al., 2010). They argue that these guidelines were published prematurely without sufficient testing and that since their adoption, we have not seen meaningful advancements in our understanding of how labor progresses or how to manage it safely (Friedman & Cohen, 2022). In fact, many practicing obstetricians are unaware of the updated guidelines and continue using Friedman's curve. Less than half (41.2%) of obstetricians who participated in a large 2017 study reported any awareness of ACOG/SMFM's 2014 statement (White, Lee, & Beckmann, 2017). There is currently no global consensus on the definition of labor dystocia, how to manage it, or when a cesarean delivery is indicated (Nystedt & Hildingsson, 2014; White, Lee, & Beckmann, 2016).

Treatment / Management of Labor Dystocia

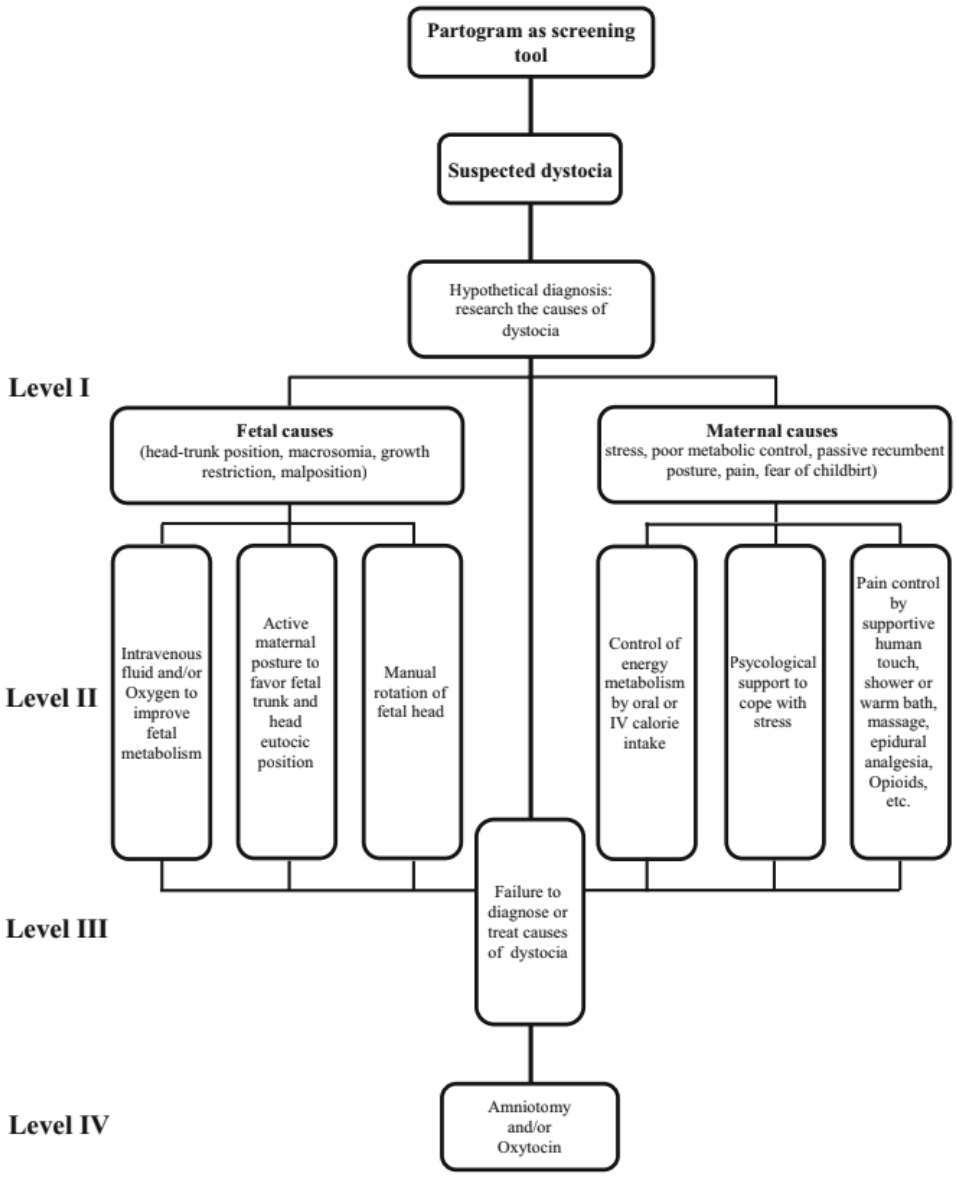
Traditionally, labor dystocia has been treated with oxytocin augmentation, amniotomy, and other active management of labor techniques (ACOG Practice Bulletin Number 49, 2003). Following the release of updated standards in 2014, a large volume of literature has emerged attempting to clarify clinicians' practical implications for labor management. For example, a new comprehensive management approach was proposed by a team of Italian researchers (see Figure 1; Ragusa et al., 2016) that encourages delaying amniotomy and/or oxytocin administration in favor of other treatment options (i.e., a two-stage treatment approach). These guidelines address a hypothesis that many birthing persons with normal labor progress are diagnosed prematurely

and overtreated with oxytocin augmentation (Neal, Lowe, et al., 2015). First-line treatments suggested by this model include psychological support to cope with stress, pain management techniques such as massage, shower/bath, and opioids, position changes to help with fetal position, and energy metabolism interventions such as caloric intake (Ragusa et al., 2016). If these interventions fail, amniotomy and/or oxytocin augmentation are recommended (Ragusa et al., 2016).

Interestingly, even determining the point at which these interventions have "failed" requires clinical judgment regarding what is considered an "adequate trial." Nonetheless, this approach was associated with a two-fold decrease in cesarean rates among low-risk, first-time birthing persons (10.3%; $N = 203$) compared to a standard management group (22.2%; $N = 216$; Ragusa et al., 2016) receiving obstetric care at an urban community hospital in Milan, Italy. Despite updated recommendations for diagnosis and management, the cesarean delivery rate in the U.S. has remained stable at about 32-33% since the updated guidelines were released, which may be reflective of the ongoing debate about best practices, associated lack of clarity, and insufficient dissemination of updated evidence (Cohen & Friedman, 2020; Osterman et al., 2020). Thus, additional efforts are needed to address these challenges appropriately.

Figure 1

Comprehensive Management of Labor Dystocia (Proposed by Ragusa et al., 2016): Level 1 Attempts to Identify the Cause of Dystocia; Level 2 Offers First-Line Treatment Options; Levels 3 and 4 Represent Standard Treatment if Dystocia Persists following Level 2 Treatments.



Drivers of Labor Dystocia

Given that the first step in most clinical practice guidelines is identifying the underlying *cause* of labor dystocia (e.g., Level I of the model proposed by Ragusa, 2016, Figure 1 above), a brief review of the many possible drivers of labor dystocia is warranted. Classically, medical guidelines attribute this diagnosis to abnormalities of 1) power (inefficient uterine contractility or expulsive strength), 2) passenger (fetal malposition, size, or presentation), 3) passage (the

maternal pelvis or soft tissues), or 4) a combination of these (ACOG, 2003). However, these factors do not fully capture the complexity of identifying its causes. The various theorized drivers of labor dystocia and cesarean delivery ultimately performed due to labor dystocia are presented in a conceptual model proposed by Lowe (2007; Figure 2). Consistent with socio-ecological frameworks (Bronfenbrenner, 1979), the factors included in this model represent interactions between multiple levels of influence (i.e., beyond the individual level). The following paragraphs will explore these influences in greater depth.

Figure 2

Conceptual Model of Factors Contributing to Cesarean Delivery Due to Labor Dystocia, Proposed by Lowe (2007).

Physical characteristics of women that pose risk factors for dystocia include maternal characteristics such as race/ethnicity, weight (BMI > 25 or pregnancy weight gain > 35 lbs.), short stature (height < 160 cm), age (16-20 years or > 35 years), low income, and genetic predisposition (Lowe, 2007; Nahaee et al., 2020). However, the literature reports inconsistent findings on whether race/ethnicity and sociodemographics such as income and health insurance status pose risks for labor dystocia. This begs whether the subjectivity of clinical assessment

inherent to labor dystocia is a more meaningful explanation of elevated rates for these populations (Edmonds et al., 2013). Other risk factors include nulliparity, hypertensive disorders, gestational diabetes, hydramnios, maternal dehydration, and fertility treatment (Sheiner et al., 2002).

Psychological characteristics of women have been empirically linked to labor dystocia as well. Maternal stress, anxiety, fear of childbirth, and low childbirth self-efficacy increase the likelihood of dystocia and unplanned cesarean delivery (Adams et al., 2012; Laursen et al., 2008; Sydsjo et al., 2012). Some research indicates that psychological stress may be a more significant driver of dystocia than physical stressors during labor (Alehagen et al., 2005; Lederman et al., 1978). This may be understood by considering the role of stress hormones in normal physiologic birth. Moderate levels of catecholamines (i.e., epinephrine, norepinephrine) and cortisol are beneficial facilitators of labor progression, as labor is a psychophysiological stressor that requires activation of the body's stress system (Lowe, 2007). However, *excess* levels of these hormones (e.g., in response to psycho-emotional distress) can impede progress by disrupting uterine contractions (Buckley, 2015; Lederman et al., 1978). From an evolutionary perspective, it is adaptive to avoid childbirth in situations of maternal fear or anxiety, as activation of the birthing person's threat detection system may signal unsafe conditions in which to deliver a child (i.e., survival takes priority over reproduction; Hishikawa et al., 2019). Thus, when laboring individuals experience fear, anxiety, or stress during active labor, the body's hormonal stress response may slow or stop labor progression, regardless of the objective threat present (Lothian, 2004).

Intrapartal care and interventions that have been linked to higher rates of dystocia include labor induction, hospital admission prior to 4 centimeters' cervical dilation, premature rupture of membranes, and, most strongly, the use of epidural analgesia (Kjærgaard et al., 2008;

Nahaee et al., 2020; Oscarsson et al., 2006; Sheiner et al., 2002). One multi-site study of 2810 nulliparous Danish women found that an alarming 71.2% of those who received epidural analgesia were diagnosed with dystocia (Kjærgaard et al., 2008). Another population-based study of 106,755 Swedish women found a similarly strong association (Oscarsson et al., 2006).

Intrapartal care and interventions are strongly influenced by healthcare professionals' **assessments and clinical decision-making** that depend on their training/background, knowledge, skill/experience level, beliefs/attitudes, and the definitions/practice guidelines they leverage (Lowe, 2007). Most U.S. births are attended by a physician (89.2%) or midwife (CNM/CM; 9.1%) and are supported by a registered nurse (RN; MacDorman & Declercq, 2019; Martin et al., 2012). Midwives and obstetricians have intra- and inter-group variations in attitudes related to intervention, labor induction, cesarean, and specific medical practices (Coates et al., 2021). Obstetricians tend to view birth as a risky medical process, whereas midwives tend to view birth as a normal, natural process (Bryers & van Teijlingen, 2010). Their clinical experiences reflect and exacerbate these differences, as midwives attend more low-risk births while obstetricians attend more high-risk births (Souter et al., 2019). Even among low-risk samples, rates of intervention and cesarean delivery are higher in obstetric care than in midwifery care, at a striking 30% lower risk of cesarean delivery for low-risk, first-time midwifery patients[3] compared to obstetric patients (Souter et al., 2019). Accordingly, obstetricians and midwives may also hold differing conceptualizations of labor dystocia and its management, which may help explain the variances in cesarean rates between the two

[3] The term "patient" is used in this manuscript in reference to individuals receiving care in a medical setting. The authors recognize the drawbacks of this language as most birthing persons are not ill and the word "patient" may be associated with passivity and suffering (Neuberger, 1999). However, the literature commonly refers to patients (e.g., patient-centered communication, the patient-clinician relationship) and thus, use of the word is retained in some areas, while attempts are made to use "birthing person" in most.

disciplines. A 2018 systematic review identified clinicians' personal beliefs as the most important factor influencing whether cesarean delivery is performed in general (not limited to cesareans due to labor dystocia; Panda et al., 2018).

Other contributors in Lowe's 2007 model not yet discussed include 1) **fetal factors** (classically referred to as "abnormalities of passenger"), for example, macrosomia, growth restriction, and malposition (e.g., occiput posterior, occiput transverse; Sheiner et al., 2002), 2) **the sociopolitical environment** (e.g., medical-legal factors, the healthcare payer landscape, interdisciplinary politics, social norms around intrapartum care, hospital policies), and 3) **the social and physical environment** (e.g., access to support persons, location/setting, physical characteristics of the labor and delivery environment such as tubs/showers, privacy, lighting, or furniture; Lowe, 2007). Together, the interactive influences of these six categories of factors render clear identification of the *cause* of labor dystocia nearly impossible to decipher.

Objectives / Research Questions

Given the significant scholarly debate about definitions and appropriate management of labor dystocia, paired with the extensive list of possible drivers cited in the extant literature, the present study focuses on how these intrapartum processes unfold *in practice*. Two main aims were specified at the outset. First, the research team sought to understand the decision-making processes from when labor dystocia is suspected through delivery. Second, the researchers sought to identify the factors clinicians consider when diagnosing labor dystocia, managing it, and determining when and whether to perform a cesarean delivery in response to it.

CHAPTER 2: THEORY

A brief review of pertinent theoretical models and previous findings will be presented to situate this inquiry in the existing scientific literature on healthcare decision-making processes. Though some scholars believe that the literature review should be delayed until after analysis to avoid "contamination" when conducting grounded theory research, others have argued for the utility of *informed grounded theory* (Thornberg, 2012). Familiarity with the relevant literature supports appropriate methodological design and may bolster the researcher's sensitivity to data subtleties during data collection and analysis (Strauss & Corbin, 1994; Thornberg, 2012). Informed grounded theory recognizes the value of using pre-existing theories flexibly and creatively as lenses and tools to conduct novel inquiries. Further, grounded theory is based on comparative analysis that compares and contrasts emerging findings with previous findings, both within the bounds of the study's data and in relation to extant literature (Glaser & Strauss, 1967).

The principle of *theoretical agnosticism* (Henwood & Pidgeon, 2003; Thornberg, 2012) was applied, as the primary researcher took a critical stance toward pre-existing theories and findings while also endeavoring to build upon previous work. A second key principle of informed grounded theory, *theoretical pluralism* (Kelle, 2005; Thornberg, 2012), similar to *theory/perspective triangulation* (Patton, 1999), encouraged the researcher to remain open-minded to various potentially relevant models and perspectives. Thus, relevant literature on healthcare decision-making, including that which explicitly focuses on childbirth-related decisions, will be reviewed in the following sections. Three other theories will be presented that were drawn upon throughout this inquiry in full transparency of the primary researcher's key existing theoretical orientations at the outset: the socio-ecological model, the biopsychosocial-cultural model, and social action theory.

Shared Decision-Making

Especially when clinical agreement is low or several legitimate treatment options exist, it is considered best practice to involve patients in decision-making processes regarding their care (Braddock, 2013; Hersh et al., 2014). *Shared decision-making* (SDM) is a model in which patients and clinicians collaborate to make decisions and select care plans by explicitly considering 1) patient preferences and values, 2) the best available scientific evidence, 3) potential benefits and harms of possible treatment options, and 4) clinician experience, bias, and expertise (Gee & Corry, 2012; Hersh et al., 2014). SDM is considered the central component of high-quality, patient-centered care (Barry & Edgman, 2012), yet it only sometimes occurs in practice.

Clinicians report that SDM can be challenging, especially when they are called on to negotiate conflicting or ambiguous patient preferences, clinical experience, and standards of care, or when organizational level factors (e.g., malpractice threat, hospital policies, payer restrictions, pressure from colleagues) clash with patient choice (Diamond-Brown, 2018). Further, an inherent patient-clinician power imbalance exists stemming from a paternalistic medical model and is exacerbated by social inequities that are often present (e.g., differences in the level of educational attainment, socioeconomic status, race/ethnicity; Ishikawa et al., 2013). SDM aims to reduce the power differential, and research shows many benefits (Villarmea & Kelly, 2020). For example, when SDM occurs during childbirth, birthing persons report lower levels of fear (Green & Baston, 2003; Green et al., 1990) and fewer postpartum depressive and posttraumatic stress symptoms (Goldberg, 2009; Jomeen, 2004).

However, SDM does not take place consistently. Research indicates that women in marginalized social groups are less likely to report that SDM occurred during labor and delivery (Attanasio et al., 2018). Black women (especially those who deliver via cesarean) have the

lowest odds of SDM, followed by those who do not have a college degree or private insurance (Attanasio et al., 2018). First, these dynamics ought to be interpreted with acknowledgment of the deplorable history of Black women's medical exploitation and abuse in obstetrics that includes experimental surgical operations and procedures on enslaved women without anesthesia, forced sterilization, sexual violence, and reliance on Black bodies for clinical training (Campbell, 2021). Modern-day disparities are unquestionably rooted in this historical context. Additionally, these disparities may be related to patient-centered care models' emphasis on tailoring communication to the presumed desire and competencies (e.g., health literacy) of the patient and demands of the situation, which opens the door for clinician biases to determine *for whom* and *under what circumstances* SDM is warranted (Ishikawa et al., 2013). In contrast to SDM, common clinician assertions in the context of clinical risk (e.g., "we need to…"; "we're going to…") may convey a lack of optionality due to the combination of medical authority and potential medical risk (Jackson et al., 2017). In sum, SDM seems to occur *selectively* in labor and delivery settings (Villarmea & Kelly, 2020) and merely "consenting the patient" often takes its place (Sokol, 2014).

Only a few empirical studies about intrapartum (i.e., during labor and delivery) decision-making processes currently exist. The extant literature on SDM surrounding childbirth generally focuses on discrete decisions, especially those made prior to labor onset, including decisions about maternity care clinician (Kennedy et al., 2020), prenatal screening (Ngo et al., 2020), labor induction (Coates et al., 2020; Declercq et al., 2014), vaginal birth after cesarean or scheduled repeat cesarean (Declercq et al., 2014), prenatal decision-making about epidural analgesia (Kennedy et al., 2020), and admission to the hospital (Breman et al., 2019). The present study focuses on a decision-making process that occurs within the bounds of active labor and may pose

significantly divergent challenges, thus representing a timely opportunity for the present study to build on earlier work.

One recent study by Iobst, Phillips, and Wilson (2022) indicates that SDM during active labor and delivery is a multi-stage process (gathering information, identifying preferences, discussing options, and making decisions) that includes a variety of stakeholders (e.g., the birthing person, attending physician and/or midwife, labor and delivery nurse, doula, partner, family members). Barriers may include exhaustion, labor pain, and emergencies (Iobst et al., 2022). A gap remains regarding decision-making during labor dystocia and, ultimately, the decision to perform a cesarean delivery due to labor dystocia. Additionally, Iobst et al. (2022) called for research exploring intrapartum SDM from the perspective of other stakeholders rather than solely physicians, as is common in the extant literature.

Interprofessional Collaboration: A Multidisciplinary Perspective

Because intrapartum decisions often include a variety of stakeholders, the present inquiry may benefit from consideration of the Interprofessional Shared Decision-Making (IP-SDM) model (Légaré et al., 2011), which illustrates how two or more health professionals from different disciplines collaborate with patients (and often others such as partners, family members, or friends) to reach decisions. This model addresses limitations to classical SDM models by explicitly involving individuals beyond the patient-clinician dyad and contextual levels beyond the interpersonal (i.e., the meso and macro levels; Légaré et al., 2011).

In U.S. maternity care settings, differences in professional cultures and practices are often striking, as educational experiences and socialization processes during the training of healthcare professionals vary significantly across disciplines (e.g., obstetricians, family physicians, doctors of osteopathy, maternal-fetal medicine physicians, midwives, physician assistants, nurses, doulas; Hall, 2005). These differences are reflected in each profession's dominant values,

problem-solving approaches, and communication (Hall, 2005). Depending on the maternity care setting's organizational structure, professional hierarchies may also influence decision-making. For example, twenty-seven U.S. states allow certified nurse midwives (CNM) a full scope of independent practice, while others require supervision from or collaboration with a physician (Ranchoff & Declercq, 2020). It is insufficient to only consider dyadic decision-making processes in multidisciplinary collaborative maternity care practices, for example, those in which obstetricians and certified nurse–midwives partner (e.g., Shaw-Battista et al., 2011).

The Socio-Ecological and Biopsychosocial-Cultural Models

An IP-SDM perspective requires adopting a multi-level contextual lens in addition to a multidisciplinary one (Légaré et al., 2011). This is consistent with the *socio-ecological model* (Bronfenbrenner, 1979), another theoretical framework that may provide utility to this inquiry. The socio-ecological model considers complex relationships between individual, interpersonal, institutional, community/societal, and historical factors, representing multiple levels of interconnected contextual influences. Although the present study focused on decision-making processes between birthing persons, their support persons, and the members of their care team, these people and processes are embedded within a socio-ecological environment that also contributes to perinatal experiences and outcomes. For example, institutional factors such as time constraints on the labor and delivery unit, availability of operating rooms and required personnel for cesarean deliveries, insufficient resources or rooms to support prolonged labor, financial incentives related to work efficiency, and policies designed to mitigate risks all may play a role in the decision to proceed to cesarean delivery (Spong et al., 2012). Relevant clinician factors may include workload, fatigue, anticipated sleep deprivation, or the "leisure incentive" (when the clinician can go to sleep or go home after the delivery, rates of cesarean performed for labor dystocia increase; Klasko et al., 1995; Spetz et al., 2001; Spong et al., 2012). The medical-legal

climate, practice norms, cultural representations of childbirth that influence patient expectations, and many other factors likely also play a role in how decisions are made.

In addition to considering multiple levels of context, it seems crucial to adopt a biopsychosocial-cultural lens (an expansion on Engel's 1977 biopsychosocial model). The extant literature on labor dystocia is primarily biomedical. At its core, this study aims to reach beyond physiology and medical interventions also to understand the psychological, social, and cultural aspects. Previous scholars have called for more biopsychosocial-cultural childbirth research, as variables like stress and social support are vastly understudied in relation to their known significance (Saxbe, 2017). Lowe (2007) argues that the paucity of research on stress-related aspects of labor abnormalities has impeded necessary changes to intrapartum care practices. As discussed in this proposal's introduction, psychosocial factors may be *drivers* of dystocia; psychosocial interventions may be appropriate first-line *treatments*; psychosocial processes such as decision-making, communication, and collaboration may ultimately be important determiners of birth mode. Therefore, attending to these psychosocial-cultural components has been important throughout the research process. In sum, the present research team has intentionally attended to these phenomena's biological, psychological, social, and cultural components in tandem with the individual, interpersonal, institutional, societal, and historical.

Social Action Theory

The present inquiry may also benefit from integrating social action theory to further expand on the possible centrality of psychological and social components (Ewart, 1991). Social action theory emphasizes that each individual's capabilities are a function of those around them (Ewart, 1991). The birthing person and members of their care team (e.g., clinician, partner, nurse) share interlinked social scripts, influencing outcomes. Research shows that social support is critical for reducing the stress and pain of labor and delivery, and continuous support has even

been associated with fewer hours spent in labor and lower cesarean rates (Bohren et al., 2017; Hodnett et al., 2012). The quality of the patient-clinician relationship is fundamental to the emotional experience of childbirth and the perception of stress during labor (Olza et al., 2018). Social action theory suggests that the birthing person's support team may influence *psychological change mechanisms* such as problem-solving (generating options/alternatives, decision-making), motivational processes (outcome expectancies, self-efficacy, goal structures), and generative capabilities (information processing and retrieval, attention deployment, sharing knowledge; Ewart, 1991). These mechanisms are crucially important for coping during times of stress. Previous research has indicated that labor dystocia is a time of pronounced transition (e.g., from natural to medical birth, from patient autonomy to loss of choice; Kissler et al., 2019). The model also acknowledges that these psychological mechanisms are influenced by contextual factors such as the setting, broader social context, organizational systems, mood/arousal states, biological conditions, and temperament. These contexts and mechanisms together influence health-related actions and outcomes. Applied to labor dystocia, the extent to which the birthing person's care team effectively attends to psychological mechanisms may influence whether she ultimately delivers vaginally or via cesarean.

In sum, various theoretical concepts, models, and extant literature have been considered flexibly, creatively, and critically to support informed data collection, coding, analysis, and subsequent formation of conclusions. The primary researcher remained open-minded, curious, and theoretically agnostic while conducting qualitative inquiry rooted in the literature. SDM, especially IP-SDM, the socio-ecological model, biopsychosocial-cultural theory, and social action theory, each presented intriguing avenues that were considered throughout. Theoretical pluralism or triangulation of this type enhanced the credibility of qualitative analysis by examining the data using multiple perspectives (Patton, 1999; Thornberg, 2012).

CHAPTER 3: METHODS

Study Design

As previewed above, a constructivist grounded theory approach (Charmaz, 2006) was utilized to generate theory that accounts for behavior patterns and social processes (Frost et al., 2010). Constructivist grounded theory assumes that 1) reality is constructed under particular conditions (i.e., context, socio-ecological factors), 2) the research process is shaped by interaction, 3) researcher and participant are co-constructors of data in the process, and 4) both the researcher and participant's positionality will impact that construction (Charmaz, 2006). This methodology's emphasis on positionality and co-construction is particularly well-aligned in light of 1) the study's interprofessional focus and 2) the divergence between the primary researcher's professional training/socialization (i.e., clinical health psychology) and that of the study's participants (e.g., obstetric medicine, family medicine, midwifery, nursing). Accordingly, ongoing reflexivity has been exercised by the primary researcher in consideration of her prior assumptions, biases, and theoretical orientations (Charmaz, 2006). Constructivist grounded theory's emphasis on the importance of context appropriately reflects the study's exclusive focus on labor dystocia, contrasting with previous literature's tendency towards clustering cesarean delivery decision-making as a singular phenomenon.

Sample and Setting

Obstetricians, family medicine physicians, midwives, and labor and delivery nurses in current practice at large metropolitan hospitals in North Carolina were recruited. Most U.S. births occur in a hospital setting (98.4%; in North Carolina, rates mirror the national average at 98.5%; MacDorman & Declercq, 2019; Martin et al., 2012), so healthcare professionals working in other settings (e.g., birth centers, home births) were excluded to narrow the contextual scope. The sample was restricted to North Carolina, as there may be meaningful differences between

geographies, for example, professional licensing laws and cesarean rates (notably, North Carolina is mid-range among U.S. states at a 29.9% cesarean rate in 2020; Osterman et al., 2022). Additionally, practitioners from rural settings were excluded due to contextual differences that may significantly alter decision-making processes including 1) birth volumes (rural hospitals have lower birth volumes on average than metropolitan ones), 2) care team member composition (rural hospitals often face greater workforce challenges that may result in physicians without obstetric specialization attending deliveries, shared nursing staff models, etc.), 3) transfer of care (rural hospitals often transfer high-risk pregnancies, e.g., those requiring maternal-fetal medicine services, to metropolitan hospitals), and other organizational constraints (e.g., resources, choices available; Kozhimannil et al., 2019). Other eligibility criteria required that participants reported attending at least 4 births per month on average, were in practice for at least one year, and had professional licenses in good standing (i.e., not currently on probation, suspended, or revoked).

This combination of stakeholders (i.e., obstetricians, family medicine physicians, midwives, and labor and delivery nurses), each involved in intrapartum decision-making processes (Iobst et al., 2022), was selected based on the IP-SDM model's inclusion of two or more health professionals from different disciplines. While these groups were selected as key informants, data revealed involvement from other types of health professionals (e.g., anesthesiologists) and underscored the important role that the birthing person and their support persons play. Importantly, the present study aimed to *integrate* data from each source to unveil a more accurate depiction of an interdisciplinary process. It was *not* a primary goal to compare and contrast the three disciplines.

It was estimated that a sample size of approximately 20-30 participants, including representation from a variety participant types (i.e., obstetrician, family medicine physician, midwife, nurse), would be required to reach theoretical saturation (Morse, 2000; Vasileiou et al.,

2018). Theoretical saturation, which originated in grounded theory (Glaser & Strauss, 1967), is reached when the data no longer yields new codes, themes, or insights into emergent theoretical categories (Charmaz, 2006). True *meaning saturation* (rather than mere code saturation; Hennink et al., 2017) requires efforts to diversify the data by seeking the widest range of information possible to allow for data nuance, depth, disconfirmation, and interconnectedness (Nelson, 2017; Vasileiou et al., 2018). Larger sample sizes are required when striving toward theory development, with less homogenous samples and using emerging codebooks (Hennink et al., 2017), all of which is true in the present study design. However, the present study's participants ought to be regarded as one group of *intrapartum care team members* who answered the research questions rather than requiring saturation from each class of participants to make comparisons between the professional groups.

Recruitment and Data Collection Procedure

Maximum variation sampling, a form of *purposeful* sampling, was used with the goal of identifying meaningful patterns that cut across diverse participant perspectives (Patton, 1990). Intentional efforts were made to access participants who represent a variety of sociodemographic, professional, and experiential characteristics (Patton, 1990). The research team recruited participants via their professional networks (e.g., email listservs), social media (e.g., Twitter, LinkedIn, Instagram), and direct email invitations. A standardized email blurb and recruitment flier explained the study's purpose and nature, provided an overview of eligibility criteria, informed potential participants about a $40 Amazon gift card incentive for completing the study, and included a link to complete the eligibility survey. A Qualtrics survey (Appendix A) requested their informed consent to participate (provided via electronic signature), assessed eligibility, and if eligible, collected data on clinicians' demographic characteristics, educational/professional background, current practice setting, and the patients they serve. The

primary researcher then reached out to participants via email to schedule video-based remote interviews using a HIPAA-compliant Zoom account. This format aimed to reduce barriers such as scheduling restraints, travel, childcare, and virus-related concerns while maintaining the rapport-building and attention-holding elements of eye contact, facial expressions, and other non-verbals (Gray et al., 2020).

The primary researcher conducted semi-structured interviews one-on-one with participants. These interviews were scheduled for 90 minutes. The interviewer began by verbally reviewing important elements of informed consent with participants, including audiovisual recording, and confirmed their informed consent. In anticipation of possible technological obstacles, an audio recording device was used in addition to embedded Zoom audiovisual recording. Rapport development was regarded as an essential parallel process to information elicitation (Spradley, 1979); accordingly, the interviewer adopted a conversational, friendly tone that conveyed positive regard and gratitude.

Human Subjects Considerations

The University of North Carolina at Charlotte's Institutional Review Board reviewed this study prior to its commencement and granted its ethical approval (IRB-23-0383). Participant names were not used during the interviews nor attached to any data or other study materials. Rather, participants were solicited for a pseudonym of their choosing at the interview's commencement which was used throughout the research process. Physicians were invited to choose a pseudonym preceded by the proper salutation of "Dr." and others were referred to by a first name. All other ethical and legal protections were implemented per standard IRB-approved human subjects research guidelines.

Research Team and Reflexivity

The research team consisted of a doctoral candidate (the primary researcher), two experts in health psychology theory, one qualitative methodology and health communications expert, a maternal health content expert from public health, and a family medicine physician who routinely attended births in her practice. Thus, the group held relevant content, theory, methods, and practice expertise. Additionally, this all-female research team represented diversity in terms of racial/ethnic background (two identified as Black, one identified as Hispanic, and three identified as White) as well as reproductive experiences (three had given birth to children of their own). Further, all members of this research team were firmly committed to conducting research that promotes health equity, contributes to eliminating health disparities, and elevates the voices of underserved populations.

At the time of data collection, the primary researcher was a 30-year-old, White, insured female doctoral candidate. Her identity characteristics reflected significant privilege and did *not* phenotypically reflect many patients for whom this study aspired to improve care. She had never experienced birth nor occupied roles as a medical professional. However, she came to the role with more than three years of prior experience volunteering as a birth doula (certified with DONA International) for low-income and homeless populations in hospital settings. She delivered inpatient psychotherapy services in a high-risk maternity center as part of her clinical training during data collection. Though the research team wholly regarded the primary researcher's experiences as a unique asset, her training and socialization may have contributed to biases and subjectivity. Thus, the primary researcher regularly solicited input from others and engaged in ongoing self-monitoring to maintain a lens of open-minded curiosity and humility, which is considered best practice in *all* qualitative research (Maxwell, 2013).

Participants

The final sample was composed of 22 total obstetric healthcare professionals that captured excellent professional diversity within the eligibility criteria. This included eight physicians, including seven Doctors of Medicine (MD; two of which were family medicine physicians and two of which were maternal-fetal medicine specialists) and one Doctor of Osteopathic Medicine (DO), seven midwives (CNM), and seven nurses (RN). Participants worked in the following North Carolina cities: Raleigh (*N* = 8), Charlotte (*N* = 6), Chapel Hill (*N* = 5), Asheville (*N* = 1), Greensboro (*N* = 1), and Huntersville (*N* = 1). Professional settings represented included academic medical centers (*N* = 12), private hospitals (*N* = 6), community hospitals (*N* = 3), and a public hospital (*N* = 1); most reported birth volumes greater than 2000 births per year (*N* = 18). Number of births that participants reported attending per month ranged from 4 to 25 (with two reported outliers of 50 and 100). This sample also represented acceptable sociodemographic diversity reflective of the target population (see Table 1). A majority were racially White (*N* = 17) and identified as women (*N* = 20). See Table 2 for participants' selected pseudonyms alongside a few of their key characteristics.

Table 1

Sample Demographic Characteristics

Characteristic	N (%)
1. Gender identity	
Woman	20 (91.0%)
Man	2 (9.1%)
2. Age	
18 to 24 years old	0 (0%)
25 to 34 years old	8 (36.4%)
35 to 44 years old	7 (31.8%)

45 to 54 years old	3 (13.6%)
55 to 64 years old	4 (18.2%)
65 years or older	0 (0%)

3. Race/ethnicity

American Indian or Alaska Native	0 (0%)
Asian	2 (9.1%)
Black or African American	4 (18.2%)
Hispanic or Latina	1 (4.5%)
Native Hawaiian or other Pacific Islander	0 (0%)
White	17 (77.3%)

4. Annual household income

Less than $50,000	0 (0%)
$50,000 to $74,999	1 (4.5%)
$75,000 to $99,999	1 (4.5%)
$100,000 to $149,999	4 (18.2%)
$150,000 to $199,999	5 (22.7%)
$200,000 or more	8 (36.4%)
Prefer not to answer	3 (13.6%)

5. Highest educational attainment

Bachelor's degree (e.g., BS, BA)	6 (27.3%)
Master's degree (e.g., MA, MSN, MPH)	8 (36.4%)
Professional degree (e.g., MD, DO, DDS)	7 (31.8%)
Doctoral degree (e.g., PhD, EdD)	1 (4.5%)

6. Relationship status

Single	4 (18.2%)
Partnered but not married	0 (0%)
Married	17 (77.3%)
Divorced	1 (4.5%)

7. Number of children	
0	6 (27.3%)
1	6 (27.3%)
2	6 (27.3%)
3	3 (13.6%)
4+	1 (4.5%)
8. Physical disability	
Yes	0 (0%)
No	22 (100%)
9. Speaks another language(s) in addition to English	
Yes*	5 (22.7%)
No	17 (77.3%)
10. Political affiliation	
Democrat	9 (40.9%)
Republican	2 (9.1%)
Independent	5 (22.7%)
Prefer not to answer	6 (27.3%)

Note. $N = 22$. No missing cases.

*Other languages spoken were Spanish (N = 4) and Vietnamese (N = 1).

Table 2

Select Participant Characteristics

Pseudonym	Profession, Degree(s) reported	Race/ ethnicity & gender	Age	# of years' experience	Highest education	Professional Setting

Dr. Melody	Obstetrician, MD	White woman	25 to 34	13	2015	Private hospital, academic affiliation
Dr. Niko	Obstetrician, MD, PhD	Hispanic White man	45 to 54	20	2011	Academic medical center
Dr. Diablo	Obstetrician, MD	Black woman	55 to 64	30	1995	Private hospital
Dr. JD	Obstetrician, MD, MSCR, MSBME	Asian/ White man	35 to 44	10	2014	Community hospital
Dr. Hunter	Obstetrician, MD (Chief Resident)	White woman	25 to 34	4	2019	Academic medical center
Dr. Scott	Family Physician, MD, MLS	White woman	25 to 34	5	2018	Community hospital
Dr. Doe	Family Physician, MD	Asian woman	25 to 34	8	2015	Academic medical center
Dr. Susie	Obstetrician, DO	White woman	35 to 44	1.5	2014	Academic medical center
May	Midwife, MSN, CNM	White woman	25 to 34	9	2018	Academic medical center
Pearl	Midwife, MSN, CNM, APRN	Black woman	55 to 64	19	2004	Academic medical center
Gunner	Midwife, MSN, RN, CNM	Black woman	35 to 44	15	2016	Private hospital

April	Midwife, MSN, CNM	White woman	45 to 54	24	2017	Private hospital
Clara	Midwife, MSN, CNM	Black woman	35 to 44	11	2011	Academic medical center
Ruth	Midwife, MSN, CNM	White woman	35 to 44	12	2015	Academic medical center
Isa	Midwife, MSN, CNM	White woman	45 to 54	21	2001	Academic medical center
June	Nurse, MSN, RNFA	White woman	35 to 44	13	2019	Academic medical center
Lily	Nurse, BSN	White woman	55 to 64	31	1987	Private hospital
Tyler	Nurse, ADN, BS	White woman	25 to 34	2	2015	Academic medical center
Ruby	Nurse, BSN	White woman	35 to 44	16	2005	Community hospital
Lucy	Nurse, ADN, BS	White woman	55 to 64	24	1984	Academic medical center
Piper	Nurse, BSN	White woman	25 to 34	2.5	2017	Private hospital
Regina	Nurse, BSN	White woman	25 to 34	2	2017	Public hospital

Interview Guide

A semi-structured interview guide (Appendix B) was developed based on the labor dystocia literature and theoretical models reviewed in the introduction. The interview guide included 10 questions and corresponding optional sample probes. Questions spanned a variety of types, including *typical grand tour* questions (“To start, please describe all the health

professionals who make up a typical patient's care team in the labor and delivery setting where you work."), *specific grand tour* questions ("Please walk me through an example of a specific time when you believed it might end up being necessary to perform a cesarean because of labor dystocia, but the patient eventually delivered vaginally."), *contrast* questions ("What might be some differences between a patient who is very involved in the decision-making process versus one who is less involved, or perhaps, the circumstances surrounding those patients?"), *native-language* questions ("What term(s) do you typically use to describe this? Does this differ when talking to colleagues versus patients?"), and *example* questions ("Will you please give me an example of what you might say to the birthing person during that step?"; Spradley, 1979).

One initial interview was conducted in July 2022 to pilot-test the interview guide, assess whether it functioned as intended, inform its revisions, and collect light, preliminary data (Maxwell, 2013). This was completed with a research team member who is a family medicine physician and regularly attends births in her practice. The pilot interview resulted in the deletion of two questions (due to redundancy following the diagramming exercise discussion) and restructuring of the interview guide to be more responsive to participants' spontaneous discussion of information when describing their visual diagram. The interview guide did not evolve substantially throughout the research process, though this is welcomed in grounded theory approaches to allow participants to guide the inquiry process (Chiovitti & Piran, 2003). For example, if a participant had introduced a new content area, the researchers might have added a question to the interview guide. Conversely, a question could have been removed if it did not elicit any meaningful data (e.g., upon participant report that the question is not applicable).

Graphical Elicitation Component

The semi-structured interview included a diagramming exercise. *Graphic elicitation* is a technique sometimes used in qualitative interviewing to capture data in an additional format (method triangulation) or to gather additional information (Varga-Atkins & O'Brien, 2009). Asking participants to produce a graphic representation of target processes helped clarify complex ideas, illustrated how elements could be arranged spatially, and facilitated comparisons between participants' views of key elements and their relationships.

Participants were instructed to bring a blank piece of 8.5 x 11-inch paper and a writing pen or pencil to their interview. This exercise was presented near the interview's outset, following three initial questions, and this drawing was used to anchor the remaining discussion. The interviewer verbally walked participants through the instructions and a typed prompt (Figure 3), which was shown via screen sharing.

Figure 3

Graphic Elicitation / Diagramming Exercise

Graphic elicitation exercise

Task: Represent the **decision-making processes** that occur surrounding labor dystocia in a visual diagram.

Please draw out the important elements of the process and how they relate to one another.

For example, you might include in your drawing things like:

- The key **decision points**
- How the process unfolds in relation to **time**
- The important **people** or stakeholders involved
- **Conversations** that occur or things that are said
- Your conceptualization of the **causes** and how they influence decisions
- The **treatment options** that are considered
- Various possible **outcomes**
- **Relevant factors** that influence how things play out

You will have up to 15 minutes to work on this task.

Upon completing this exercise, the interviewer asked participants to verbally explain their diagrams. The interviewer asked clarifying questions such as "Will you tell me about why you chose to include _____?" or "What would be an example of a _____?" She also prompted participants to share their approach and thought processes, for example, "What led you to draw these elements in this particular arrangement?" Participants were invited to make additions or revisions to the diagram up until the interview's conclusion. The interviewer collected these diagramming products following the interview by asking participants to scan the page or snap a high-resolution photo and send via email. Twenty participants submitted diagrams (provided in Appendix C). Unfortunately, two participants failed to send the diagrams they had created and one diagram was almost entirely illegible; efforts were made by the primary researcher to rectify these issues unsuccessfully.

Analysis

Interview recordings were verbatim transcribed using an online transcription service (Otter.ai) and then reviewed and edited for accuracy by the primary researcher using the software's editing tool. This speech-to-text service uses advanced data encryption and secure servers to protect data. Transcription, the associated quality audit, and a round of "pre-coding" in which the researcher highlighted attention-worthy quotes or passages (Saldaña, 2013) was completed within one week of interview completion.

A cloud-based research application, Dedoose, was then used by the primary researcher to conduct formal coding and analysis. The first cycle of coding utilized Initial Coding, which is an open-ended approach that may incorporate both In Vivo (extracting the participants' language to generate codes) and Process Coding (using gerunds to create codes; Charmaz, 2006; Saldaña, 2013), to build an initial codebook. This first cycle drew upon data from the first four interviews, incorporating interviews from different types of participants (MD, DO, CNM, and RN). In the

second cycle of coding, also drawing upon these four interviews, focused and axial coding were used to sort and label codes into salient conceptual categories arranged by the relations between them (Saldaña, 2013). The remaining data collection and analysis was performed using the constant comparative method (Glaser & Strauss, 1967) which requires iterative assessment of converging and diverging participant data. This approach was used to add, delete, merge, and revise codes and categories between each interview as needed with the goals of 1) increasing theoretical parsimony and 2) determining when saturation had been reached (Glaser & Strauss, 1967). The research team concluded that saturation was well-justified at the completion of 22 interviews given that conceptual clarity had been achieved related to target processes, influential factors discussed had become redundant and repetitive, and diverse participant perspectives had been accessed.

Rigor and Trustworthiness

Several methodological elements were incorporated to enhance the study's integrity. Pluralism or triangulation of sources enhanced credibility by converging data from a variety of potentially important stakeholders (Frost et al., 2010; Patton, 1999). Including obstetrician, family medicine physician, midwife, and nurse perspectives facilitated an examination of consistency and diversity across multiple and different points of view (Maxwell, 2013), and it validated the *truthfulness* and *authenticity* of the information gathered (Lincoln & Guba, 1985). Findings reflect multidisciplinary perspectives (i.e., theory/perspective triangulation; Patton, 1999), assuming that participants each generally represented their profession's philosophies, training, and socialization. Data collected via electronic survey (e.g., sociodemographics, professional characteristics) may serve to increase the transferability of findings (Lincoln & Guba, 1985). In other words, details are provided about participants and the professional settings

they represent such that other scholars may better discern whether the following theoretical outputs may be applicable for their own purposes.

Intercoder reliability statistics were calculated following a round of coding by a second researcher to assess the coding scheme's rigor, transparency, and its systematic application to the data (O'Connor & Joffe, 2020). This second coder used the preliminary codebook to code the first four interviews alongside the primary researcher. The two coders then met for peer debriefing to resolve discrepancies and reach a consensus before the codebook was finalized (see Appendix D for the final coding scheme) and additional interviews were conducted (Lincoln & Guba, 1985). The overall result of calculating the pooled Cohen's kappa coefficient, a measure of the percent agreement between coders, was 0.80 ("substantial" agreement according to Cohen's original 1960 cutoffs). This value, the interpretation of which has been hotly debated among scholars, demonstrates the trustworthiness of analysis and reflects rigorous coding practices, particularly in light of the lengthy codebook and complex research questions. The interdisciplinary research team offered oversight on the research process and agreed on subsequent theoretical conclusions to further establish credibility (Maxwell, 2013).

Respondent validation or "member checks" were conducted to validate synthesized interpretations' accuracy and enhance the trustworthiness of subsequent conclusions (Birt et al., 2016; Lincoln & Guba, 1985). The investigator contacted participants via email following their interview with an opportunity to confirm or clarify key takeaways and contribute additional perspectives. To maximize the utility of this exercise, member checks were delayed until initial results began to take shape. That is, the researcher synthesized the findings of participants' data, produced a graphical representation of the working models paired along with a taxonomy of key influencing factors, and solicited participants' input on the evolving theoretical outputs. Member checks occurred several months after the initial interview, allowing the benefit of seeking

participants' perspectives at multiple timepoints (Birt et al., 2016). The purpose of this synthesized member-checking approach was to enhance *objectivism* by seeking disconfirming voices and *constructivism* by providing an opportunity to add data upon additional reflection (Birt et al., 2016; Charmaz, 2008; Harvey, 2015). These goals were facilitated by allowing participants to consider whether the ideas and experiences of others applied to them, rather than merely checking the investigator's interpretation of the data from an individual interview. The member check process yielded a handful of important additional insights and points of clarification. For example, one participant suggested specifying in the decision-making pathways 1) the possibility that labor dystocia resolves and normal labor management is resumed and 2) that a decision may be made *not* to intervene (i.e., expectant management).

Extensive note taking was completed throughout the research process, including 1) analytical memos to document decision-making processes (e.g., changes to the codebook, saturation assessments, sampling strategies; Glaser & Strauss, 1967), 2) reflexive journaling to make transparent the researcher's ongoing self-monitoring and reflections (as was key to the chosen methodology's co-constructive nature; Charmaz, 2006), and 3) diagramming to facilitate the formulation of conceptual models (Buckley & Waring, 2013). These three forms of recordkeeping have been retained along with all other study products (e.g., interview recordings, transcripts, raw data, all versions of the codebook, participant and researcher diagramming) to ensure that a dependability and confirmability audit may be conducted in the future (Lincoln & Guba, 1985).

CHAPTER 4: RESULTS

The following results begin with an overview of the general pathways via which decisions are made in the context of labor dystocia. Next, an in-depth review of these pathways' components will be presented. Finally, key factors influencing how these decisions ultimately play out will be presented in a theoretical model and discussed in detail.

First, a note on **terminology** is warranted. All but two of the participants in this sample denied regularly using the term "labor dystocia" with colleagues, patients, or in medical documentation. One nurse even initially assumed that the study would be solely focused on "shoulder dystocia" because she was unfamiliar with this term. Instead, participants endorsed the use of widely varying terms including: 'arrest of dilation' or 'arrest of descent'; 'stalled,' 'protracted,' or 'prolonged' labor; or less frequently, an 'abnormal' or 'dysfunctional' labor/pushing process (Figure 4). This may partly be due to the lack of specificity this umbrella term offers. Tyler, a labor and delivery nurse, commented that "every term you use to describe something here is going to mean something different for every single patient and situation, including 'labor dystocia.'" Thus, more specific verbiage or lengthier descriptive language was generally preferred by participants in place of definitional terms, whether in conversation with colleagues, when documenting in the electronic medical record, and especially with patients. For example, Dr. Susie, a doctor of osteopathy, provided an example of how she might communicate with a patient:

> "'This is a longer labor process than expected. We would anticipate that your cervix would be dilating more,' or 'the baby would be coming down more' if they're in the second stage of labor. So, kind of just describing with simplified terms that it's longer than usual."

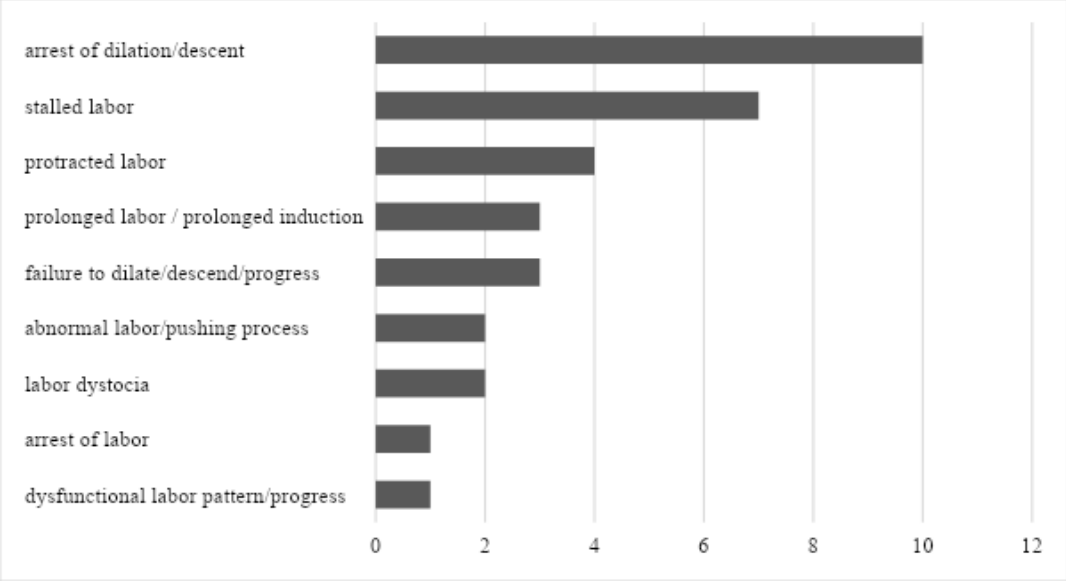
June, an RN first assistant, offered another possible explanation for the variation in terms being used to describe this diagnosis, stating:

> "Historically, we would use the terms 'failure to progress' or 'failure to descend' or maybe a 'failed trial of labor' in a VBAC patient, or vaginal birth after cesarean patient. However, I do know that those are not very patient friendly. So, we are trying to say things more like 'arrest of dilation' or 'arrest of descent,' which makes it sound less like the mother has failed in some way. We're trying; we're not always perfect, because historically, we've used 'failure' as a terminology to help describe it."

Thus, contemporary sensitivity to the impact of language choices may influence the variety of terms used to describe this study's target phenomenon. It may also be suggestive of contemporary shifts in communication best practices being adopted by obstetric healthcare professionals more broadly.

Figure 4

Terms Used by Participants in Reference to the Target Phenomenon by Number of Participants Who Reported Using Them



In terms of **definition**, participants broadly confirmed that *labor dystocia* functions as an umbrella term to indicate that "there is something happening with the slowing of the progression of labor" (Dr. Melody, obstetrician). Dr. Hunter, a chief medical resident whose role includes providing education to other healthcare professionals, summed up the inherent definitional challenges:

> Labor dystocia as a general term would mean to me that there is some deviation or a departure of a labor course that is different than what I would expect a normal labor to look like. And I think that part of that is really hard to define and different groups define differently because of differences in guidelines, just differences in our patient populations, and whether they [birthing persons] are in spontaneous labor or we're inducing their labor, which can often look quite different.

Participants agreed that the term may be used in reference to either the first or second (i.e., pushing) stage of labor. Interestingly, disagreement emerged as to whether dystocia could occur in the **latent phase** (i.e., prior to reaching 6 centimeters dilation; failure to progress into active labor); two offered definitions (e.g., use of an induction agent for at least 24 hours with membranes ruptured for at least 12-18 hours) while sixteen other participants wholly rejected the appropriateness of using this terminology before active labor has been reached. All participants agreed on the appropriateness of this term in the **active phase** of labor (i.e., arrest of labor) and generally defined this as a function of cervical dilation across time; most specified 4 hours of adequate[4] contractions or 6 hours of inadequate contractions with no change in cervical dilation, which reflects the guidelines outlined in ACOG's Safe Prevention of the Primary Cesarean

[4] *Adequacy* refers to the strength of uterine contractions as assessed using an intrauterine pressure catheter (IUPC) which measures Montevideo units (MVUs).

Delivery (Caughey et al., 2014). Finally, twelve participants also described dystocia occurring during the second stage or **pushing phase** (i.e., arrest of descent), specifying 2-4 hours depending on whether the birthing person A) has an epidural and B) is primiparous or multiparous; others disagreed, such as April, CNM, who referred to arrest of progress during the second stage of labor as "a whole other can of worms." Overall, the sentiment was shared that definitions in this context must be interpreted with nuance due to differences in what the scientific evidence indicates is within the normal range for varying patient presentations and clinical situations.

Another important definitional clarification noted by fifteen participants is that the term *labor dystocia* refers to a current state that has the potential to be resolved. As Tyler, RN, explained, "It doesn't mean that you won't eventually deliver vaginally; it doesn't mean that you're absolutely going to deliver by C-section." Interestingly, ten participants made references to healthcare professionals commonly predicting outcomes in the context of labor dystocia (e.g., predicting that a birthing person will deliver via cesarean when labor progress stalls; "I can kind of see the writing on the wall," Isa, CNM), whether outcomes ultimately defy expectations or align with those predictions. Lily, a labor and delivery nurse, illustrated two examples of how these predictions may ultimately influence birth outcomes, the first reflecting some degree of confirmation bias:

> …it's a power thing sometimes with the nurse and the doctor where the nurse might say, 'I don't think she's making progress.' And the doctor… is not in agreement. Or the doctor thinks, 'That's fine, they need more time.' And the nurse is like… 'She's not going to do it, she's not going to do it.' And so then you have the power of suggestion. The nurse is calling all the time: 'This is happening, the baby's heart rate's down. And I don't know…'

> And so I've seen C-sections driven by that interplay, where the nurse has bugged the doctor so many times and he's just tired of it.

Her second example highlighted the possibility of unexpected outcomes following predictions:

> The nurse before might have said… 'She's got a large baby, we don't think she's gonna do it.' So, that kind of sticks in your mind too during the labor. You're like, 'Oh, that nurse said that she didn't think it was gonna happen,' you know, 'Why was she thinking that?' But you keep plugging along and then, and then it surprises you.

This data about outcomes following healthcare professionals' predictions emerged unexpectedly from the data; not every participant was asked to comment or reflect on this topic.

Labor and Delivery Decision-Making Processes

This investigation revealed wide variation in the way that labor dystocia is managed on interdisciplinary teams. The core elements of this process were identified as *recognition*, which may involve reviewing the labor course, examining the patient, assessing possible causes, and considering diagnostic guidelines; *communication*, which may include both a discussion among care team members and a discussion with the birthing person and their support persons; *decision-making*, which may be driven largely by the healthcare team or involve elements of shared decision making like incorporation of patient preferences and values; *intervention*, which may include a menu of options such as pain relief, labor augmentation, or support for maternal coping; *monitoring*, which typically occurs for about 2-4 hours until reassessment, at which time the cycle restarts and continues until labor dystocia is resolved and standard labor management resumes, or until the eventual *delivery* of the infant.

Common Decision-Making Pathways.

Figures 5.1-5.5 illustrate the pathways commonly described by participants in this sample. They are designed to reflect the experience of any healthcare team member who is

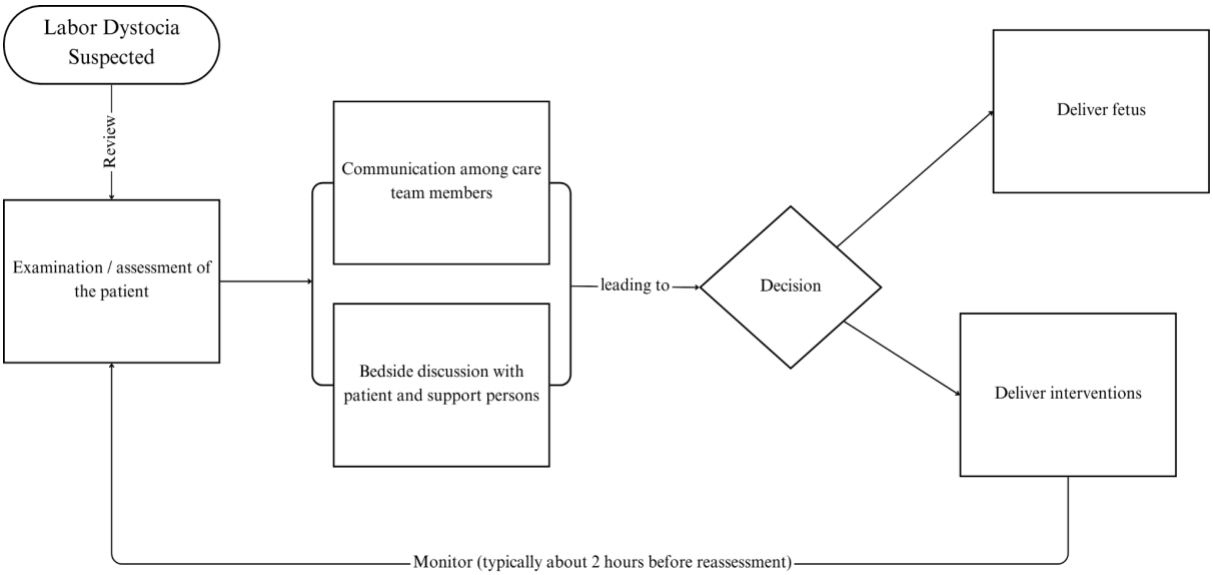
responsible for decision-making in some capacity and included in this study (i.e., physician, midwife, nurse). The order in which the elements of decision-making processes occur varies considerably depending on factors such as the care team structure, type of professional, hospital setting, busyness of the unit, or in the case of medical emergencies. Each diagram begins with the point at which labor dystocia is suspected and includes a review of the details of the patient case (e.g., of the electronic health record, of the labor course thus far, of documented patient medical conditions and other risk factors, medications, previous interventions); however, labor dystocia may not realistically be suspected until the point of patient evaluation (e.g., following an updated cervical exam).

The first pathway (Figure 5.1) represents instances in which relevant care team members are present in the patient's room at the time of examination/assessment. In this case, communication among care team members occurs at the bedside and involves simultaneous discussion with the birthing person and their support persons. For example, Dr. Niko (MD, PhD), who is a male attending physician with specialization in maternal-fetal medicine at an academic medical center, stated: "Usually the evaluation will include the presence of a nurse… if we have residents or students, the resident or student will be there. And the family members. So, there will be the OB team and the patient and the support of the patient." Some participants discussed that this approach allows the benefit of "getting everyone on the same page" (Piper, RN) and reduces the likelihood of patients "getting kind of mixed signals from different people" (Dr. Susie, DO). However, drawbacks of these types of bedside discussions were also discussed by some participants. Dr. Hunter, who is a chief medical resident, discussed that sometimes conflicting opinions arise between team members that can create "a very uncomfortable situation" if a disagreement is aired out in front of a patient or a comment is made like, "'As your nurse, I'm trying to advocate for you,' you know, when you're trying to have a shared decision-

making conversation with a patient and the nurse and everyone else in the room." Like other nurses in the sample, Piper, a labor and delivery nurse with 2.5 years of experience, voiced appreciation that, "most of the time, when the doctor comes around, they'll get the nurse to come in with them," but she also noted that at times: "they'll start talking to me kind of about the patient care, but not necessarily be including the patient in it. So, it's almost like they're talking to me about the patient, but the patient's right there." In general, despite some noted drawbacks, participants emphasized that this decision-making pathway that emphasizes a team-based approach is an ideal to strive towards.

Figure 5.1

Decisions Made During a Team-Based Discussion at Bedside with the Birthing Person and Their Support Persons

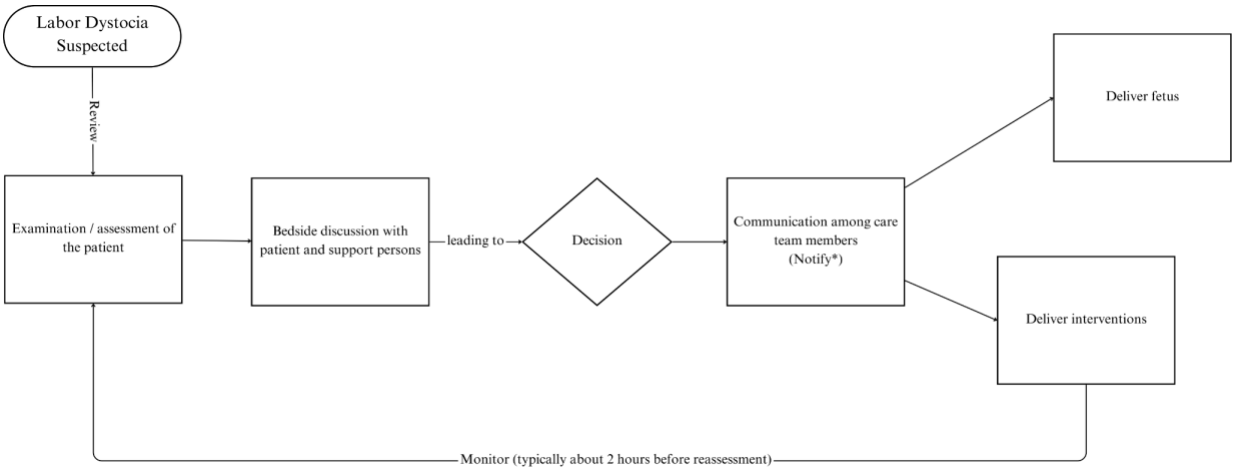


The second pathway (Figure 5.2) represents instances in which a decision is made without a team-based approach. For example, this pathway may be used by an attending physician (e.g., a private obstetrician) who examines a patient independently and reaches a decision without involvement of other team members. This pathway may also be used by any

healthcare professional when the decision made does not warrant consultation, for example, if a nurse assesses a patient and offers options within their scope of practice such as position changes, ambulation, or non-pharmacological interventions. In these cases, the healthcare professional will typically notify other members of the care team, either in a live conversation (e.g., in person or via phone), via electronic communication (e.g., a chat message), or with documentation in the medical chart (e.g., if there is a standing order from the attending physician approving titration of Pitocin by the nurse). For example, if a midwife, like Clara, reaches a decision at bedside with the patient and support persons she may then "huddle with the team, letting the OB team know what's the status of the patient... Always keeping them informed, just in case if we have to do other interventions like cesarean delivery." Participants also clarified that notification of other team members often occurs *after* or *simultaneously* with intervention delivery; for example, if a nurse decides to increase the Pitocin, she may do so prior to documenting or notifying others. The benefits of this approach noted by participants included a feeling of professional autonomy as well as efficiency due to the divvying up of duties according to each professional's scope of practice.

Figure 5.2

Decisions Made That Do Not Include Team-Based Consultation



*Notification may occur *after* the delivery of interventions in many cases.

The third pathway (Figure 5.3) represents instances in which a finding warrants consultation with another team member *prior* to a decision being reached. This pathway may be used by a medical resident or midwife when a decision warrants oversight by an attending physician (e.g., a decision to proceed with cesarean, a decision to offer the use of vacuum or forceps for delivery) or by a nurse when a decision warrants oversight by a midwife or physician (e.g., the placing of orders for a medication). As Dr. Hunter, the medical resident in this sample with 4 years of experience explained:

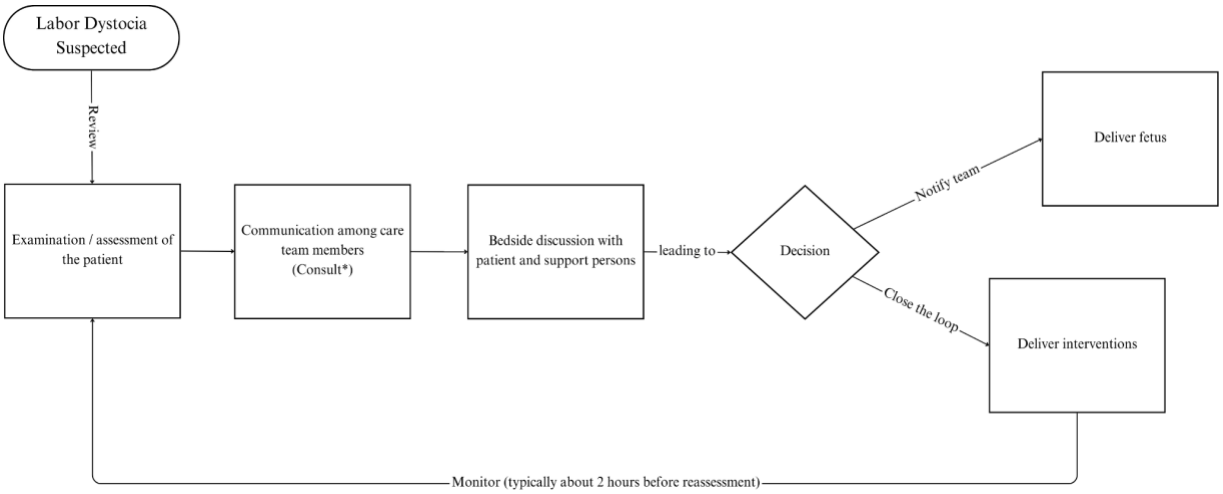
> As a trainee, you sometimes want to hedge your conversation and hedge your recommendations in a way. You don't want to say something that then your attending might like, you know, you walk out of the room and you say, like, 'Oh, I talked to this patient about this thing.' And they're like, 'Oh, no, I, you know, have a totally different recommendation.' So, you kind of want to hedge your conversation a little bit in saying, like, 'This is my concern. But I also want to talk to my team members about this and make sure that we're all on the same page and we all have the same plan of care for you.'

This pathway may also be used when any type of professional chooses to seek consultation with colleagues (e.g., ideas, a second opinion, supervision of trainees), which may be especially necessary in the case of labor dystocia. Dr. Doe, a family medicine physician with eight years of experience who attends about four births per month, shared: "I'm very quick to ask for help and consult OB in these things… I'm newer, I'm at the beginning of my career, like I haven't been doing this for 40 years or anything. And so, some of these things are still new to me, and I'm still seeing them for the first time. And it's almost like I just, I just don't want to do the wrong thing." Meanwhile, Lily, a nurse with thirty-one years of labor and delivery experience shared from her

perspective, “I don't care how much experience you have; you can never be too proud to say, ‘What do you guys think? What do you think I should do now? We're just stuck.’”

Figure 5.3

Decisions Made That Include Consultation with Another Team Member



*Consultation may also sometimes occur *after* an initial bedside discussion with the patient and support persons, in which case the pathway may be: Bedside discussion, consultation, and then another bedside discussion before reaching a decision.

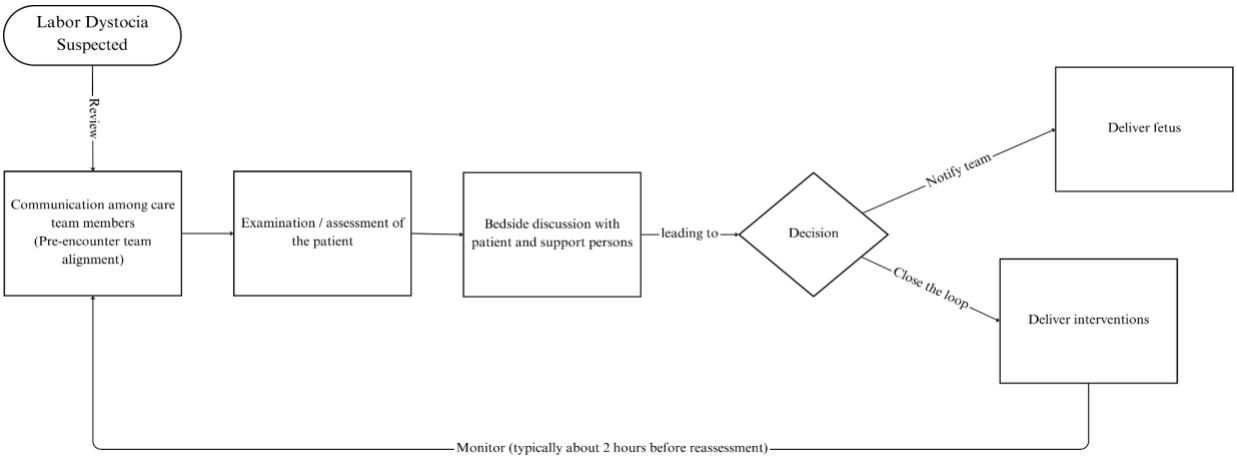
The fourth pathway (Figure 5.4) represents instances in which members of the care team align on a plan of action *prior* to evaluating the patient. This may apply to settings in which team huddles occur at regularly scheduled times each day, such as at shift changes. It may also represent times in which pre-encounter team alignment happens somewhat organically (e.g., in a shared workroom) or when team huddles are called as needed prior to entering a patient’s room (e.g., in a teaching environment in which an attending physician coaches residents prior to patient encounters). These pre-encounter discussions may include exploration of if/then scenarios, how they could be handled, and possible interventions that could be offered. Dr. Susie, a Doctor of Osteopathy working in an academic medicine setting explained:

> Where I used to train, we would have board sign-outs where we'd go through each patient with nursing, anesthesia, physicians, and discuss each patient and like anyone could ask questions. Or like, you could call like a team meeting about a patient, if any, anyone on the team had concerns. I think it would be ideal... like once labor dystocia is a concern, the providers, nurses, and physicians talking about it together, and then going in and counseling the patient all together.

In this case, bedside discussion may or may not include multiple members of the care team; one healthcare professional may carry out the plan of action or a team-based discussion may take place with the patient and family.

Figure 5.4

Decisions Made Drawing upon Pre-Encounter Team Alignment



The final possibility (Figure 5.5) is a variation that may override any of the previously outlined pathways if a medical emergency arises (e.g., a non-reassuring fetal heart rate status that emerges during monitoring). In this case, an accelerated discussion may be required to obtain the patient's informed consent to move forward with the clinician's recommended course of action. Dr. JD, who is an obstetrician (MD) at a large community hospital, shared an example of a fetal bradycardia (i.e., low heart rate) that necessitated rapid decision-making:

> It's basically like, 'I'm concerned your baby's dying. We have two options: We do a C-section and we run to the OR now, or we do what I think is going to be faster, which is a forceps delivery. Forceps are associated with...' And then I list like just like two or three things that are like the most common things... 'And you need to make a decision right now.'

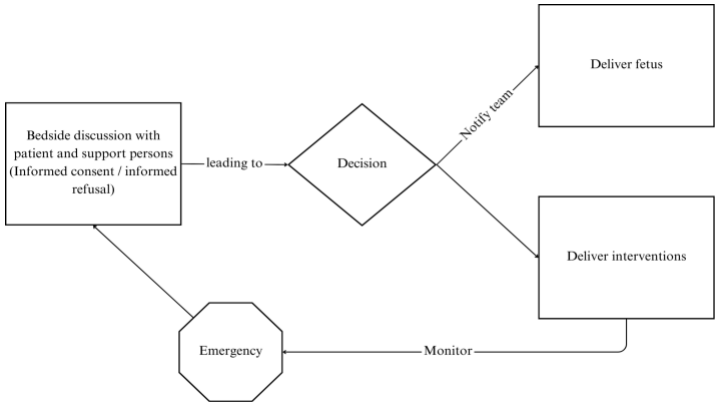
There is also a possibility of informed patient *refusal* in the event that a patient declines the recommended course of action, even in the face of medical emergencies. May, a midwife at a large academic hospital, discussed this possibility in the case of fetal distress:

> I'm still asking for consent and permission to do things. And if the patient is adamant that I cannot, I'm not going to touch them or do anything. But I'm going to be very clear that their baby's life is in danger. And this is the reason that I'm recommending that these things happen right now.

The only exceptions noted by participants were situations in which a birthing person becomes "incapacitated," for example, if they "pass away, or stroke or seize out or something like that" (Tyler, labor and delivery nurse), in which case an emergency contact may be contacted or a clinician may be required to determine the most appropriate course of life saving action.

Figure 5.5

Decisions Made in the Context of a Medical Emergency



Key Elements of the Decision-Making Processes

Recognition

All participants highlighted *recognition* of labor dystocia as the critical first step in their decision-making process. Words used to describe this stage included being "concerned that labor is not progressing" and "suspecting labor dystocia." Key elements include utilization of agreed upon diagnostic definitions, a review of the labor course and other elements of the medical chart, examination of the patient, and assessment of possible underlying causes or contributing factors.

Agreed Upon Definition (Recipe versus Artform). When labor dystocia is suspected, many participants used language that implied the importance of clinical judgment. For example, Lily, a labor and delivery nurse, described that sometimes, "You *feel* like the patient is not making progress" and Regina, another labor and delivery nurse, described that she becomes "worried about failure to progress." Some of the physicians in this sample went on to underscore that true recognition requires an "agreed upon definition of what would classify this as a dystocia' and a "cervical exam, or at least two cervical exams, to say that no change has been made" (Dr. Hunter, medical resident).

Unsurprisingly given the ongoing debate about how to define labor dystocia, almost half of participants reported that they or their team relies on an agreed upon definition while others described wider variation in clinical interpretation. For example, Lucy, a nurse with 24 years of experience, observed that in the academic hospital setting where she works, medical residents share a clear definition of 6 hours with no cervical change, while there is noteworthy divergence among private physicians regarding how to define arrest of dilation and when to perform a cesarean in response.

Perhaps even more importantly than *how* labor dystocia is defined, participants inadvertently debated the relative *value* of agreed upon definitions and associated protocols

versus clinical nuance and consideration of the specific patient and situation. More than half of participants seemed to philosophically endorse a preference to avoid using strict labor management protocols in favor of individualized care and clinical judgment, while others relied more heavily on definitions, professional practice standards regarding specific hour cutoffs, "if, then" rules of thumb, or "textbook" approaches. In part, participants attributed these differences to level of experience. Dr. Hunter described the experience of a medical resident in the early stages of training:

> …as a younger resident, I know I relied on things being protocolized… I think that we lean on that because we just want to know what the right thing to do is, right? … Meaning, 'If it's been this many hours, I would do this.' … And we pick that up from specific recommendations in specific clinical context. No one I think ever gives us like, a workbook or posts a placard on the wall saying, 'This is how you're going to do it.' …But I think that as you get further in your training, you realize from how many different answers you've gotten by asking the same question, or getting asked the same question and then being corrected that many times, that everyone that you ask is going to have a different answer… And I think that that is true in a lot of things that we do in obstetrics, is just that there's not a formula necessarily for a lot of these things. We practice within this scope of like, guidelines and, you know, more like suggestions, or based on the best available evidence that we have, but in reality, there's not a playbook for a lot of this. And so, you do rely a lot on the art of medicine.

Lucy, RN, noted that it can be "frustrating" that the residents in her practice rely on specific guidelines "no matter if the patient's afebrile, doing fine" whereas private physicians may "still might be okay with it [i.e., not proceed to cesarean delivery], because there's no indicators that there's any infection." Dr. Niko, a maternal-fetal medicine physician, also expressed the

drawbacks of protocolized care, saying that it does not "allow some individualization of care and …will probably just increase risk for complications. So, in my perspective, I think working within the standards, but understanding that there's some variation could be beneficial… We should not be managing this patient like a recipe."

On the other hand, even participants like April (CNM), who generally rejected the idea of adhering to guidelines specifying the exact number of hours in which cervical dilation ought to occur, acknowledged the value of "really adhering to definitions… and just going back to a very standardized approach." She shared that "as an emotional midwife, taking that emotion out of the decisions… keeps you focused, and not getting like, 'Ah!' And not making decisions because you're scared, you know?" In this way, she described flexibly leveraging medical guidelines while intentionally deviating from them in response to the many variables of labor and delivery. Dr. Doe, a family medicine physician with 8 years of experience who attends about 4 births per month, echoed the idea that experience level matters:

> I haven't been doing this for 40 years or anything. And so, some of these things are still new to me, and I'm still seeing them for the first time. And it's almost like I just don't want to do the wrong thing. Because I've had less reps and it's just less practice… if you've made a cake four times a month versus making 40 cakes a month, you're going to follow the recipe every single time… Whereas if you've done forty… you may be paying less attention to the recipe because it's in the back of your mind. Like you already know the recipe like the back of your hand.

Gunner, a midwife with 15 years of experience, summarized the balance between these two ends of the continuum: "It's an art, it's a craft, *as well as* the skill and the science behind it."

Review. Several participants noted that recognition of possible labor dystocia typically involves a review of the patient's electronic health record (i.e., medical chart) by a healthcare

professional or a discussion among care team members (e.g., a medical resident providing a verbal review for an attending physician). This might include a recap of the labor course thus far (e.g., cervical dilation across time), a summary of interventions delivered (including medications), and a restatement of maternal characteristics, medical risk factors, and comorbid conditions. This step may ideally be completed prior to an updated cervical examination to help inform interpretation of results.

Examination of the Patient. All types of healthcare professionals in this sample discussed conducting regular evaluations of the birthing person, which may include health status, psycho-emotional wellbeing, labor progress, and other factors. Dr. Niko, a maternal-fetal medicine physician, described his physical examinations:

> So that includes vital signs, that includes symptoms, if the patient has pain, if the pain is well-controlled, if the patient has other symptoms of back pain, if the patient has pressure, if the patient has any problems with respiration, like catching her breath, things like that. I will look at all of the vital signs that are reported in the room. So many of these patients have a blood pressure cuff. Some of them have pulse oximetry, meaning that I can have the information about the blood pressure, heart rate, respiratory rate, and the oxygen levels of the patient. I focus on examining the patient, see if the abdomen is still soft, if there is any evidence of bleeding, if there is any evidence of high temperature, things like that. And then I proceed also to look at the baby… I can look at all of the parameters for appropriate fetal heart tracing. I will look at the contractions that I can obtain in the same SNR fetal monitoring, looking at the frequency of the contractions… And then I will proceed with the pelvic exam. In the pelvic exam, I examine, of course, the characteristics of the pelvis of the patient, the cervical dilation, the placement of the cervix, the station of the baby's head, the position of the head of the baby.

Certified nurse midwives in the sample described performing similar examinations. April (CNM) stated that to identify deviations from normal labor, her cervical exams include "everything that you would assess for Bishop score," meaning cervical dilation, cervical effacement, cervical position, cervical consistency, and fetal station. Midwives also noted that when labor dystocia occurs, they often elect to consult an attending physician who may repeat the examination to confirm findings.

The labor and delivery nurses in this sample reported their own regular assessments similarly targeting symptoms, vital signs, pain and coping, fetal wellbeing, and labor progress (some even performed cervical exams). When considering the recognition of labor dystocia, a critical element of these various healthcare professionals' examinations is the cervical check, which provides visibility into whether progress has been made since the previous exam. Other components of these evaluations, such as vital signs, fetal wellbeing, and maternal coping, ultimately inform clinical interpretation of: "How long is too long? How long is not long enough? (Regina, nurse)."

Assessment of Possible Causes. Another important purpose of the patient examination is to determine the likely cause or hypothesized possible causes of labor dystocia. This facilitates healthcare professionals' ability to provide appropriate explanations to the birthing person, informs the clinician's interpretation of the associated risks and likelihood of vaginal delivery (e.g., cephalopelvic disproportion may be associated with a higher level of risk and lower likelihood of vaginal delivery compared to inadequate contraction strength given that one may be readily treated with Pitocin whereas the other presents a mechanical problem obstructing progress), and guides subsequent decisions made regarding treatment plan.

Possible causes were mainly organized by participants in two ways. Many healthcare professionals conceptualized labor dystocia as being related to one or more of the textbook "P's"

of labor (either “3 P’s” or “5 P’s”). June, a labor and delivery nurse who teaches at a local university, explained that these refer to: “the Passenger, the Passageway, Positioning of both mom and fetus, the Psyche, and then the Powers, which is also the uterine contractions.” A few others simply classified causes as maternal, fetal, or iatrogenic factors (presented in Table 3).

Table 3

Causes of Labor Dystocia Identified by Participants Organized According to Maternal, Fetal, and Iatrogenic Factors

Possible Causes of Labor Dystocia
Maternal • Maternal pelvis size and shape (e.g., cephalopelvic disproportion) • Exhaustion / effort / coping • Inadequate contraction strength / pattern • Other risk factors (e.g., BMI, GDM, advanced maternal age)
Fetal • Fetal size (macrosomia, intrauterine growth restriction) • Fetal intolerance of labor (e.g., preventing augmentation) • Fetal position (e.g., occiput posterior presentation, asynclitism)
Iatrogenic • Care team failure to follow evidence-based guidelines for labor management • Patient refusal of interventions recommended by healthcare professionals • Poor patient social support • Inadequate pain control (e.g., analgesia) • Other aspects of labor management, e.g., timing of epidural, early membrane rupture, titration of Pitocin

Communication

Upon recognizing labor dystocia, whether formally diagnosed or based on clinical judgment, participants unanimously pointed to communication as the next crucial step in their

decision-making process. Communication generally occurs A) among members of the care team and B) with the patient and their support persons. As discussed previously, the order in which communication transpires may vary depending on factors such as the composition of healthcare professionals involved (e.g., an attending physician versus a medical resident), whether regularly scheduled patient rounding or team huddles occur, or in the case of medical emergencies.

Discussion Among Care Team. Both intra- and interprofessional care team communication in the context of labor dystocia primarily involves reviewing the labor course, arriving at a diagnosis, and aligning on a plan of action. Dr. Melody stated that on her team, "That includes the physicians or nurse-midwives, the nurse, and the charge nurse." Ruth, a midwife, highlighted that on multidisciplinary teams, "it takes a lot of checking and balancing and 'what's going on here' and just being very on it all the time to make sure that the entire team is aware of what's happening and goals and things like that." Clara, a midwife who works in a large academic medical center, described the typical communication patterns among her team:

> My day in labor and delivery would start off with getting a report from my receiving midwife who's going home, and that usually is around six o'clock in the morning, or six o'clock PM. And then normally, half an hour later, we join the whole labor and delivery staff team in something that's called a huddle, or sharing a report of all the patients on the unit, any complicating issues that could arise, what's working well, what's not working well, our staffing… Then we have huddles throughout the day where we all come back together and meet as a as a team on labor and delivery and provide updates. We have a huddle in the morning, we have a huddle in the afternoon. And then we have another sign out type of huddle in the evening before change shift.

Dr. Susie, an osteopathic doctor, recalled that in one labor and delivery unit where she was previously employed, healthcare professionals "could call a team meeting about a patient if

anyone on the team had concerns," which she regarded as an ideal model. She added that ideally, workstations would also be arranged such that care team members were seated proximally close to one another to facilitate organic face-to-face communication; she framed this in contrast to her current work environment that is "very divided. Residents are mainly watching tracings and putting in orders in one room, and the nurses are out at the nursing station."

Communication between members of the care team occurs via various modalities. In addition to team huddles (either at predetermined times, e.g., handoffs at changing shifts, called as needed, or emerging spontaneously in shared workspaces), participants mentioned communication in the form of one-to-one communication between professionals (e.g., face-to-face, phone calls, secure messaging), coinciding with bedside discussions, via other modalities such as whiteboards or shared spreadsheets, or at a minimum, indirectly through the electronic medical record (e.g., by placing orders, progress notes, other documentation).

The essentiality of one-on-one conversations was underscored related to *seeking consultation* (i.e., one healthcare professional consulting with another to gain their perspective) and provision of relevant updates to other team members. In particular, all of the midwives and residents in this sample discussed leveraging and informing the attending physicians overseeing their work, and perspectives varied considerably regarding when and about what to consult. Four nurses also emphasized the importance of consulting with one another (especially a newer nurse consulting someone with more experience), for example, when brainstorming maternal positions that could be used to progress labor. Consulting with both intra- and interprofessional team members may be especially relevant in the context of labor dystocia due to the utility of creative problem-solving. As Lily put it, "I don't care how much experience you have, you can never be too proud to say, 'What do you guys think? What do you think I should do now? We're just stuck.'"

Discussion With Patient and Their Support Persons. Communication with the birthing person and their chosen support persons (e.g., partner, family, friends, doula) may involve summarizing the labor course and what interventions have been utilized so far, sharing any findings that emerged when examining the patient (e.g., no additional cervical dilation, concerning vital signs) and explaining their significance, offering options for interventions along with appropriate education, making recommendations based on clinical expertise, and eliciting the patient's preferences, values, and goals.

Share Findings and Provide Information. All participants discussed the timely provision of information to patients and their support persons as a key element of their decision-making processes. Most professionals began their bedside discussions with a recap of the labor course, including the time elapsed, cervical change, interventions utilized, and maternal-infant response to interventions (e.g., fetal intolerance, contraction pattern/strength). Additionally, healthcare professionals shared the findings of updated assessments (e.g., cervical examinations, vital signs) and other data (e.g., fetal tracings, contraction strength as measured by an IUPC), explained what these findings meant, discussed their significance, and hypothesized underlying reasons or contributing factors. Some referenced the literature or professional guidelines and provided brief education about what constitutes a deviation from "normal" labor. For example, Dr. Diablo, a medical doctor with 30 years of experience, shared, "We talk about what's the expectation of how quickly we are to dilate, or what's the range. And then where they fall within or outside of those parameters." Dr. Susie similarly underlined the importance of "patient counseling, explaining what a prolonged course is, explain the possible reasons that we evaluated, …discuss the medical criteria for arrest of descent or dilation."

Thirteen healthcare professionals also emphasized the importance of clearly conveying their *level of concern*. Status updates about fetal wellbeing were generally prioritized in

reflection of typical patients' primary concerns. Dr. Diablo stated: "I start with 'The baby is okay,' and I end with 'The baby is okay,' because there are some contexts like fetal intolerance of labor where it is a much more urgent conversation." May, a CNM, discussed her approach to transparency: "I'm very honest with them 100% of the time. If I'm worried about them or their baby, I'm going to tell them that I'm worried about them or their baby, so they don't need to worry about me keeping secrets from them." Participants noted that ongoing communication with patients about risk levels is particularly relevant due to labor dystocia as a relative indication for cesarean delivery.

The possibility of cesarean delivery was intentionally woven into conversations with patients by at least fourteen participants, not only in service of transparency, but in an effort to reduce shock and prevent later patient resistance. Dr. JD illustrated that he might ask a midwife with whom he is collaborating: "'Hey, the next time you go in there, just plant the seed in the patient's mind that we're concerned that their cervix isn't dilating… and we may chat with you about whether or not it's going to happen vaginally or not,' with the implication being, you know, the alternative is the C-section."

Offer Options and Recommendations. The next element of communication with the birthing person and support persons discussed by all participants was the provision of *options* for next steps. Dr. Hunter, a medical resident, conceptualized this as, "What tools haven't been employed," and went on to say:

> "'What do we still have in our toolbox' is how I often describe it to our patients. Like, what things are we able to offer? What things have we already used, that we have available to us that are safe? And what interventions of those are going to bring us closer to our shared desired outcome?"

Some conceptualized this as a “menu of options” for intervention, from which healthcare professionals could selectively present menu items based on their perception of appropriateness for the medical situation and patient characteristics.

Within this conversation, all professionals generally stressed the importance of making a *recommendation* based on the best available evidence, their clinical experience and judgment, and the patient’s expressed preferences and unique characteristics. This last criterion, assessing for the patient’s preferences, values, and goals, was cited by fifteen participants as a common component of these bedside discussions. Some professionals, such as Dr. Susie (DO), begin with this: “Asking them their goals and what their thoughts are *before* offering, making my recommendation,” whereas others might gauge whether a recommendation is aligned with the birthing person’s preferences *after* it has been made (e.g., a nurse checking in with a patient about her feelings towards the clinician’s recommendation). Finally, seventeen participants noted that the presentation of options and recommendations also commonly includes patient education about various interventions, including risks, benefits, purposes, and predicted outcomes. See Table 4 for a list of common interventions offered to patients.

Table 4

Interventions Commonly Utilized in the Context of Labor Dystocia

Interventions Commonly Utilized in the Context of Labor Dystocia		
Intervention	Function	Participant Example
Pitocin (synthetic oxytocin delivered by intravenous infusion; may be	To augment labor by increasing contraction strength and/or frequency	“…we just kind of started some Pitocin, her body just needed that little nudge to help restart those contractions. But a lot of times, that's what I've found is either the woman's contractions sort of peter out for whatever reason, or she's having contractions, but they're

initiated, titrated, or paused)		not strong enough." (Dr. Scott, family medicine physician)
Amniotomy, or artificial rupture of membranes (AROM; "breaking the water")	To augment labor (e.g., by placing direct pressure of the fetal head on the cervix, by stimulating the release of hormones that increase uterine contractility) or to allow for placement of internal monitors	"Also asking: Is the patient's water broken? Because you know, sometimes breaking the water can help speed up labor. So then obviously provider would have to be involved at that point, either the midwife or the physician could consider breaking the water to help facilitate labor." (June, nurse)
Intrauterine Pressure Catheter (IUPC; internal monitoring)	To monitor contraction strength and assess "adequacy" of contractions; may inform titration of Pitocin; measured by Montevideo units	"And if… it's been several hours and nothing is changing, and we are doing concurrent things, changing our positions, getting comfortable if we need an epidural, titrating our Pitocin, doing all the things in the meantime, and we're not changing our cervix, that's when I have the discussion of using the IUPC to better measure our contractions. And I explain to the patients about how this is a true like physical measurement versus the monitors before that were telling me that you're having contractions, this is going to tell me how strong your contractions are and how I can adjust your Pitocin to better match what we need to have a baby. And I do discuss risks of introducing an IUPC to the uterus and all the things." (May, CNM)

Membrane sweep	To augment labor by mechanically stimulating the release of prostaglandins	"And one thing that I like to do is sort of -- this patient had an epidural. So, sweep the cervix or kind of like stretch the cervix out." (Dr. Melody, MD)
Epidural analgesia	To relieve pain, allow rest and relaxation, or address maternal distress	"But anecdotally I have seen like, they get an epidural, they can rest, and then their cervix will start changing. And I don't know if that is just the tincture of time, or whether or not it's actually related to the epidural or not." (Dr. Hunter, MD)
Maternal position changes and/or ambulation	To augment labor, address concerning fetal position, as a pain relief strategy, etc.	"…doing Spinning Babies moves and like the side lying release and things like that that's going to help get baby in a different position. Obviously being upright and moving and ambulation and walking and being on the birth ball and sitting on the toilet and getting the, you know, things like that." (Ruth, CNM)
Manual rotation of fetal head (typically only if 7-centimeter dilation or greater)	To address fetal position, e.g., in the case of occiput posterior presentation	"I had a mom a few months back, she was only five to six centimeters and stuck at five to six forever… And I said, "Nope, not doing this today. I'm going to go in there, I'm going to see what I can feel." …I will break the bed down so I can get super, super close, and really feel what I need to feel, not tear my back up, and try to get the baby to rotate. And so, this was the first time I had ever attempted before a woman got to seven centimeters. So five to six, I wouldn't be confident that I could even get in there and rotate. But I did and it rotated…And we ended up having a beautiful delivery like three hours later." (Gunner, CNM)

Help maternal coping (e.g., encouragement, rest)	To address the possible effects of maternal psycho-emotional factors on the progression of labor, or to facilitate the allowance of additional time	"I think my biggest thing is just trying to keep their morale up. Because it can be so, so frustrating when you're so excited and ready to meet your baby and you're getting so close, and then boom, you hit that crossroad. And it can be devastating to people because they're like, 'I do not want to have a C-section. I do not want to wait. I'm tired, I'm hungry, I'm all these things.' So just trying to keep them excited and just focused on the final outcome..." (Piper, nurse)
Amnioinfusion	To address expand the amniotic cavity, for example, to address fetal tracing concerns and allow more time	"So, they checked her, and she hadn't made any change, and the baby was having significant variables. And they were lasting quite a while, and her water was broken. So, we did an amnioinfusion to hope to buy us a little bit more time… The amnioinfusion resolved the variable, so the fetal intolerance was no longer a factor." (Regina, nurse)
Allow more time (wait or do nothing)	To allow for additional time for labor to continue progressing, either naturally or with interventions	"I was like, 'Well, I want to give her more time.' So, I gave her another two hours. She became completely dilated. She went from eight to complete." (Clara, CNM)

The order in which options and recommendations were offered also varied substantially between professionals (e.g., physicians tending towards more directive communication and recommendation than midwives), across situations (e.g., depending on the level of urgency, number of available options), and depending on the specific patient (e.g., whether a clinician

perceived that the birthing person may prefer one approach more than another). Some participants preferred to begin with a menu of options and conclude with their recommendations. Others began with their recommendation and followed this with one or more possible alternatives (e.g., Gunner, a CNM, provides "the best recommendation and an option"). Some provided options without making any specific recommendation. Lastly, some were more directive and only supplemented their recommendation with other options upon patient query.

Give Time to Consider. Approximately half of the participants called attention to the importance of allowing patients and their support persons time to consider before a final decision is reached whenever possible. Dr. Melody explained, "We try to provide as much information as we can, and then also sort of provide the patients some time and space to make the decisions on their own, like without us present in the room." This time may function as an opportunity for the birthing person and their support persons to think and share their thoughts privately, negotiate any differences in opinion, consult with trusted others (e.g., discussion with a doula), and seek additional information (e.g., via Google). It often also includes psycho-emotional processing of the news that labor is not progressing normally (or other information shared), especially in contrast to their initial goals and expectations for labor and delivery (e.g., if a birthing person had planned for an unmedicated birth and a recommendation has been made for medical intervention). Dr. Hunter shared her perspective:

> I think that what happens often is that we say these things, and then immediately we're like, 'Okay, what do you want?' And they're like, 'Well, this wasn't my plan; I wasn't planning to have a labor dystocia. And I wasn't planning to be in this position where I needed to have this discussion.' And so I think that, you know, in so many parts of birth and the labor process, people come in with such strongly held beliefs and ideas and expectations about what's going to happen. And when that deviates from the expected

course, it can be an emotional kind of crash upon people, and they need to navigate that within themselves and within the complex dynamics that are happening in a room.

Decision Making

Together, the healthcare professionals in this sample discussed decision-making occurring on multiple levels: 1) individually (i.e., a healthcare professional's internal decision-making process, e.g., a physician determining their best recommendation), 2) interpersonally (i.e., shared decision-making, between a patient and healthcare professional), 3) intra- and inter-professionally (i.e., among members of the multidisciplinary healthcare team), 4) at the meso level (i.e., involving the broader healthcare team or organization, e.g., hospital policies, involvement from the legal team), and 5) at the macro level (i.e., system-level factors, e.g., guidelines determined by ACOG, ACNM, AWHONN). Participants conceptualized the decisions made within the context of labor dystocia as generally centering on the interpersonal level between the birthing person and healthcare professional, with decisions at each of these other levels *influencing* that final decision-making mode.

Shared Decision-Making. In theory, shared decision-making integrates the best scientific evidence, risks and benefits, healthcare professional's clinical judgment, and patient's values and preferences such that birthing persons and clinicians reach a "conjoined decision" or "mutual agreement" (Dr. Niko, MD). Dr. Scott, a family medicine physician, captured the view of most participants, stating: "We've really moved away from that paternalistic, like, 'I'm telling you.' … Usually how I frame it is… "I'm going to go through the different options with you. I'm going to talk about the risks and benefits of each. And then we can decide *together* what we feel like is the best decision for you.'"

Although participants almost unanimously endorsed this approach as an ideal model, the extent of its applicability in this context varied depending on the patient, clinician, and

contextual factors. Ten participants discussed intentional efforts to reduce the patient-clinician power differential or maximize the patient's abilities and engagement to facilitate shared decision-making. For example, Isa shared: "I always sit down when I talk to patients, try to see them on eye level, I try to make sure it's a good time for them, that they're not in the middle of a contraction, or, you know, just had a difficult conversation or whatever, you know, try to give them a moment." In addition to professionals sharing information, options, and recommendations, Dr. JD (attending physician) confirmed that shared decision-making involves the patient "communicating their preferred treatment path… and it's really helpful if they justify it by saying why they value something or choose to do something and what their underlying values are." This allows clinicians to individualize care plans according to patient preferences and results in decisions that truly integrate the elements of a shared decision-making model. However, many factors and scenarios seemed to yield skewed decisions in the direction of being either more patient-driven or clinician-driven.

Patient-Driven Decisions (An Emphasis on Patient Autonomy). Ultimately, the birthing person's informed consent or refusal legally dictates any final decisions regarding how to respond to labor dystocia, and participant reports underscored consent as a crucial element of ethical medical care and decision-making. As Pearl, CNM, described: "Shared decision making is keeping her [the birthing person] center, including her in every conversation, and letting her voice be heard, recognized, and valued." This emphasis on patient empowerment and dignity in retaining control of what happens to one's own body during childbirth was echoed by most participants.

Interestingly, six participants also discussed that at times, this respect for patients' decisional autonomy may pose a barrier to shared decision-making and contribute to increased rates of unresolved labor dystocia ending in cesarean. This may include choices that conflict with

medical recommendations for a variety of reasons, including what two participants labeled as decisions driven by *fear of intervention* (i.e., a birthing person's desire for no medical intervention due to strong concerns about interfering with the physiological process of birth). Gunner described that some birthing persons:

> …want what they want, they decline, they decline, they decline despite our recommendation. There's this huge push to have autonomy in your care and to make your decisions… So now we're maybe six, seven hours out from the first recommendation. So would it have stalled that long, if they were able to trust and, you know, just understand that all of these readings about spontaneous labor, natural labor, don't always apply to every woman?

Dr. Niko underscored that beyond the challenges this may pose to labor progression, honoring patient choice may ultimately present a threat to safety. He stated: "sometimes, we have to understand that some patients might just consider an option that they feel that works for them. And that might, those options might or might not be aligned with evidence-based medicine, literature, or safety." A midwife, Ruth, discussed the psychological impact on her when patients make choices that conflict with evidence-based recommendations:

> …it weighs on me as a provider of like, 'I need to take care of you. And I don't feel like this is a very safe choice. And yet, you get to make that choice, and you have all the options to be able to make it.' That's when it feels difficult… it puts that pressure on us as far as like, 'We are trying to keep you safe and follow the evidence and the guidelines,' but they get to make that decision.

Thus, under some circumstances, decisions that favor the patient's preferences may not reflect other elements of the shared decision-making model.

Clinician-Driven Decisions (An Emphasis on Clinician Expertise). On the other hand, participants also discussed circumstances under which decisions reflect the healthcare professional's preferred plan of action. Thirteen participants alluded to this being influenced by the individual healthcare professional's value system and approach ("Do they *want* to involve the patient in their decision making?" June, RN First Assist). This may vary from person to person, or there may be differences in interprofessional philosophies (e.g., between doctors and midwives) regarding their role in decision-making. May, a midwife, shared her perspective: "I think physicians sometimes have a little bit more of the: 'I'm the physician and we're making this decision' kind of behavior.'" This was illustrated in language commonly used such as "*calling* a c-section" based on the number of hours elapsed since cervical dilation has occurred (e.g., "She got stuck at seven centimeters for a long time and we [the medical team] were about ready to call a C-section," Dr. Melody, obstetrician; or "We need to talk to the patient and let her know that we're calling a C-section," Dr. Doe, family medicine physician). Ruby, a labor and delivery nurse, shared that based on her observations, this occurs regarding other common interventions, like Pitocin, as well:

> In my experience, there isn't a lot of the doctor—more midwives are, but less doctors are—asking, 'Is it okay if we start Pitocin?' And instead, they come in and say, 'We need to start Pitocin.' And not a ton of like explanation of why and what it is, except: 'Your labor stalled out,' or 'Your contractions are spaced out. And so, we need to start this so that we can have the baby sooner.'

Dr. Doe discussed at length the tension between A) honoring patient preferences and offering choices and B) performing her job as a physician, which in the context of labor dystocia may involve intervening to augment labor progress. She is someone who takes a more directive approach. For example, she might say to a patient:

> ‘I'm going to ask the nurse to reposition you’ or, you know, ‘I need to rupture your membranes.’ But see even that, ‘I need to,’ it's not like a discussion… Some of this is, ‘I need to move your process along. And I need to rupture your membranes.’

Dr. Doe went on to highlight areas in which she *invites* patients to make choices reflective of their personal preferences:

> I will ask, you know, ‘Part of what we have to do is not only rupture your membranes, but also start you on Pitocin,’ for example, if they're not already on it. And so I'll say, ‘Do you want an epidural? The pressure, the contractions may be worse once you don't have that water balloon or kind of that cushion once I do this. And so have you considered about your pain plan?’ And that is shared decision-making in terms of letting them know that this is what's happening but there are things we can do to make you more comfortable… I think that most of the shared decision-making is whether they want an epidural or not, what type of pain medicines they want for this process, or not.

This perspective contrasted with that communicated by many other participants. Pearl, a midwife who is also certified as a doula, captured the core of this difference:

> ‘I'm gonna come in and I'm gonna break your water,’ versus, ‘How about we have a discussion. Let's talk about what the next steps could be.’ Totally two different things. One gave her the power to make the decision, one told her what we were going to do to her.

Another important example of clinician-driven decisions is the case of medical emergencies, a time when healthcare professionals may be required to assume the role of decision-maker to prevent maternal/fetal morbidity or mortality. Often, clinicians still gain patient consent in these situations using intentional language and conveying a sense of urgency. For example, Dr. Diablo shared: “So before usually it's, ‘You get to choose.’ Now it's… ‘I think

this is what we need to do and why.' And they [birthing persons] hear that switch and pick up on the urgency." Other professionals might be even more direct, saying, "'We have to do this immediately because this, this, this, and that'" (Clara, CNM). There are also circumstances under which birthing persons become incapacitated (e.g., loss of consciousness due to blood loss, seizing) and either an emergency contact or the clinician must make decisions on their behalf. Tyler noted that when emergency contacts are consulted, they typically communicate something along the lines of, "'You [the physician] do whatever you think is best to do to get this fixed.'"

One final and more nuanced dynamic that can challenge the ideal model of shared decision-making is that between birthing persons expressing their wishes and healthcare professionals who believe it is their ethical responsibility to make the decision at hand. Isa, a certified midwife with 21 years of experience, shared her thoughts:

> The hard thing with labor is you're in this altered state, you know, and so, there is this: We have such a responsibility to sort of hold this space for people being, both having bodily autonomy, but then also being so influenced by these really difficult things they're doing. And at what point do we need to almost become parental? And be like, 'I know that's what you're asking for. I don't think that's a good idea.'

This idea of navigating birthing persons' "altered mental states" during decision-making was reflected in examples by nearly every participant. For example, patient exhaustion, anxiety, and uncontrolled pain were cited as common threats to the shared decision-making model. Dr. Hunter grappled with this:

> I think that [birthing] people, I mean, truly like dissociate and are not necessarily like engaging always the same, like cognitive abilities that they typically employ outside of labor in the laboring context, especially if they do not have adequate anesthesia for whatever their context is. And so you might be having a very limited conversation or a

> conversation where they're not saying a whole lot to you. And it's hard to get a read on how people are actually feeling and what their desires actually are. People often say that they want things because they're in distress, and they're under duress. People will say, like, 'Just give me a C-section, just get this baby out, why can't you just get this baby out?' Not because, you know, that's maybe truly what they want in their heart of hearts, but because they're so concerned and so stressed, that they can't think of any alternative other than this process being over. And managing that fear and that anxiety and figuring out how to let those emotions be spoken and be heard. And also reassuring patients that they are safe, their baby is safe, that we have time to talk through this in a way that they would likely want to look back and think like, 'I did something that felt true to my values and was a decision that I felt comfortable with.'

Along these lines, participants noted a variety of scenarios in which they may elect not to honor a patient's communicated wishes while keeping their best interests in mind.

Deliver Interventions or Deliver Infant

Upon a decision being reached, the agreed-upon intervention plan is then carried out (see Table 4 above for a review of common interventions). Participants cataloged interventions aimed at augmenting labor (e.g., Pitocin, AROM), relieving pain (e.g., epidural), addressing maternal or fetal health concerns to "buy a little bit more time" (Lily, nurse; e.g., medication to address high blood pressure, amnioinfusion to improve fetal heart rate status), or improving maternal coping (e.g., social support, non-pharmacological comfort measures). Alternatively, fifteen participants noted that the action plan may be "expectant management," which simply entails allowing more time to pass while doing nothing (or continuing with the interventions already in place).

Finally, the decision reached may be to move forward with cesarean delivery, assisted vaginal delivery (utilizing forceps or vacuum), or if the patient has progressed to completion,

spontaneous vaginal delivery. Four clinicians in this sample outlined their hierarchy of goals in the following order: 1) ensuring the safety of both the birthing person and the fetus, 2) delivering vaginally whenever possible, and 3) supporting the birthing person in achieving their desired birth preferences. Dr. Melody (MD) noted:

> We know that a vaginal delivery is the best outcome for moms and babies so that as long as it remains safe and the risks for continuing in labor don't outweigh the benefits, then we will try with whatever interventions that we have to safely help labor progress. Otherwise, if the risks of being in labor then outweigh the benefits of a vaginal delivery, at that point, we would recommend delivery from an alternative route via C-section.

The post-decision intervention phase is also a time when additional communication among the care team occurs, either by *closing the loop* or *notifying*. This may serve the purpose of team alignment regarding goals and treatment plans. It may also function to assign tasks and mobilize teammates responsible for implementing elements of the plan of action (e.g., surgeons to perform a cesarean delivery, anesthesiologists for epidural placement, nurses to initiate a series of maternal position changes). Among doctors, midwives, and nurses, each is responsible for different tasks that all may be included in the plan of action. Dr. JD, an obstetrician, described this as a *spectrum* of duties, with nurses on one end performing tasks within their scope (e.g., titrating Pitocin; Dr. JD shared, “I don’t even know how an IV machine works…”), physicians on the other performing tasks that only they are permitted to (e.g., cesarean deliveries, rupturing membranes), some tasks that either a nurse or a physician could perform (e.g., cervical checks), and midwives expanding within the space between nurses and physicians, as they are qualified to perform a wider gamut of tasks (e.g., both the titration of Pitocin *and* the artificial rupture of membranes) in facilities where they are employed.

Monitoring

A period of monitoring then ensues – both monitoring maternal and fetal health and safety (e.g., vital signs, fetal heart rates) as well as monitoring the efficacy and outcomes of interventions (e.g., evaluating an epidural's success in eliminating pain, observing contraction strength measurements if an IUPC has just been placed). June, an RN First Assist, described that monitoring entails utilizing a "centralized monitoring system" that displays continuous onscreen fetal heart rate data and contraction patterns, as well as "going in the room super frequently as nurses." Tyler, another labor and delivery nurse, shared that when a patient's membranes have been ruptured for a duration longer than 12 hours, she might "start assessing temperatures more frequently, start assessing mom more frequently as far as her heart rate goes, baby's heart rate goes, and then changes in the fluid color as well."

Fifteen participants referred to the idea of "starting the clock" or a patient being "on the clock," meaning that a clinician has predetermined how much time will be given until their next evaluation of labor progress. Ruby, a labor and delivery nurse, offered additional detail:

> …we only talk about 'on the clock' when things have kind of fallen off the curve quite a bit… essentially, it's like, 'You have four hours, if you haven't changed in four hours, then we know that based on data, you're unlikely to have a vaginal delivery at this point.'

Participants mainly cited four hours as their rule of thumb (i.e., 4 hours elapsed with no additional cervical dilation), but the allotted times specified for monitoring before reassessing varied between 2-6 hours, depending on the situation. Dr. Hunter, chief medical resident, elaborated:

> I think that is the most subjective of all… Are you saying at that point that you're willing to give this person two hours, four hours, six hours, like, how long are you willing to do interventions for? And I think that that is context dependent on what the patient wants and what they prefer, the fetal life status and the fetal wellbeing, other maternal medical

> conditions, other things that might affect my recommendation that delivery needs to occur sooner rather than later. But I would say that I would give up to another six hours from the time of deciding that we are going to do interventions, potentially, if someone is super low risk, super uncomplicated and we haven't done any interventions, like their birth to this point has been completely non-interventional.

Six participants rejected the idea of defining time requirements altogether. For example, April, CNM, shared, "I don't usually put things on a strict timeline. Because I feel like there's so many individual factors, I just don't think I can add a time to that," and Gunner, CNM, added, "I don't like time. I don't rush women at all."

Following this period of monitoring, the decision-making pathway begins again with an updated examination of the patient, additional communication with the birthing person and their support persons as well as among the care team, and an updated decision about the plan of action. Dr. Niko stated: "Sometimes you go back and do it [the decision-making process] again, at least a couple of times before you start considering to do operative delivery and talk to the patient about that." April, CNM, further explained, "if we have adequate contractions and good fetal positioning, all the things, and then we've made no cervical change for a couple of hours and I am like, 'Okay, is there anything else I can do? Is there anything else I can do?' And if there's nothing else I can do, then that's when I call it… it's this *cyclical* thing." Thus, the decision-making process may be a repetitive sequence. It may also evolve in terms of efficiency versus thoroughness across iterations (e.g., skipping steps such as assessing patient values and preferences if they have been clarified during a previous conversation, consulting more frequently with an attending physician as the risk of cesarean delivery increases).

Outcomes and Goals.

Participants across the board discussed the following four outcomes as their primary targets, generally in this order of priority: 1) maternal safety, 2) fetal safety, 3) vaginal delivery whenever possible, and 4) maternal birth satisfaction, or the "birth experience of their dreams" (Dr. Hunter, MD). Participants also cited goals for care such as ensuring that it is: *evidence-based, patient-centered, individualized* (e.g., in accommodation of patient risk factors or personal preferences; Pearl, CNM: "Birth is not a one-size-fits-all. It is a custom-fitted situation."), *trauma-informed,* and *equitable* (Gunner, CNM: "You're gonna get the exact same care with me if you're self-pay, if you have no money, if you're an immigrant, like it just doesn't matter."). Additionally, eight participants expressed goals of ensuring that patients "don't feel like they're at fault, or that birthing person does not blame themselves" (June, nurse).

Key Factors Influencing Decision-Making Processes

The results presented thus far have included numerous influential factors woven throughout. At each step in the decision-making process, a variety of stakeholders' (i.e., birthing persons, their support people, multidisciplinary healthcare professionals) characteristics, beliefs, and approaches intersect with the unique medical circumstances within a broader context (e.g., hospital, healthcare system, time in history). Key factors that influence the ways that decisions play out in the face of labor dystocia are reviewed at a high level in the following sections.

Medical Factors

First and foremost, the health professionals in this sample directed their attention to factors related to the medical management of labor dystocia that influence decisions made in this context (summarized in Table 5 in terms of questions that healthcare professionals might ask themselves as part of their decision-making processes). Many of these medical factors reflect the various possible *causes* of labor dystocia and their corresponding *interventions* discussed previously. Others are related to maternal and fetal safety and wellbeing, which must be

monitored and addressed proactively; these factors inform the point at which risks have become too high, warranting a cesarean delivery.

Table 5

Key Medical Factors that Influence Decision-Making Surrounding Labor Dystocia

Key medical considerations	Questions asked
Medical management of labor	
Time elapsed	How long has the patient been in active labor? How many hours has it been since cervical dilation changed? Since time of admission? Since induction of labor began?
Cervical change	Has there been cervical change since the last examination?
Induction	Did labor onset begin spontaneously or via induction?
VBAC / TOLAC	Has the patient previously delivered via cesarean?
Gravidity / parity	Is the patient primiparous or multiparous?
Interventions	
Rupture of membranes	Is the patient's water broken?
Pitocin	If Pitocin is being used, for how long and at what dose? Is the contraction pattern normal?
Intrauterine pressure catheter	Has an IUPC been placed? Is contraction strength adequate?
Pain control	Is the patient's pain being adequately controlled? Do they have an epidural?
Previous interventions	What other interventions have already been done and which are still available options? (e.g., ambulation, position changes)
Fetal factors	
Fetal heart rate tracing / wellbeing	How is the fetus tolerating labor?
Fetal station / position / presentation	Where is the fetus? Occiput anterior/posterior? Breech? Moving downward?
Fetal size	Is the fetus macrosomic? Growth restricted (IUGR)?

Maternal factors	
Pelvis	Is the pelvic shape or size a contributing factor? Cephalopelvic disproportion? Gynecoid or otherwise?
Vital signs / health issues	Has the patient developed medical problems (e.g., fever, high blood pressure)?

In addition to the medical considerations discussed above, participants cataloged a long list of additional factors that influence the way that decision-making ultimately plays out in the context of labor dystocia (Table 6). These are represented visually in a proposed Social-Ecological Model of Intrapartum Decision-Making (Figure 6) that aims to capture influential factors at the level of the individual, patient-clinician, social context, care team, labor and delivery setting, and broader macrosystem. These factors will be reviewed in detail in the following sections.

Table 6

Key Social-Ecological Factors that Influence Decision-Making Surrounding Labor Dystocia

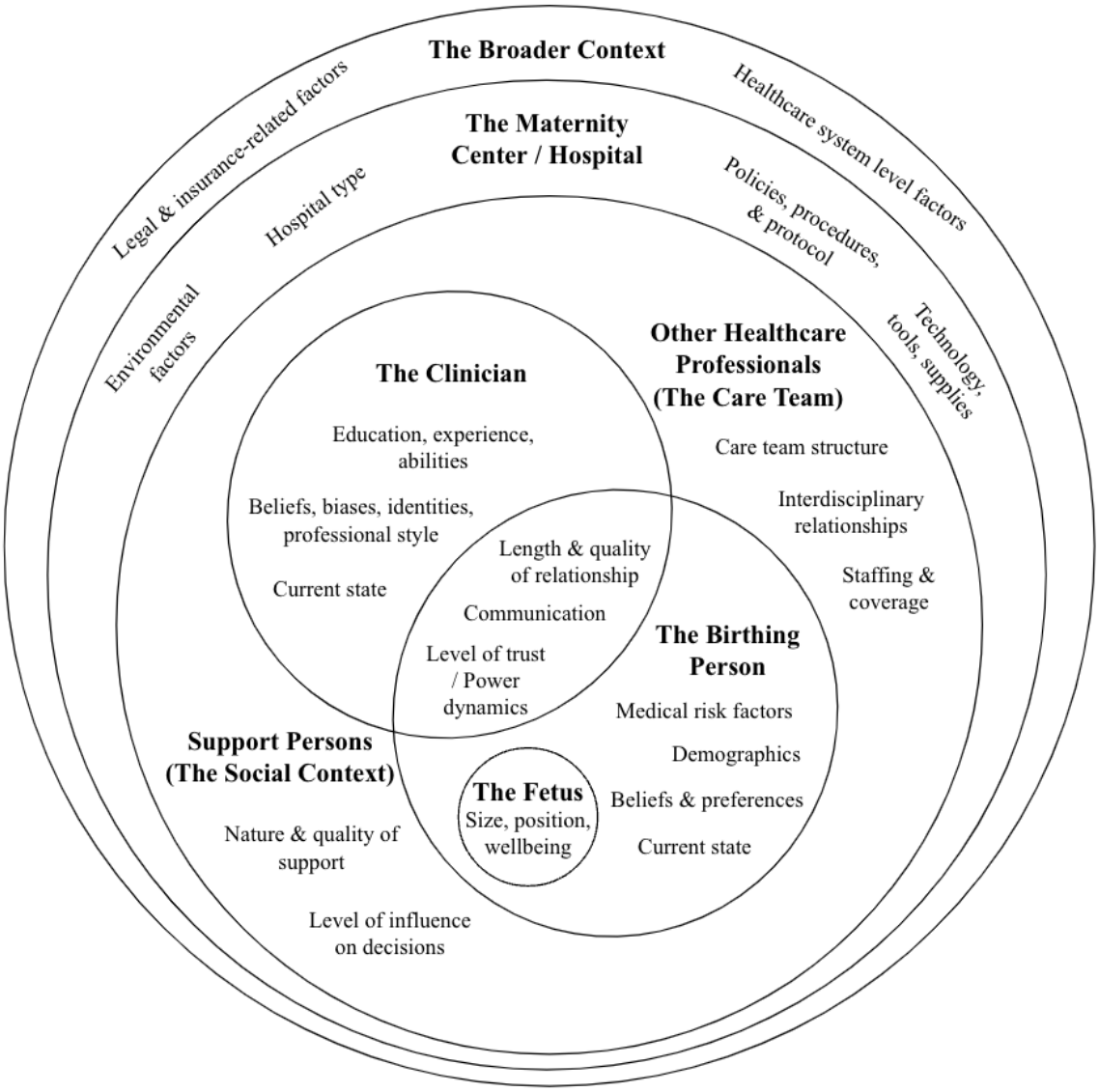
Category	Subcategory	Specific examples
Patients	Medical risk factors	Maternal age; BMI; Maternal health issues/comorbidities (e.g., diabetes, preeclampsia)
	Demographics & other characteristics	Race/ethnicity; Sexuality/gender; Religion; Cultural; Financial situation; Insurance; Education level; Health literacy
	Birth-related beliefs & preferences	Patient preferences; Birth plan; Beliefs about birth; Birth-related knowledge; Prenatal preparation; Exposure/access to information (e.g., social media)
	Current state	Stress and anxiety; Exhaustion; Maternal effort; Motivation; Self-advocacy/assertiveness
Healthcare professionals	Education, experience, and abilities	Type of professional (e.g., MFM, DO, CNM, RN) Experience level; Educational background; Continuing

		education; Comfort level or competency with specific procedures (e.g., forceps); Public versus private clinician
	Beliefs, biases, identities, and professional style	Clinician identities (e.g., race, gender); Risk tolerance; Communication style; Implicit biases; Views on what their role is; Degree of openness to patient preferences; Regard for labor management as a recipe versus an art form
	Current state	Patience; Investment; Psycho-emotional state (e.g., nervousness, calm); Time available / competing responsibilities; Amount of time spent on the floor
Patient-clinician	Length & quality of the relationship	Established relationship versus meeting for the first time; Quality of relationship; Personality congruence
	Communication	Compatibility of communication styles; Language barriers
	Level of trust / power dynamics	Degree of trust/distrust; Clinician efforts to reduce (or uphold) power differential; Patient regard for medical authority; Patient past experiences w/ the medical system
Social context	Nature/Quality of support	Who is in the room; Relational dynamics; Doulas; Degree of helpfulness of support; Types of support provided
	Level of influence on decisions	Degree to which the support persons respect the patient's decisional autonomy, try to influence decisions, or take over decision-making
Care team	Care team structure	Professional hierarchies and role differentiation; Composition of professionals (e.g., presence of midwives or not, presence of learners or not); Supervision structure; Division of patients (e.g., a high-risk team and a low-risk team, shared patients versus assigned to a clinician)

	Interdisciplinary relationships	Quality of relationships; Degree of teamwork; Alignment in approaches; Conflicting opinions; Tension among professionals; Respect (e.g., for hierarchies, for each other's point of view); Learning/teaching culture
	Staffing & coverage	Shift-based versus continuity of care; Day/time (e.g., shift changes, nights/weekends); Availability of staff (e.g., anesthesiologists and/or OR staff); Triaging of patients; Busyness of the floor
Hospital	Hospital features	Type of hospital (e.g., private hospital, academic medical center, community hospital); Environmental / aspects of the setting (e.g., whether nurses and physicians' work stations are together or separate); Technology, tools, supplies (e.g., availability of birth balls, Doppler units)
	Policies & procedures	Hospital policies; Labor management protocols; Frequency of monitoring; Practice pay structure; Whistleblowing and remediation; Ethics; Hospital initiatives (e.g., aimed at reducing cesarean rates)
Broader context	Legal & insurance-related	Potential threat of lawsuit; laws; Documentation in the medical chart; Insurance coverage for elements of care
	Healthcare system-level	Cost of medical care; Healthcare professional shortages; System overwhelm (e.g., leading to time pressures); Medical racism
Other	Scientific evidence	Research, data, literature; Limited nature of available evidence
	Medical guidelines and practice standards	Updates to medical guidelines or practice standards over time; Differences by discipline (e.g., ACOG versus ACNM); Lack of clarity or "gray zones"

Figure 6

Social-Ecological Model of Intrapartum Decision-Making



Patient Factors

Birthing persons' **medical risk factors** were cited as a critical consideration by all participants, particularly medical conditions (e.g., preeclampsia, diabetes), age (e.g., advanced maternal age, teenage pregnancy), and body size or composition (e.g., high BMI, excess weight

gain during pregnancy). All participants also referred to the birthing person's **demographics or other characteristics** as influential factors in decision-making processes (e.g., contributing to patient preferences, influencing communication or options offered). These included race/ethnicity, religious beliefs, education level, health literacy, financial/insurance situation, and other cultural factors. Dr. Hunter, who identifies as a White woman, shared one standout example of what several participants alluded to:

> Black birthing people, rightly so, have been very concerned by statistics regarding maternal mortality and have very much internalized and brought that to providers… they'll say, like, 'I'm afraid that I'm going to die.' They will say those words out loud. And so… even if it's not spoken that explicitly out loud, that gets internalized in providers. And I think that there is a feeling that, or a concern that you don't want to be someone who is the one who's not listening, who's not doing things in a way that you would miss something or misguide or mis-recommend and lead to a bad outcome for someone. And I think that that sometimes is great and means that we need to be looking at our either conscious or unconscious bias within ourselves and say, like, 'Okay, how would I practice my best evidence-based, patient-centered care for this patient, the same as I would for anyone else?' *And* I think sometimes when we are so cognitively or emotionally engaged in, 'How am I not going to hurt this person,' then we deviate actually, from what our like typical best care would be.

Of course, patients' **birth-related beliefs, knowledge, and preferences** were strong contributors to the outcomes of decision-making processes discussed by all participants. Patient preferences were sometimes described in terms of a birth plan (which some participants appreciated, while others did not) and generally as a reflection of their deeply held beliefs about birth (e.g., where a birthing person lands on the continuum of 'birth is a medical process' versus 'birth is a natural,

physiologic process'). Decision-making was also strongly influenced by the extent and quality of patients' birth-related knowledge (e.g., "it's really hard to have shared decision-making when your patient does not understand labor and delivery" May, CNM), prenatal preparation (e.g., formal classes, education and expectation-management from clinicians in prenatal appointments), and exposure or access to information (e.g., social media, Google).

Finally, participants indicated that the birthing persons' **current state** (i.e., mental, emotional, physical) could vastly alter the outcomes of decision-making processes. Key examples included elevated stress and anxiety, exhaustion, motivation or self-efficacy ("you want to promote that, 'we can do this' kind of atmosphere," Lily, nurse), effort (e.g., pushing effort, which may be correlated with either exhaustion or motivation), and behaviors that reflect self-advocacy or assertiveness. April, CNM, stated: "If the patient doesn't have it -- if her emotional resilience and reserve is just zapped and she just needs to be done, she can choose that." Pearl, an African American midwife with nineteen years of experience, shared her belief that, "From the neck up can govern from the neck down" and went on to share a powerful story of the role that cognition and emotion can play in labor dystocia:

> One that comes to mind is a woman who had gotten all the way to 10 centimeters, so she had completed her first stage, and then baby just would not come out. And there was all sorts of speculation on why, and when I went in and talked to her, it was a young black woman… she was about 23, 24 years old. And she said, 'I'm having a boy child. I'm having a boy.' And at first, I didn't follow her. But then she said, 'As long as he's inside, I can protect him. I can't protect him once he's outside. They kill little black boys.' And I went, 'Wow.' That was, I wasn't expecting that. But her labor just stalled, didn't go anywhere, even though she was at the point where she could have had a baby.

Seventeen participants in total referenced stress and coping, both as underlying contributors to labor dystocia as well as factors that influence their decision-making and management plans.

Healthcare Professional Factors

Healthcare professionals' own characteristics and experiences were also discussed by all participants as important differential contributors to decision-making processes. Primarily, healthcare professionals' **education, experience, and abilities** influenced various aspects of their approach, specifically, the type of professional (e.g., MFM, DO, CNM, RN; private versus public physicians), their educational background (e.g., degrees obtained, period during which education was received), their experience level (e.g., years of experience, number of births attended, experience working with specific medical conditions or patient populations), continuing education received (e.g., Spinning Babies was mentioned by 10 participants as a valuable training experience), and their comfort level or competency with specific procedures (e.g., forceps-assisted delivery). Additionally, healthcare professionals' **beliefs, biases, identities, and professional styles** were discussed by all participants. Specifically, these included an individual professional's communication style (e.g., how they describe an intervention, how they convey concern or offer reassurance), risk tolerance (which may be influenced by "outcomes that they've had in the past and their trauma from possibly bad outcomes," May, CNM), views on what their role is (e.g., scope of practice, nurses who self-describe as "patient advocates"), degree to which they prioritize patient preferences, where they fall on the continuum of labor management as a recipe versus artform, their implicit (or explicit) biases, and their identity characteristics (e.g., race/ethnicity, gender, age). Dr. Diablo, an African American physician who completed her medical degree in 1995, reflected on the relevance of her own identity characteristics:

> When I was a younger physician, especially younger in the South, presenting as the doctor in charge to what I would call middle-aged, Caucasian women, that was always—not always—that could sometimes be an, 'Oh!' You know, you could see the surprise on their face… I was used to that startle factor. And then as I've gotten older and gray hair… it really does give you a certain amount of cachet… Another thing… in terms of demographics, is being African American. And so, I find that, especially in discussing with African American patients, that I sometimes can carry the conversation a little deeper than my Caucasian colleagues can. Part of it is believability. And trust. As well as code switching. So sometimes there's code switching that goes on as well. And, and that's helpful.

Lastly, ten care team members discussed that decision-making processes are impacted by aspects of their own **current state** (i.e., mental, emotional, physical). This included their own exhaustion (e.g., tiredness during overnight shifts, fatigue from supporting a prolonged pushing process, "If you come into a room and you're tired, you can come off as being kind of snippy. Kind of short-tempered, being in a rush to try to get something done," Clara, CNM) and psycho-emotional factors (e.g., nervousness, calmness, "scary and high adrenaline," Piper, RN, "sometimes she's crying, I'm mad, I want to cry," Gunner, CNM). Factors such as the healthcare professional's *patience* (or "willingness to wait," Dr. Melody, MD) and nurses' "enthusiasm to help try to make it happen" were also discussed frequently. And of course, the amount of time a given healthcare professional has available or is willing to spend "on the floor," which may be dependent on competing responsibilities, patient volumes, and availability of other staff (e.g., a physician leveraging nurses or a midwife), was discussed by seventeen participants as an influential factor.

Patient-Professional Factors

In addition to the contributions of patient factors and healthcare professional factors, several important considerations were described related to the patient-professional relationship itself. First, fourteen participants referred to the **length and quality of the relationship** between a healthcare professional and the birthing person as critically important. For example, whether a patient and clinician have an established relationship that was developed prenatally or are meeting for the first time during labor and delivery was a consideration raised by eleven participants. The quality of the relationship, or rapport, between patients and professionals, may merely be a product of personality congruence or incongruence, or it may be influenced by the events and experience of navigating childbirth together ("we start to connect, a bond within a stressful moment, and that tends to make things a little bit easier," Gunner, CNM). Second, eight participants commented on the **communication** between patients and professionals, in terms of the compatibility of communication styles as well as the challenges associated with language barriers and the use of translation services. For example, June, a labor and delivery nurse, shared that a language barrier can impact "whether or not the patient really feels like they have a say, especially if the interpreter's not right there, and we're waiting, there's like a time lapse in bringing an interpreter or getting an interpreter source to the room." Third, sixteen participants explained that the **level of trust or power dynamics** between a birthing person and their care team can strongly influence decisional processes and outcomes. In many ways, this is a co-constructed interpersonal dynamic, and participants discussed influential factors including clinician behaviors that reduce or uphold the power differential, degree of patient respect for or rejection of medical authority, the patient's past experiences with the medical system (e.g., history of birth trauma), and concordance versus discordance of patients' and professionals' intersecting identities.

Social Context

The birthing person's social support was another area considered by all participants as a key influencing factor in decision-making processes. The **nature and quality of support** available to birthing persons included the composition of support people present, the relational dynamics between them and with the birthing person, the types of support provided (e.g., physical, emotional, informational), the degree of helpfulness of support persons, and whether a doula may be involved. Ruth, CNM, asked: "Do they feel like they have a *supportive* environment? Are they, you know, having a fight with their partner about something? Are their in-laws in the room and they don't feel comfortable?" A labor and delivery nurse, Ruby, with 17 years of experience, shared that she has "seen when people have arguments with their significant other in labor, or have family drama, not always their significant other, that it does stall things out a lot," suggesting that social conflict may even be an underlying cause of labor dystocia.

Additionally, the birthing person's support team's **level of influence on decisions** was raised as a key factor by thirteen participants. This could include the degree to which a patient has decisional autonomy versus has a support person present who assumes responsibility for decision-making, works to influence decisions made, speaks for the patient, and so on. Lucy, RN, explained that, "You'll get a lot of opinions. Because sometimes the whole family's in there… the best time is when the family is supportive of the patient and what they decide." Dr. Susie, DO, added an example of when a patient may defer decision-making: "In some cultures, the male partner may be the one that talks more…it's important to address these like cultural preferences, that the patient may want that, but also making sure the patient understands and is comfortable with the plan." A variety of professional types in this sample described intentional efforts to support patients in managing the social dynamics around them and in keeping the birthing person at the center of the decision-making process.

Care Team Factors

The next important set of influential factors relates to the care team and how multidisciplinary teams function. All participants discussed elements of the **care team structure** that play key roles in interdisciplinary decision-making processes, such as the composition of professionals on a team (e.g., employment of midwives or family medicine physicians, presence of medical residents/students or other learners), the supervision structure and culture (e.g., degree to which nurses or midwives are given autonomy versus oversight), assignment of patients (e.g., division into high-risk and low-risk teams, shared patients versus patient-professional assignments, patient-professional ratios), and professional cultures around hierarchies and role differentiation. **Interdisciplinary relationships** were also commonly discussed in relation to decision-making processes, including the quality or depth of relationships between team members (strong, positive relationships, or conversely, interpersonal tension or contempt), the degree of teamwork that occurs, alignment in approaches or philosophies among team members, the approach to navigating conflicting opinions, degree of interprofessional respect (e.g., valuing other professional's perspectives, respect for professional hierarchies), and the existence of a teaching/learning environment. Lastly, **staffing and coverage** was pertinent for most participants, which included the influence of shift-based versus continuity of care models, the busyness of the unit at a given time and how patient needs are triaged, availability of staff (e.g., availability of anesthesiologists, operating room staff, surgeons), and the day and time at which steps in the decision-making process take place (e.g., around shift changes, at night, on weekends).

Hospital Factors

Influential factors at the hospital level were noted by all participants as well. These included **hospital features** such as the type of hospital (e.g., private hospital, academic medical center, community hospital), availability of technology, tools, and supplies (e.g., birth balls,

Doppler units), and environmental aspects of the setting (e.g., whether nurses and physicians' workstations are together or separate, how far away on-call rooms are located). Related to this last point, Dr. JD, a hospitalist, illustrated with a patient example: "Her baby's heart tones were down by three minutes when they called me. But because it's the middle of the night, and I have to get across the unit, by the time I was there, it had been seven minutes since the heart tones were down." Additionally, **policies and procedures** established by hospitals were often referenced. This included policies related to the required frequency of monitoring, the practice's pay structure (e.g., relative value units or RVUs that inform reimbursement), hospital initiatives (e.g., those aimed at reducing cesarean rates), whistleblowing and remediation procedures, and involvement of ethics boards. May, a midwife working in a large academic hospital, shared:

> We've had a lot of conversation about length of stay and how much we get paid lately. But does that change what I'm going to do? Probably not, unfortunately, for my physician partners. But one of our physician partners is Chief of OB right now. And she's all the time like, 'You've got to keep the labor moving.' And I'm like, 'Well, I'm not gonna make them do anything they're not going to let me do.' So I am aware of them [the financial aspects]. Apparently after four days inpatient, we don't get paid anymore. So that's been a big conversation lately. But doesn't necessarily change my practice. Because it's going to take however much time it takes, and we have high risk patients, and that just is what it is.

Broader Contextual Factors

Participants endorsed the relevance of broader contextual factors to their decision-making processes less frequently than other factors. These included both **legal and insurance-related** factors such as the threat of a potential lawsuit ("fear of litigation…I probably consult for second stage bad heart rates, maybe faster than some people because of that," Isa, CNM), specific laws,

appropriate documentation in the electronic medical chart, and insurance coverage for various elements of care. Contextual factors also included those at the **healthcare system-level**, such as the cost of medical care, concerning healthcare professional shortages (e.g., those restricting hospitals' ability to hire 24/7 in-house anesthesia), healthcare system overwhelm (e.g., leading to increased time pressures), and medical racism (and coinciding with this, patients' broadly growing awareness of health disparities).

Other Factors

A few final influential factors discussed throughout these interviews center on the **scientific evidence** available (e.g., research, data, literature) and the **medical guidelines and practice standards** published by each profession's governing bodies. Over half of participants commented on the limited nature or insufficient quality of available scientific evidence on labor and delivery. For example, Dr. JD, a male obstetrician, candidly expressed his frustrations:

> …there's been an underfunding of women's health research for the last *forever*, of human history. And so, a lot of the information, a lot of the data we have, and the quality of the studies is probably pretty poor. And they're old. And so this [labor dystocia] is, I think, one of many areas of women's health research that could probably use some better quality, higher quality data and study and evaluation.

Four participants also lamented the lack of clarity and "gray zones" inherent to medical guidelines or practice standards, especially when examining those published across disciplines (e.g., ACOG versus ACNM). Thirteen referenced updates to definitions and guidelines made across time (e.g., "They changed the definition of active labor. That used to be four centimeters, now they're using six centimeters," June, RN) and the scientific community's relatively recent "recognition that not everyone falls on the curve" (Dr. Diablo, MD). In chorus, the participants

in this sample called for updated, more rigorous research that includes the diversity of labor and delivery patients and experiences, which may serve to inform updated definitions and guidelines.

CHAPTER 5: DISCUSSION

This study utilized an informed constructivist grounded theory approach (Charmaz, 2006; Thornberg, 2012) to explore the processes through which interdisciplinary teams of obstetric healthcare professionals and their patients make decisions in the context of labor dystocia. Most prior research on this topic has focused on physician perspectives despite evidence suggesting that other members of the birthing person's care team are involved (Iobst et al., 2022). Thus, this study was designed to reflect the views of a variety of key care team members (i.e., physicians, midwives, nurses) and thus represents a convergence of multiple constructed realities (in the spirit of constructivism; Marshall & Rossman, 2010). Additionally, a hypothesis was made that numerous factors beyond the diagnostic, physiological, and medical may influence this indication for cesarean delivery, such as the sociocultural context, availability of high-quality support for the birthing person, and the birthing person's mental-emotional state. Accordingly, the study's design was informed by theoretical models and previous literature that include biopsychosocial-cultural, socio-ecological, and interprofessional factors (Bronfenbrenner, 1979; Engel, 1977; Ewart, 1991; Légaré et al., 2011; Lowe, 2007; Ragusa et al., 2016), which effectively illuminated factors beyond the biomedical and beyond the patient-physician. Additionally, the study questions were investigated through multiple modalities: a semi-structured interview, a diagramming exercise, and an online survey. Thus, the study's rigor and trustworthiness were enhanced using three forms of triangulation, including the consideration of multiple relevant theoretical frameworks, the perspectives of participants from multiple professional disciplines, and the collection of multiple forms of data. Finally, the use of two coders and an integrative member check process further bolstered the study's trustworthiness.

Theoretical Implications

This study's findings are consistent with previous research, particularly the framework of shared decision-making during labor and birth in hospital settings that was proposed by Iobst et al. (2022), which has highlighted A) the involvement of multiple stakeholders (i.e., clinician, nurse, partner/family/friends, doula) and B) the multi-stage nature (e.g., gathering information, identifying preferences, discussing options, making decisions). Healthcare professionals in the present study, who represented multiple disciplines and levels in the professional hierarchy, each confirmed their influence on decision-making processes while also highlighting areas of reliance on their fellow care team members (e.g., consultation, practical intervention-related skills).

Our findings also confirmed that the concept of *equipoise* (Elwyn et al., 2000), which refers to the adoption of an attitude recognizing the existence of multiple legitimate treatment options, is relevant in the context of labor dystocia (see Table 4 for a list of interventions commonly used in the management of labor dystocia). Elwyn et al. (2000) argued that professional equipoise towards various possible treatments is an essential facilitative factor of shared decision-making. Participants in the present sample generally acknowledged the availability of multiple interventions that may be utilized to address labor dystocia. Yet, some noted examples in which only a single recommendation may be offered (e.g., Dr. Doe provided the example: "I need to rupture your membranes."). Previous research has revealed that when labor does not progress normally, the choices available become increasingly restricted (Armstrong & Kenyon, 2017), and the present sample discussed this. Participants reported that a menu of interventions exists from which they may selectively offer options to birthing persons when labor stalls; however, the options ultimately offered depend on healthcare professionals' perception of which ones may be evidence-based, clinically indicated, or otherwise appropriate for the individual patient and clinical situation.

The five decision-making pathways that emerged from this data set contribute an important extension to the existing literature by illuminating the order in which events occur in interprofessional shared decision-making processes. Participants consistently noted the essentiality of communication A) among members of the care team and B) between healthcare professionals and birthing persons (along with their support persons); however, they reported that the order and timing of these conversations varied considerably. This finding may help explain differences in birthing persons' perception of choice and control, which previous research indicates is a key variable in birth satisfaction and postpartum psychological outcomes (Cook & Loomis, 2012; Green & Baston, 2003). That is, patient-clinician shared decision-making conversations that *follow* interprofessional discussions may be more likely to yield clinician-driven decisions. In contrast, patient-clinician discussions that *precede* interprofessional consultation may be more likely to incorporate patient values and preferences. For example, if a nurse-midwife or medical resident seeks consultation with an attending physician prior to engaging a birthing patient in a shared-decision making conversation, they may only present options that reflect the attending physician's recommended course of action (e.g., in the case of "calling a c-section" followed by "consenting the patient"). This begs the question: When is a decision truly made? If a clinician reaches a decision regarding the appropriate action sequence, perhaps in consultation with other members of the care team, *prior* to a bedside discussion, does the informed consent process realistically engage birthing persons as participants in shared decision-making? This study underscored that clinicians inherently hold a higher position of power than their birthing patients, especially during labor dystocia, when pain, exhaustion, and psycho-emotional factors are at play. The order in which communication transpires may influence decisional outcomes and be a differential factor for issues of patient-clinician power dynamics.

This study contributes a social-ecological model of intrapartum decision-making to the literature as well. The catalog of influential factors cited by participants in the present study were consistent with Lowe's (2007) previously proposed conceptual model of factors affecting the occurrence of cesarean section for dystocia. The presently proposed conceptual model (Figure 6) extends Lowe's prior research, which focused on individual healthcare professionals' clinical decision-making processes, by examining decision-making processes (in contrast to a focus on outcomes) through an interprofessional and patient-clinician lens. The proposed model is also consistent with social action theory (Ewart, 1991), as this study confirmed that birthing persons, their support persons, healthcare professionals, and their fellow care team members share highly interlinked social scripts that influence decisions. The present model situates both the birthing patient and healthcare professional at the center of the social-ecological system in reflection of the shared decision-making model and in acknowledgment of each individual's level of influence on the other's action scripts.

Implications for Practice

In addition to knowledge and theory, this study's results point to several areas for potential practice improvements. First, the interprofessional nature of decision-making and care delivery in the context of labor dystocia indicates a need for creative solutions that facilitate team-based approaches. As one participant suggested, it may be ideal for key care team members (e.g., certified nurse-midwife + attending physician + nurse) to engage in bedside discussions with the patient and family so that all stakeholders are present and involved in decision-making conversations. Similarly, environmental designs that facilitate interprofessional collaboration (e.g., shared workstations or workrooms that include all care team members) may offer benefits for interprofessional relationship-building, timely consultation, and other aspects of care team alignment that are important to decision-making processes.

Second, participants generally agreed that the provision of information is key to patient-clinician shared decision-making processes; this included overviews of available options, the risks and benefits associated with each, and education about what constitutes a deviation from normal labor progression. It may be useful to develop decision-making aids – perhaps something akin to a true "menu" of options from which to select interventions – that could improve the depth and breadth of information offered to patients. This could serve to increase the consistency of information shared across patients and regardless of the individual healthcare professional's interpretation of what information to share and *for whom* it is warranted.

Shared decision-making aids (e.g., digital materials, printed handouts, visual aids posted in patient rooms) could perhaps also be developed that include an outline of the key decision-making components to increase transparency and accountability between birthing persons and their care teams. For example, a decision-making aid might include steps such as "the birthing person shares their values and preferences" or "the clinician offers a recommendation based on their clinical expertise and knowledge of the best available scientific evidence" to highlight the team's or organization's emphasis on fostering a two-way information-sharing and decision-making relationship.

Third, this research confirmed the relevance of psycho-emotional factors in the context of intrapartum decision-making. This indicates that additional investment in programs and interventions targeting birthing persons' coping, as well as healthcare professionals' own emotion regulation, is warranted. Birth doulas were one idea offered by participants in this sample, as evidence has shown that this class of professionals is well-poised to provide nuanced emotional and informational support to birthing persons (Lisenbee et al., 2023). One participant in our sample, Pearl (CNM), discussed her development of a volunteer doula program through which she has trained Black doulas to support Black birthing persons in their practice (i.e.,

racially concordant care); she described data indicating that in just two years, this intervention has improved patient satisfaction scores and led to reductions in racial disparities in her practice.

In addition to in-house doula programs, patient-centered models of high-quality care in obstetrics and gynecology are also increasingly prioritizing integrated behavioral health services (Poleshuck & Woods, 2014). However, these models are generally built around antepartum and postpartum referrals rather than behavioral health services during the labor and delivery process itself. The value of this potential approach is two-fold. First, integrated behavioral health services, which could include the employment of psychologists, social workers, family therapists, or other mental health counselors, hold the potential to buffer against birthing people's psycho-emotional risk factors through direct interventions such as grounding techniques, mindful breathing practices, cognitive restructuring of fears, motivational interviewing to increase the likelihood of adaptive health behaviors, and of course, decision-making support (e.g., values clarification, examination of benefits and drawbacks, communication skills-building). Second, data indicates that integrating a psychologist or other mental health professional within obstetrics "is likely to improve the practice's overall sensitivity to psychosocial concerns" (Poleshuck & Woods, 2014), especially for underserved populations, which may be explained by integrated mental health professionals' routine attendance at interdisciplinary team meetings, participation in the training of medical residents and medical students, and collaboration on patient care (Coons et al., 2004).

Although research investigating the impact of healthcare professionals' emotional states on outcomes is limited, one previous study reported that clinicians believe that their emotions influence the care they provide, especially anxiety-related emotions (Martin et al., 2015). The present research echoed this finding and suggested that clinicians' ability to manage their emotional responses may have implications for patient-clinician communication quality, patient

satisfaction, implicit biases and related disparities, medical outcomes (e.g., divergences from evidence-based practice), and levels of patient fear, anxiety, and stress. Thus, interventions that target healthcare professionals' development of emotion regulation skills hold the potential to bolster their professionalism and effectiveness in navigating decision-making processes. Examples of studies conducted in this area have explored mindfulness-based interventions (e.g., MBSR) for healthcare providers (see systematic review by Lamothe et al., 2016) and emotional regulation training for critical care nurses (e.g., Kharatzadeh et al., 2020; Saedpanah et al., 2016). Intervention research targeting obstetric healthcare professionals' emotional regulation processes could not be identified. In sum, interventions are warranted that focus on A) alleviating birthing persons' psycho-emotional distress and supporting their coping, as well as B) teaching emotion regulation strategies for healthcare professionals themselves, as the present research study highlighted interactive psycho-emotional factors as pivotal to shared-decision making.

Finally, these findings provide impetus to develop training for healthcare professionals across disciplines that outlines *ideal* decision-making pathways and teaches the key components and facilitators of interprofessional shared decision-making. Training could include strategies for identifying and negotiating misalignment between key stakeholders (e.g., when patient preferences and clinician judgment differ, when two healthcare professionals disagree) or key priorities (e.g., when safety, vaginal delivery, and the birthing person's desired birth experience cannot all be achieved). Some participants in this sample also acknowledged the influence of more distal factors, such as financial considerations at the hospital level or the threat of legal consequences, though they generally emphasized that these types of factors do not directly influence their practice. Could this perhaps be a reflection of healthcare professionals' underlying *values*? That is, healthcare professionals, at times, seem to draw upon their values (e.g., respect for patient choice, prioritizing patient safety, delivering individualized care versus

consistently applied guidelines) to resist organizational pressures. The impact of decision-making training may be bolstered with opportunities for healthcare professionals to clarify their own professional values and consider how these influence their approach to interprofessional shared decision-making. In a similar vein as implicit bias training or continuing education on strategies for reducing power differentials, interprofessional shared decision-making training might increase clinician awareness of the factors that influence decisional outcomes, intervention delivery, and ultimately, childbirth outcomes such as reducing unnecessary cesarean deliveries.

Limitations and Future Directions

One noteworthy limitation to the present study's methodology is the omission of birthing persons' voices. The current research team strongly desired to interview birthing persons who experienced labor dystocia, yet the realities of limited time and resources necessitated a narrower scope. Future research designs should include birthing persons' perspectives, as well as perhaps the perspectives of their support persons (e.g., partners, family, friends, doulas) and other care team members who may be influential stakeholders (e.g., anesthesiologists, physician's assistants). The proposed Social-Ecological Model of Intrapartum Decision-Making would benefit from confirmation that birthing persons' perspectives and experiences are captured appropriately, given that they were not included as participants in this sample. A second limitation is that the present study's results reflect *reported* practice rather than actual practice. There may be reporting bias, especially the halo effect, based on participants' desire (whether conscious or unconscious) to represent themselves, their profession, or their institution favorably. Thus, future directions might include methodologies that leverage direct observation or other more objective measures.

Additionally, because labor dystocia is a broad diagnostic term that captures a variety of clinical situations marked by varying levels of clinical urgency (e.g., arrest of progress during the

pushing stage is typically more clinically concerning than arrest of progress during active labor), the present findings may reflect some clinical scenarios better than others and be limited by lack of clinical specificity. In part, this was by design: the study's methodology included participants from multiple disciplines, adopted a multi-level perspective, utilized a constructivist grounded theory qualitative approach, and refrained from narrowing the diagnostic scope (e.g., to only the first stage of labor), which held open the figurative door to a variety of findings that might have emerged. Future research is warranted to assess the clinical outcomes (e.g., rates of cesarean delivery, patient birth satisfaction, adverse health outcomes) associated with the various decision-making pathways and their applications to specific clinical scenarios. Future efforts could also focus on the iterative nature of decisions made in the context of labor dystocia so that we may better understand the progression of decision-making processes as when labor dystocia is not readily resolved.

This study offered a glimpse into clinicians' commitment to incorporating evidence-based guidelines into their practice, so long as guidelines retain space for individualization. Participants cited numerous challenges negotiating differences in patient preferences, their clinical judgment, the scientific evidence, and other contextual influential factors in their decision-making. This points to the potential benefit of publishing additional medical guidelines based on updated data, akin to ACOG's Safe Prevention of the Primary Cesarean Delivery (Caughey et al., 2014), as it was referenced repeatedly by this sample as an essential tool utilized in their decision-making processes. Clinicians' willingness and ability to incorporate scientific evidence in their decision-making processes hinges on definitional and procedural clarity and adoption across disciplines. Future guidelines would benefit from collaboration and consensus between professional organizations (e.g., ACOG, ACNM, AWHONN) prior to publication, rather than leaving it up to interdisciplinary care teams to negotiate differences in professional

guidelines. Clinicians may also benefit from continuing education focused on the interpretation of new scientific evidence and application of updated guidelines following their publication (e.g., practicing how to think critically about new scientific evidence and guidelines as applied to a range of clinical scenarios). This may facilitate more efficient widespread adoption and better interdisciplinary alignment in decision-making processes.

Lastly, this research team urges all professionals tackling issues related to perinatal physical and mental health – those working in medicine, psychology, research, digital health, academia, politics, biomedical sciences, grassroots organizations, peer-led groups, and so on – to consider how we all might contribute to enabling and empowering individuals involved in these high-stakes, real-world decision-making processes. Physicians, midwives, nurses, birthing people, and their loved ones each bring their own beliefs, past experiences, knowledge, and priorities to these interpersonal processes, and most of these players currently receive little to no training or guidance on how to navigate childbirth decisions. Yet, the potential adverse outcomes, such as morbidity, mortality, and psychological disorders, are common and devastating. The decision-making processes themselves deserve care and attention, as does each birthing person and healthcare professional.

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APPENDIX A

Survey Instrument

Thank you for your interest in the Labor Dystocia Decision-Making Study being conducted by researchers at the University of North Carolina at Charlotte. In the following survey, we will first ask questions to determine your eligibility; we will then obtain your informed consent to participate; finally, we will gather additional information about your professional characteristics and demographics. This survey will take about 15 minutes to complete. All data gathered will be protected for your privacy.

If you have any questions before proceeding, you may contact the primary investigator, Jodie Lisenbee, at jlisenbe@uncc.edu or 704-659-3425.

Eligibility

1. What term best describes your current profession?
    a. Obstetrician
    b. Family medicine physician
    c. Midwife (CNM)
    d. Labor and delivery nurse (RN)
    e. Other (please self-describe) _____
2. Are you currently practicing in a North Carolina hospital?
    a. Yes
    b. No
    c. It's complicated (please explain) _____

[If No] Exclude / End of survey

3. Which of the below best describes the hospital where you currently work?
    a. Metropolitan / urban hospital
    b. Rural hospital

[If Rural hospital] Exclude / End of survey

4. Approximately how many years have you been working in labor and delivery?

[If less than 1] Exclude / End of survey

5. Approximately how many births do you attend per month on average?

[If less than 4] Exclude / End of survey

6. Is your professional license currently in good standing (not on probation, suspended, or revoked)?
    a. Yes, my license is in good standing
    b. No, my license is NOT in good standing

[If No] Exclude / End of survey

Next, you will be presented with more information about the study to help you decide whether to participate.

[ROUTE TO CONSENT FORM IF ELIGIBLE]

Thank you for providing your electronic consent to participate. Next, we will gather some additional information about you and your background.

Professional Characteristics

7. What professional degree(s) do you hold? (e.g., MD, PhD, MPH, BSN)
8. What year did you complete your highest level of education?
9. What are your professional specialties or interest areas (e.g., specialty training you have received)?
10. How would you describe the type of setting in which you work (e.g., academic medical center, community hospital, private hospital)?
11. What size is the hospital where you currently work?
    a. Small hospital (fewer than 100 beds)
    b. Medium hospital (100 to 499 beds)
    c. Large hospital (500 or more beds)
12. Approximately how many births occur each year at the hospital where you currently work (i.e., what is the birth volume)?
    a. 10 to 500 births per year
    b. 501-1000 births per year
    c. 1001-2000 births per year

    d. More than 2000 births per year

13. In what city and state do you currently practice?
14. Please describe the patient population that you currently serve. For example, you might describe patient demographics like race/ethnicity, languages spoken, insurance status, income level, etc.
15. What is the cesarean delivery rate at the hospital where you work (in the form of a percentage of the total births)? Please indicate what year(s) this data is based on, if known.
16. Please estimate the percentage of vaginal deliveries versus cesarean deliveries *you* attend to the best of your ability.
17. What else would you like to share about yourself as a professional or the professional setting where you work that might be useful for our research team to know?

[PAGE BREAK]

Sociodemographic Information

18. What is your age?
    a. 18 to 24
    b. 25 to 34
    c. 35 to 44
    d. 45 to 54
    e. 55 to 64
    f. 65 to 74
    g. 75 or over
    h. Prefer not to answer
19. Are you of Hispanic or Latino origin?
    a. Yes
    b. No
    c. Prefer not to answer
20. What is your race (select all that apply)?
    a. American Indian or Alaska Native

b. Asian
c. Black or African American
d. Native Hawaiian or Other Pacific Islander
e. White
f. Some other race (please specify) _____
g. Prefer not to answer

21. What is your gender identity?
    a. Woman
    b. Man
    c. Trans man
    d. Trans woman
    e. Gender fluid or genderqueer
    f. Agender
    g. Questioning or unsure
    h. Prefer to self-describe using another term _____
    i. Prefer not to answer
22. What is your sexual orientation?
    a. Heterosexual or straight
    b. Gay or lesbian
    c. Bisexual, pansexual, or fluid
    d. Queer
    e. Asexual
    f. Questioning or unsure
    g. Prefer to self-describe using another term _____
    h. Prefer not to answer
23. Do you know how to speak any other language(s) besides English?
    a. Yes (please specify) _____
    b. No
24. [If YES] With approximately what percent of your patients do you primarily speak a language other than English?
    a. Less than 25%

b. 25-50%
c. 51-75%
d. Greater than 75%

25. What is your household income?
    a. Less than $20,000
    b. $20,000 to $34,999
    c. $35,000 to $49,999
    d. $50,000 to $74,999
    e. $75,000 to $99,999
    f. $100,000 to $149,999
    g. $150,000 to $199,999
    h. $200,000 or more
    i. Prefer not to answer
26. What is your highest level of education?
    a. Less than high school diploma
    b. High school diploma or GED
    c. Some college, but no degree
    d. Associate's degree (for example: AA, AS)
    e. Bachelor's degree (for example: BS, BA)
    f. Master's degree (for example: MA, MSN, MPH)
    g. Professional degree (for example: MD, DDS)
    h. Doctoral degree (for example: PhD, EdD)
    i. Prefer not to answer
27. Do you have a physical disability?
    a. Yes
    b. No
    c. Prefer not to answer
28. What is your political affiliation?
    a. Republican
    b. Democrat
    c. Independent

d. Another political affiliation (please specify) _____
e. Prefer not to answer

29. What is your marital status?
    a. Single
    b. Married
    c. Divorced
    d. Partnered but not married
    e. Prefer not to answer
30. How many children do you have?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4+
    f. Prefer not to answer
31. How many times have you personally given birth?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4+
    f. Prefer not to answer
32. [If 1 or greater] Have you ever personally experienced labor dystocia (i.e., as the birthing person)?
    a. Yes
    b. No
    c. Not sure
    d. Prefer not to answer

[PAGE BREAK]

Gift card info

We are required to keep a tracking sheet with the names and addresses of all individuals who receive gift cards for tax purposes only. The information you provide below will be kept separate from the research data to protect your confidentiality.

Please provide your **mailing address**:

Preferred **email address** for electronic gift card:

[END OF SURVEY]

APPENDIX B

Qualitative Interview Guide

Semi-Structured Interview Guide

Order	Question	Sample probes (optional; at interviewer's discretion)
1.	To start, please describe all the health professionals who make up a typical patient's care team in the labor and delivery setting where you work, including *your* role.	- When in the labor and delivery process do *you* typically interact with the patient?
2.	As I mentioned, this study is about labor dystocia. How do you define "labor dystocia?"	- What term(s) do you typically use to describe this? Does this differ when talking to colleagues versus patients?
3.	What is your understanding of why labor dystocia happens?	- Does your conceptualization include any psychological, social, or cultural factors?
Administer the diagramming exercise. Allow 15 minutes.		
4.	Next, will you please talk me through the diagram you drew?	- Will you tell me about why you chose to include _____? - What would be an example of _____? - What led you to drawing these elements in this format/shape? - Will you please give me an example of what you might say to the birthing person during that step? - What factors might influence what decision is made at that step? - Who are the people involved in the decision-making process you just described?

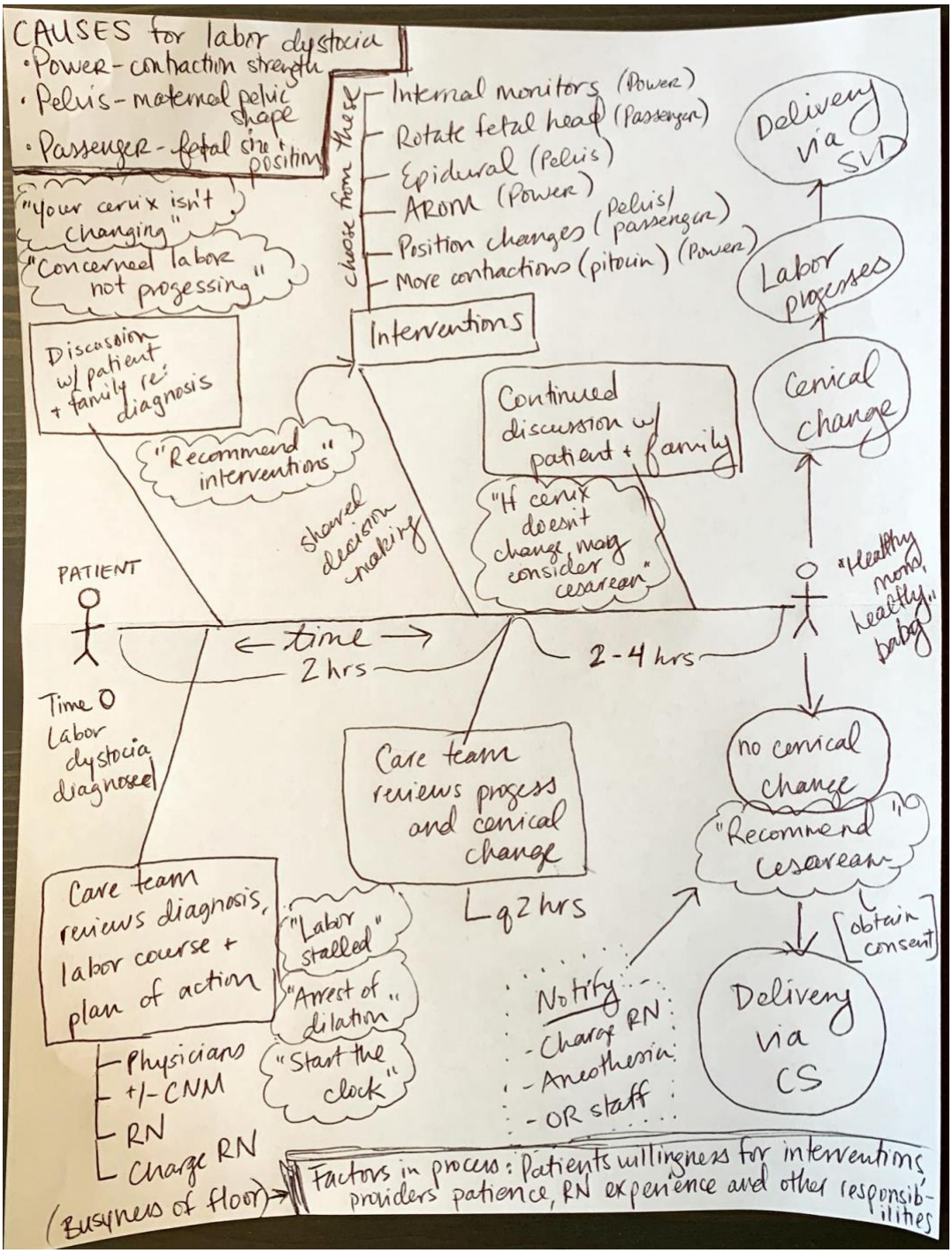
5.	How relevant is the term “shared decision-making” in this context?	- What factors facilitate shared decision-making in this context? What factors get in the way? - How are the birthing person and their support persons involved? - What might be some differences between a patient who is very involved in the decision-making process versus one who is less involved, or perhaps, the circumstances surrounding those patients? - How, if at all, might power differentials, either between patients and clinicians or between healthcare team members from different disciplines, impact how decision-making plays out?
6.	What factors do you consider when caring for a birthing person with labor dystocia and determining what actions to take?	- For example, characteristics of the birthing person, interpersonal factors, interdisciplinary politics, hospital policies, legal, financial, or insurance-related factors, cultural factors, or any broader contextual factors? - What other factors make decision-making *challenging* in this context?
7.	Next, I’d like to hear a story about a specific patient you’ve cared for. Please walk me through an example of a time when you believed it might be necessary to perform a cesarean because of labor dystocia but the patient eventually delivered vaginally.	- What about this patient or her experience made this example different from when labor ends in cesarean?
8.	I’d love to hear one more patient story. Next, please walk me through an example of a specific time when the risks associated with labor dystocia became too high and the patient delivered via cesarean.	- How do you conceptualize the reasons for this outcome?

9.	We're nearing the end of our interview now. Reflecting on our conversation, what else would you like to share with me that you think is important for me to know about labor dystocia and its decision-making processes?	- Is there anything you'd like to change about your diagram? You're welcome to add to it or make changes if you wish.
10.	To wrap up our conversation, please summarize your conceptualization or philosophy about labor dystocia and caring for birthing persons who experience it? What do you most hope I will take away from this conversation?	

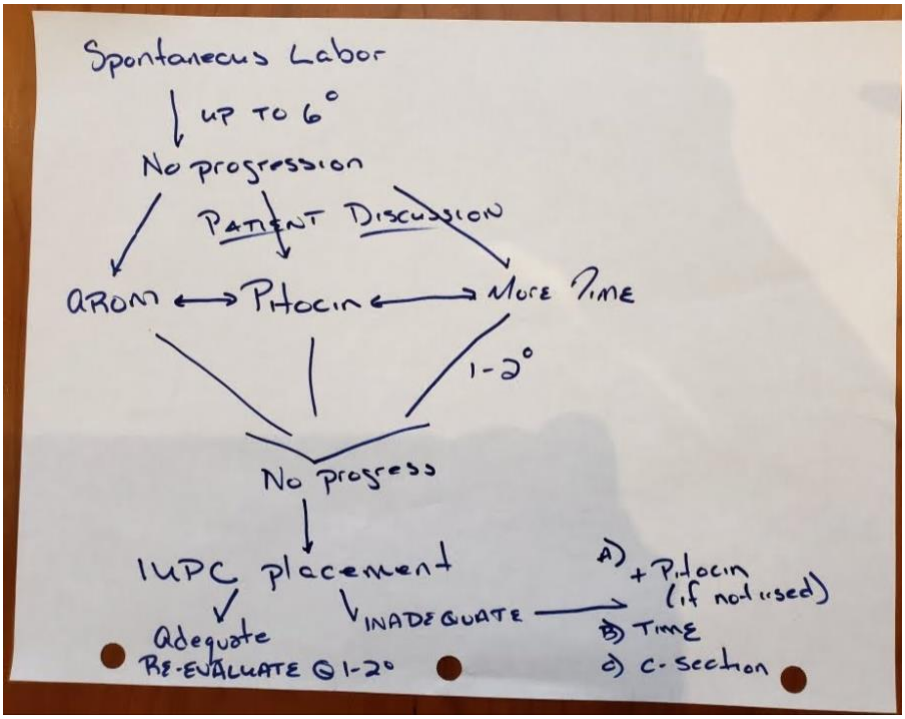
APPENDIX C

Participant Diagrams

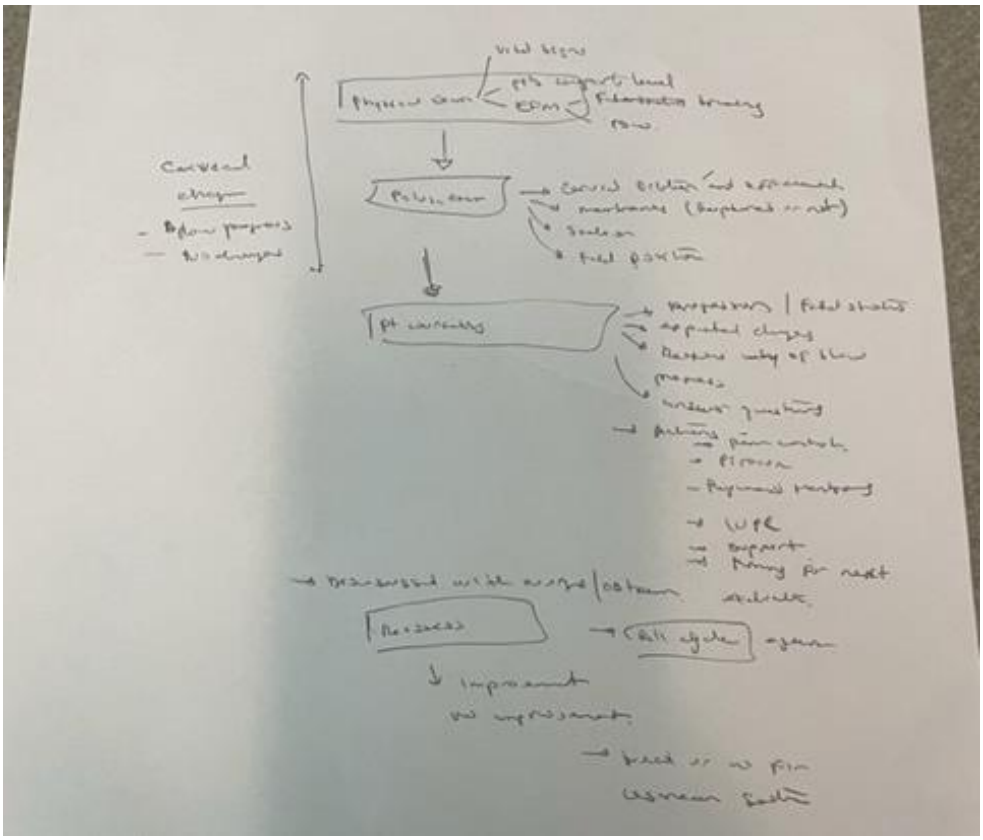
Dr. Melody (MD, attending physician, private hospital with academic affiliation).



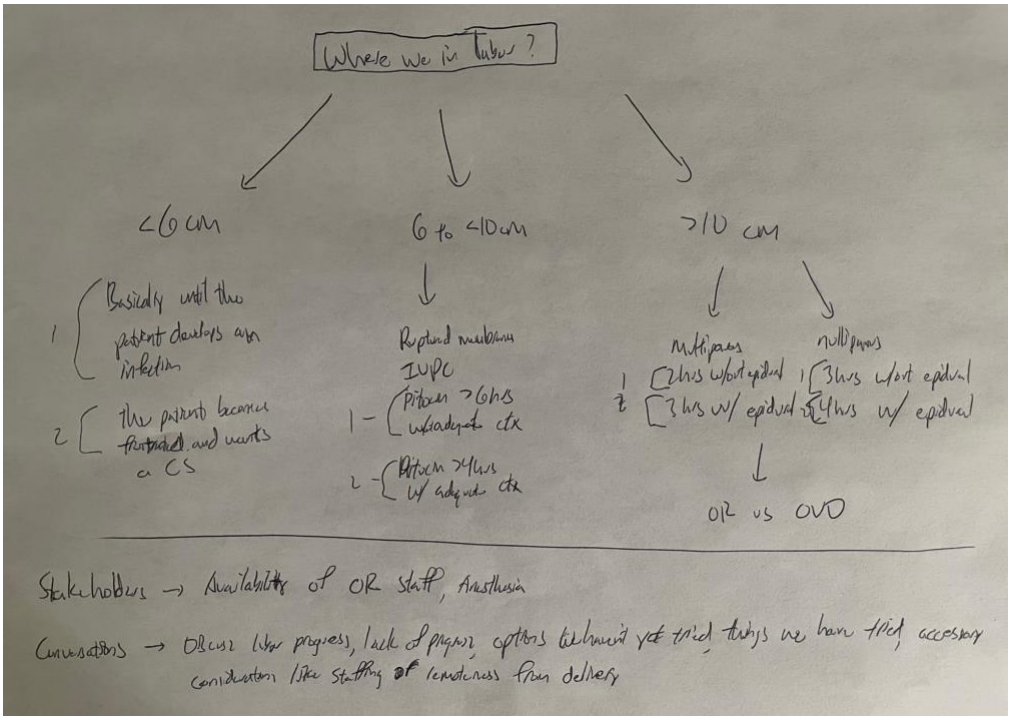
Dr. Diablo (MD, OB hospitalist, private hospital)



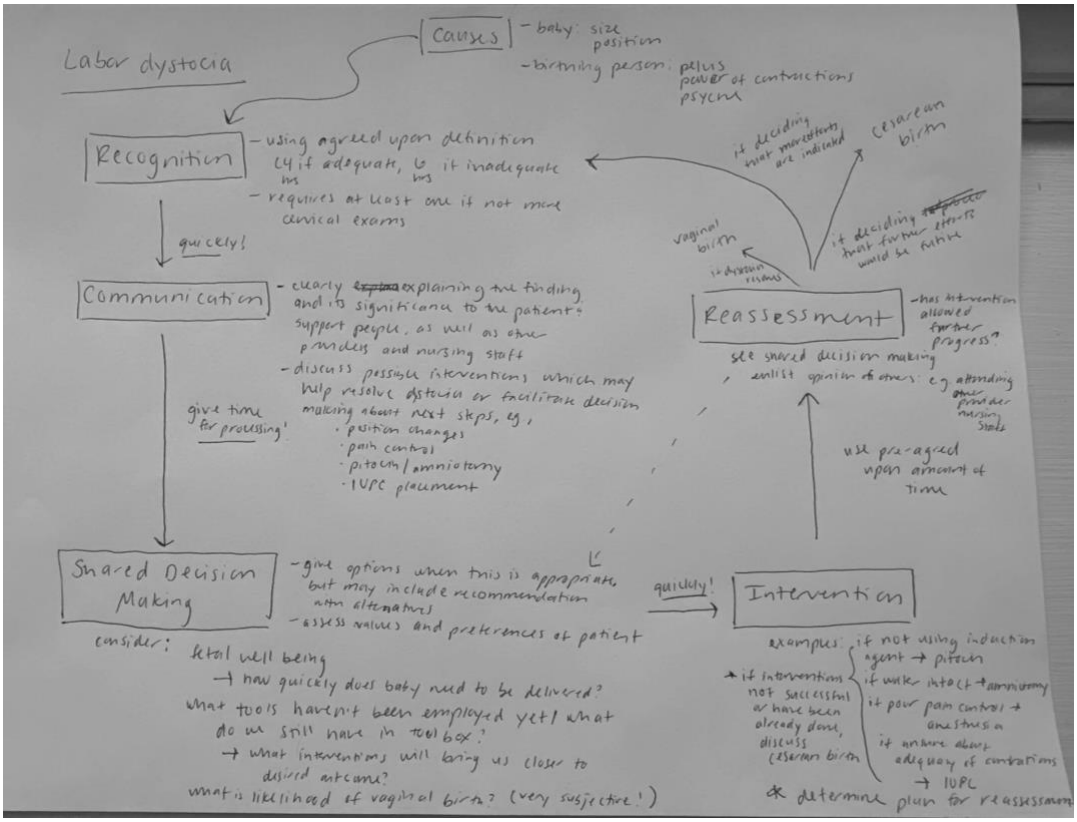
Dr. Niko (MD, PhD, attending physician, maternal-fetal medicine specialist)



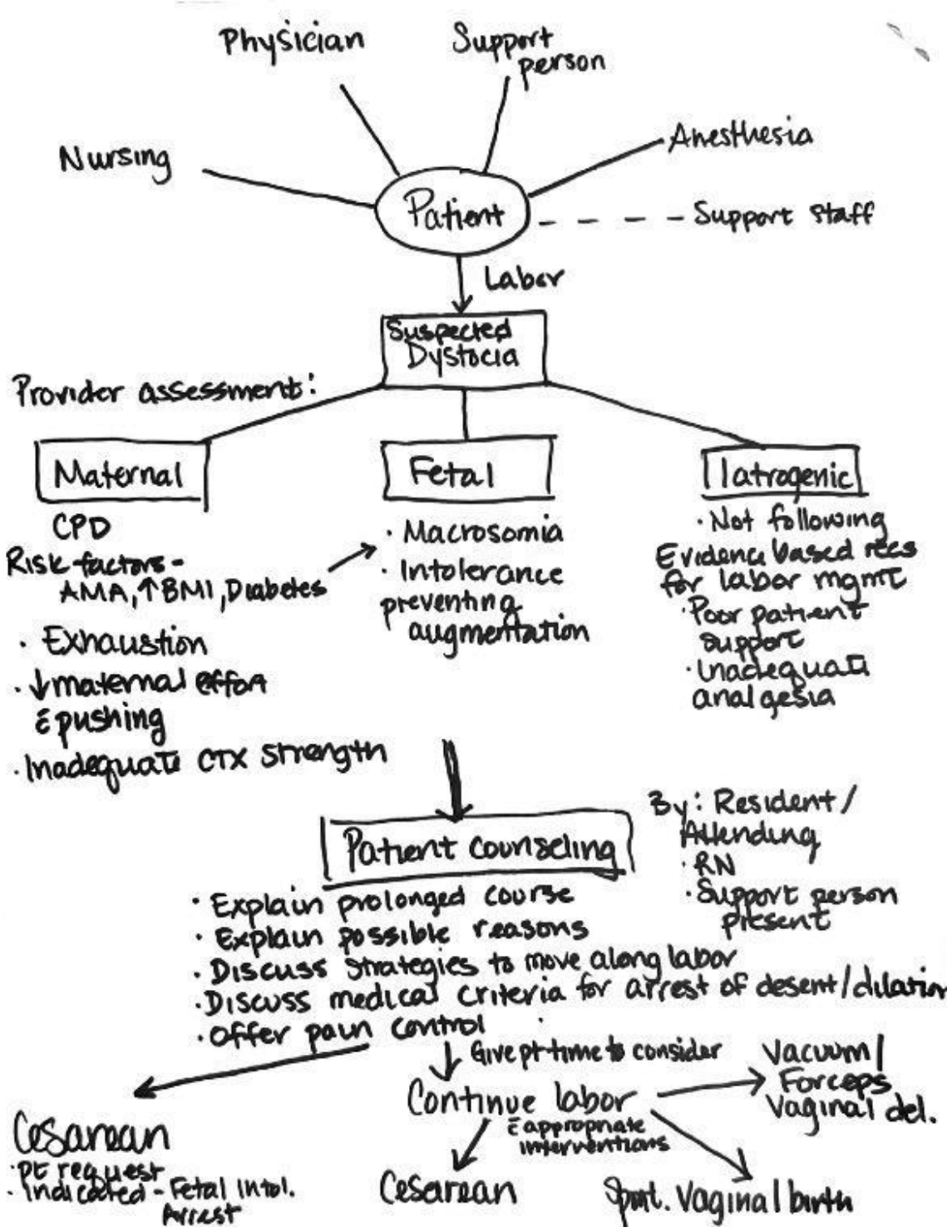
Dr. JD (MD, community hospital)



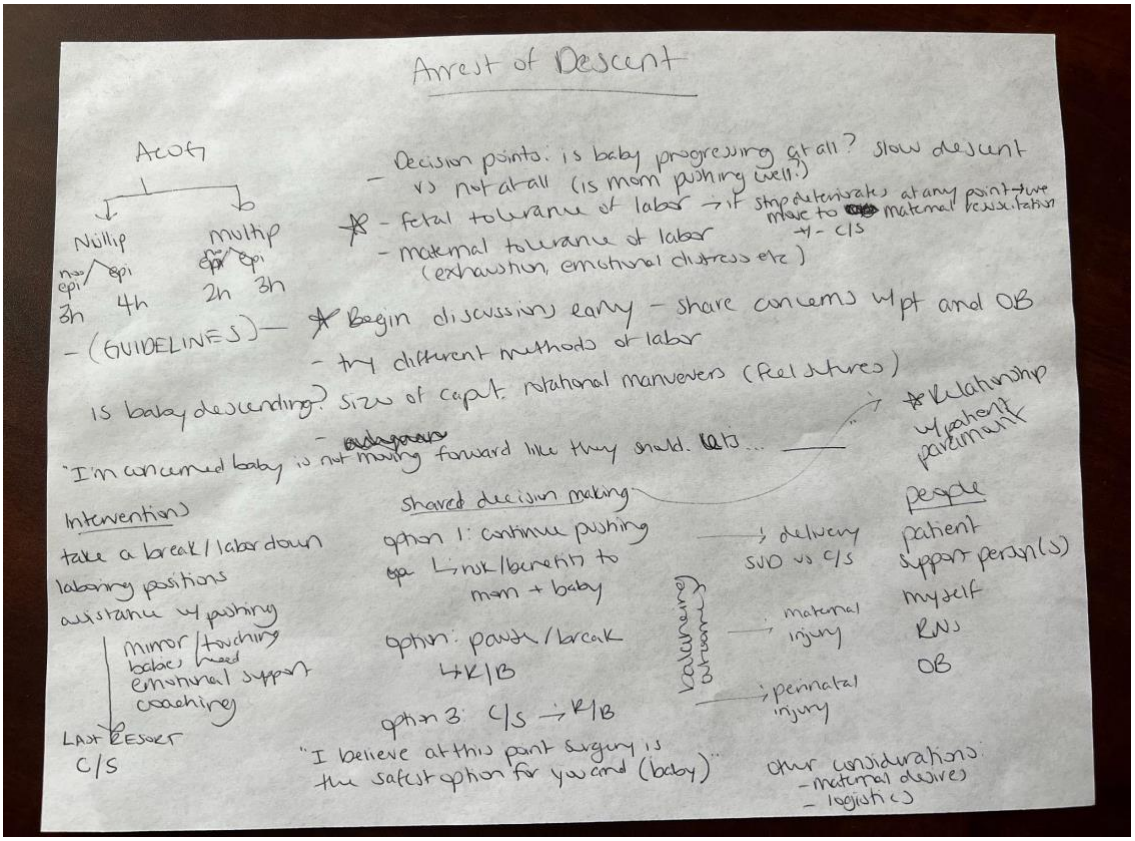
Dr. Hunter (MD, PGY4 chief resident, academic medical center)



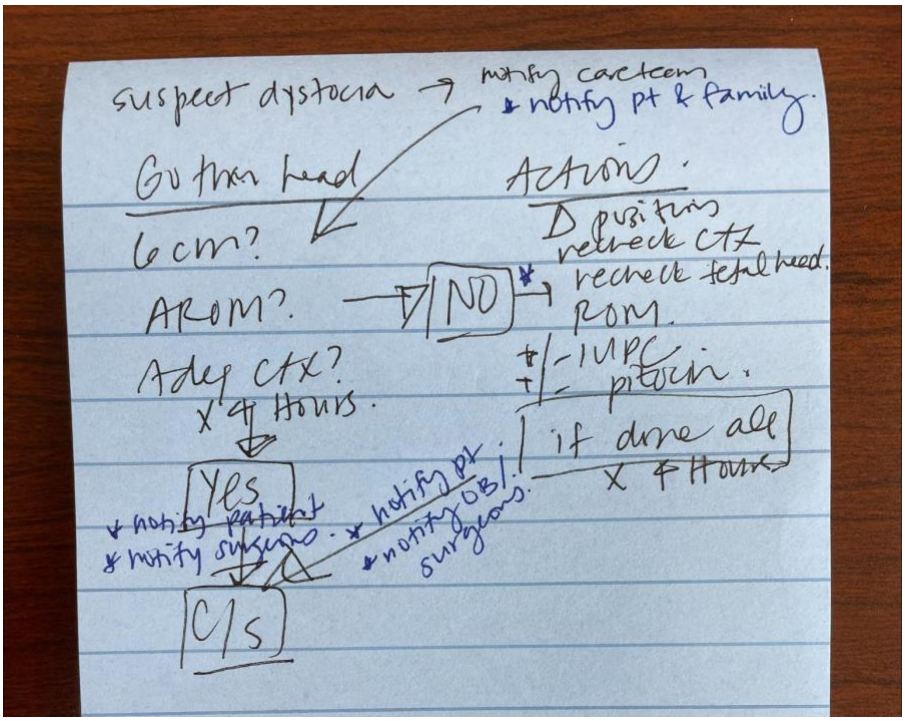
Dr. Susie (DO, maternal fetal medicine, academic medical center)



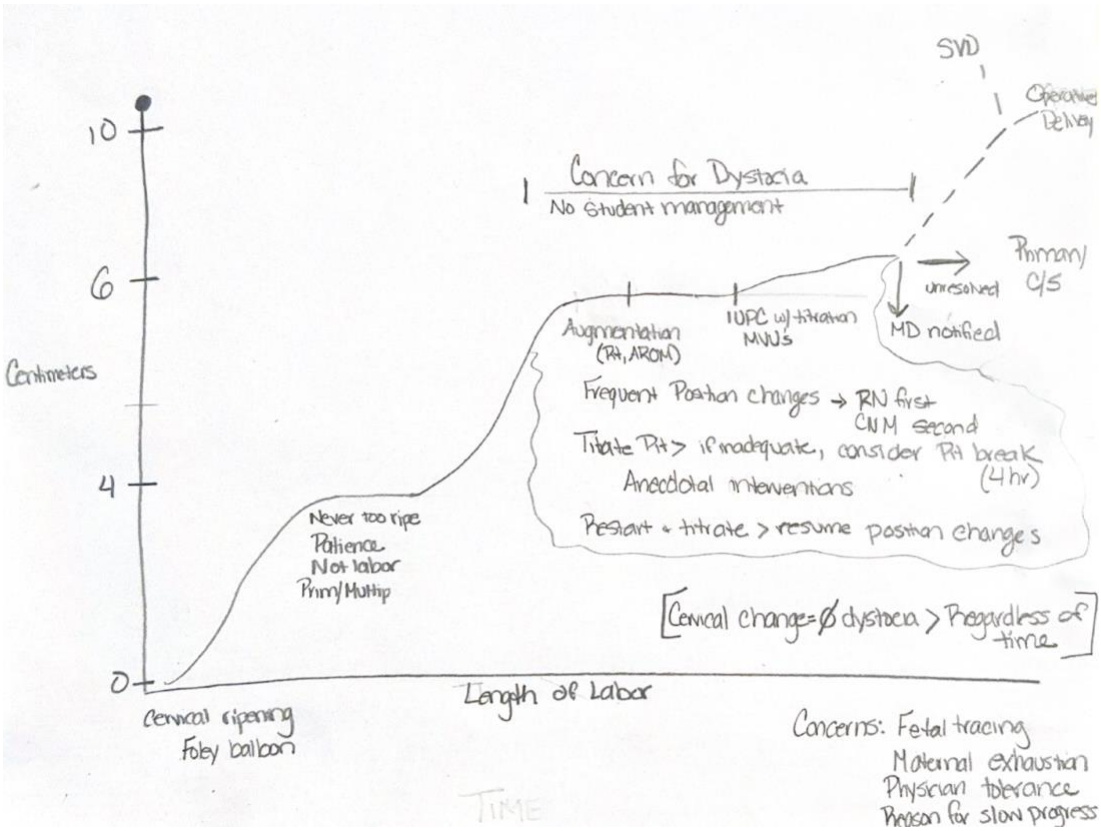
Dr. Scott (MD, family medicine physician, community hospital)



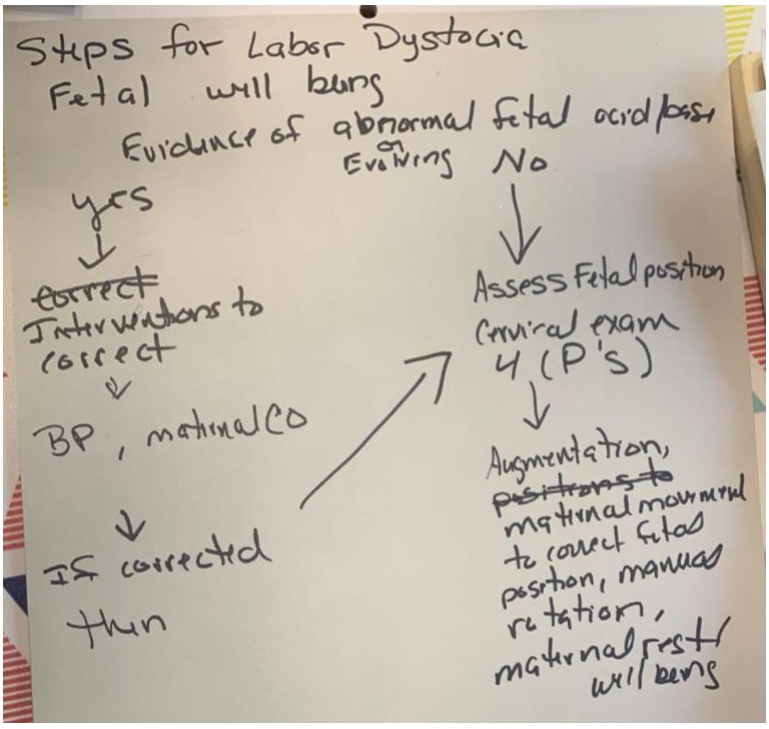
Dr. Doe (MD, family medicine physician, academic medical center)



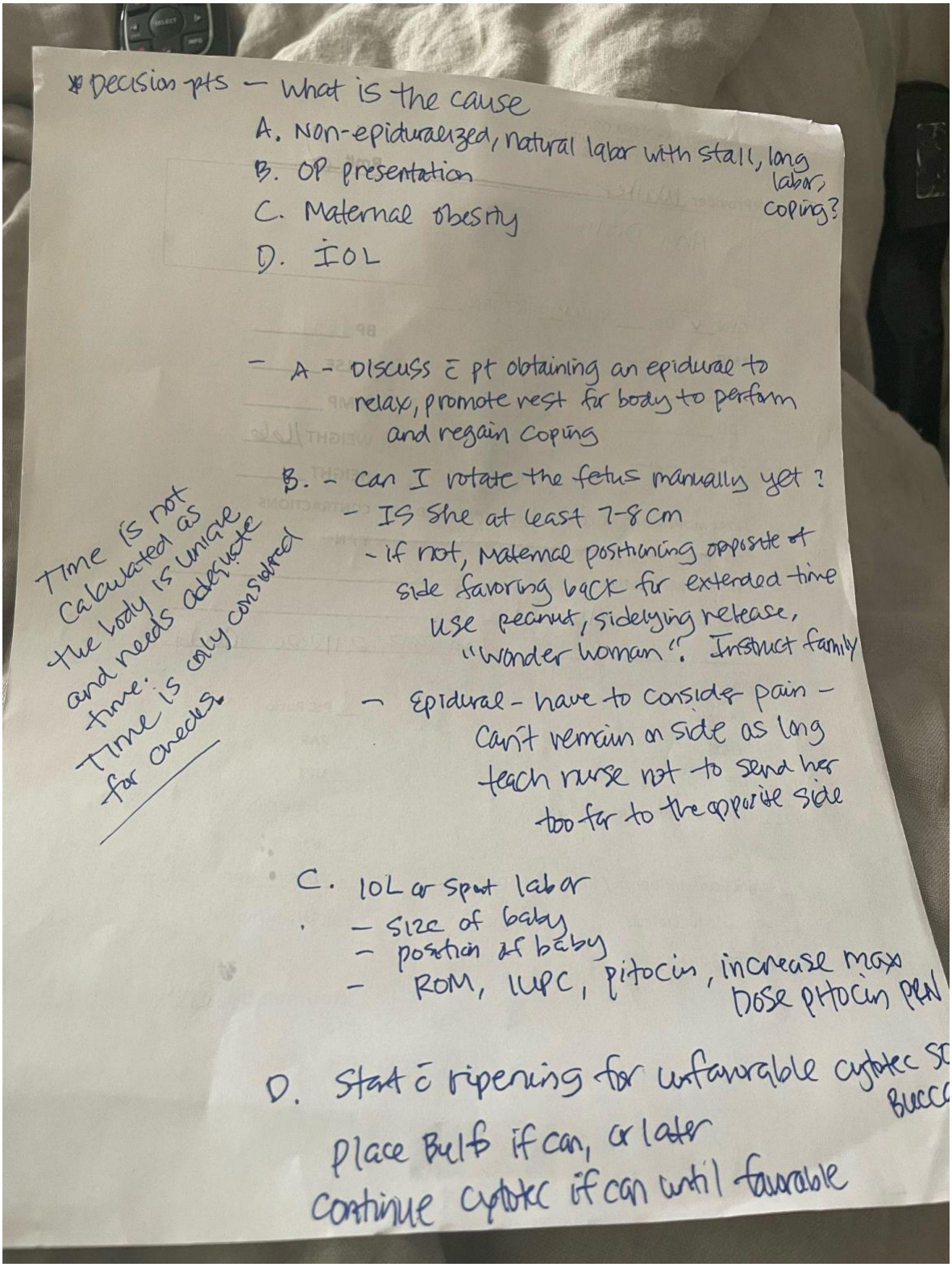
May (CNM, academic medical center)



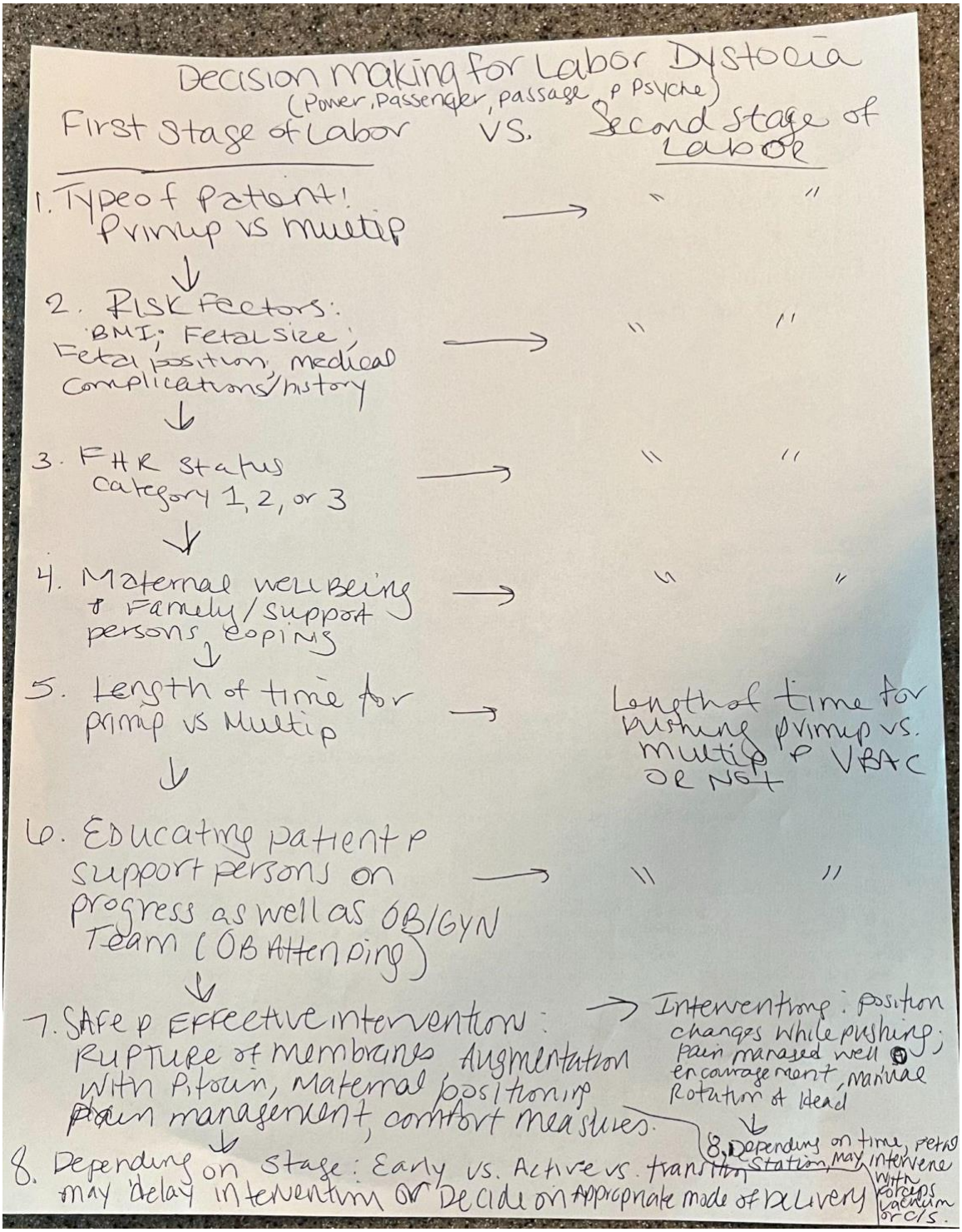
April (CNM, private hospital)



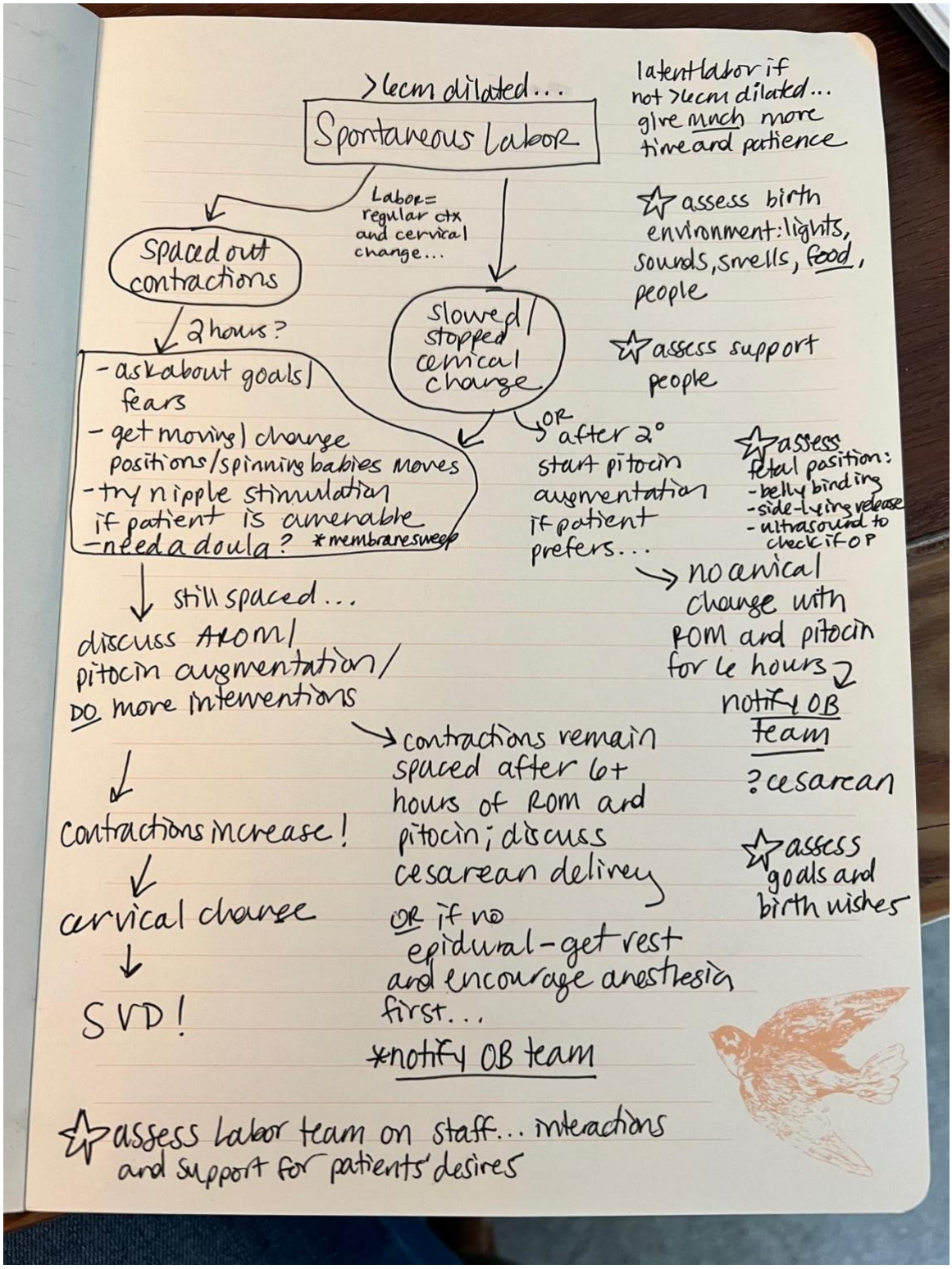
Gunner (CNM, private hospital)



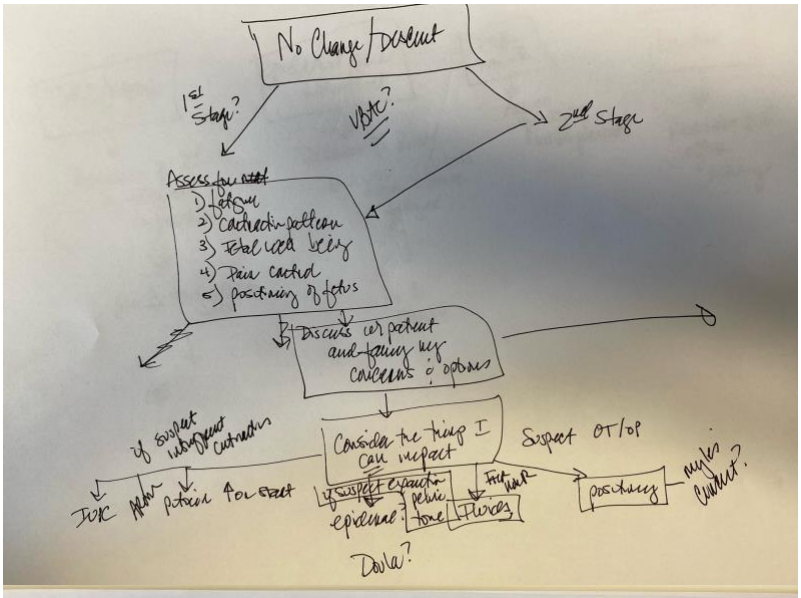
Clara (CNM, academic medical center)

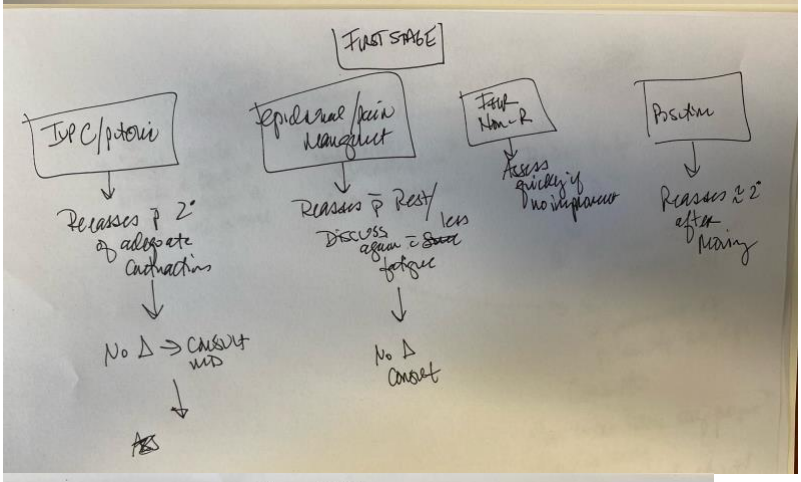


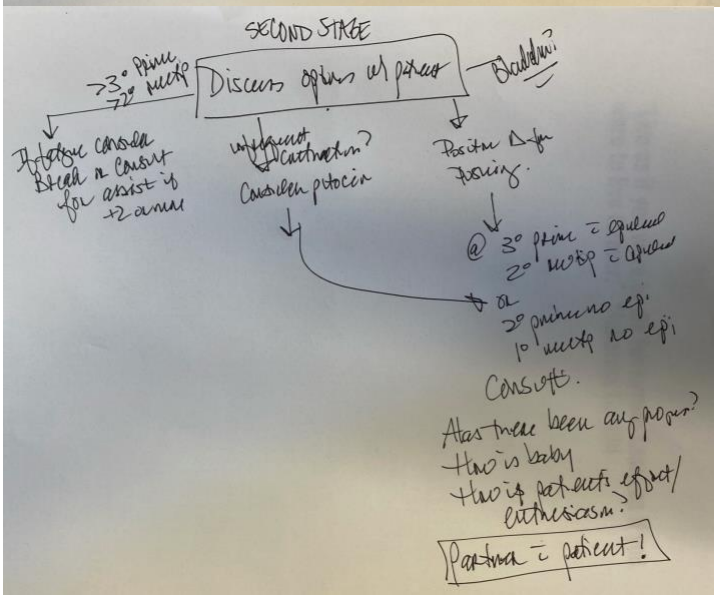
Ruth (CNM, academic medical center)



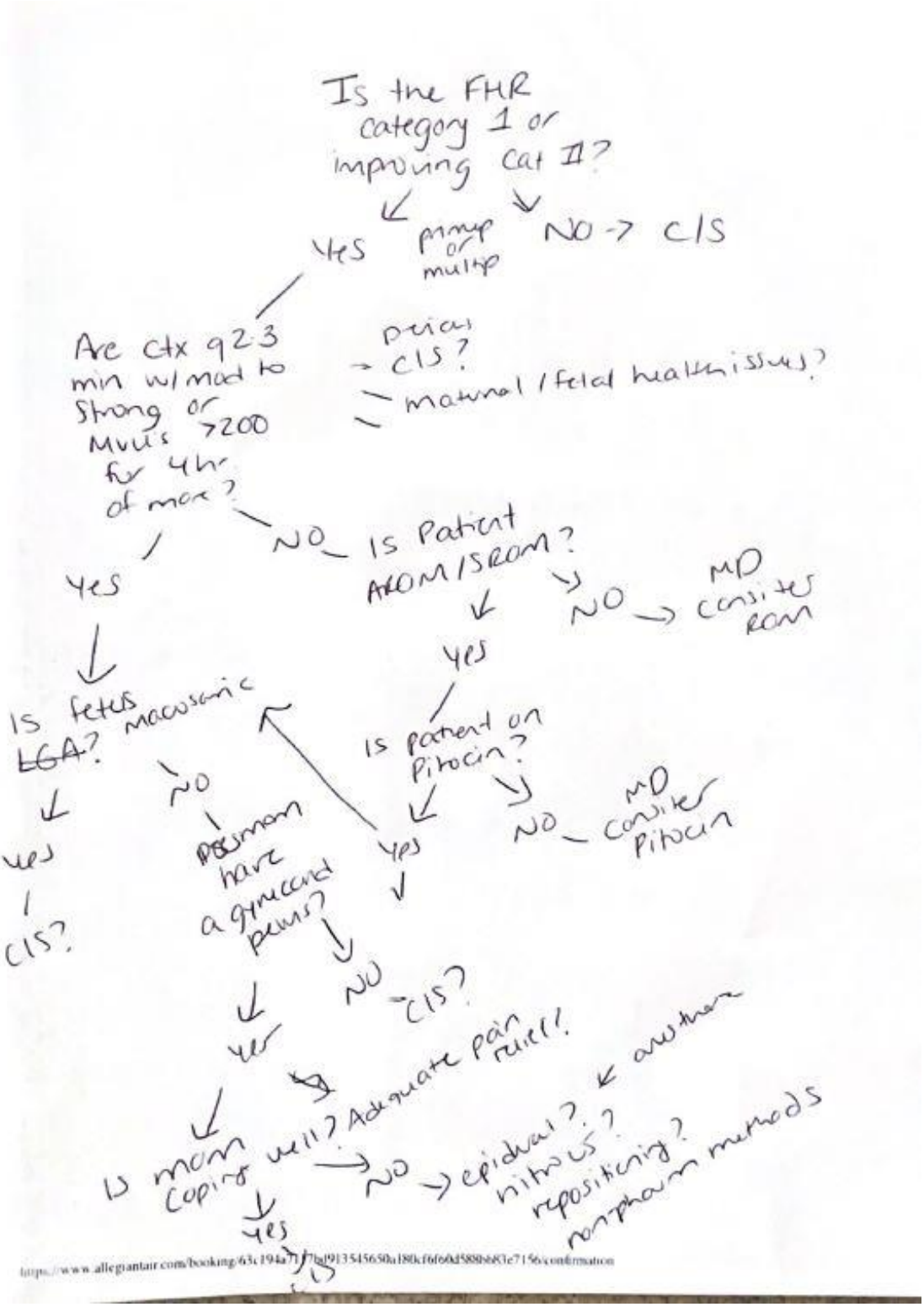
Isa (CNM, academic medical center)



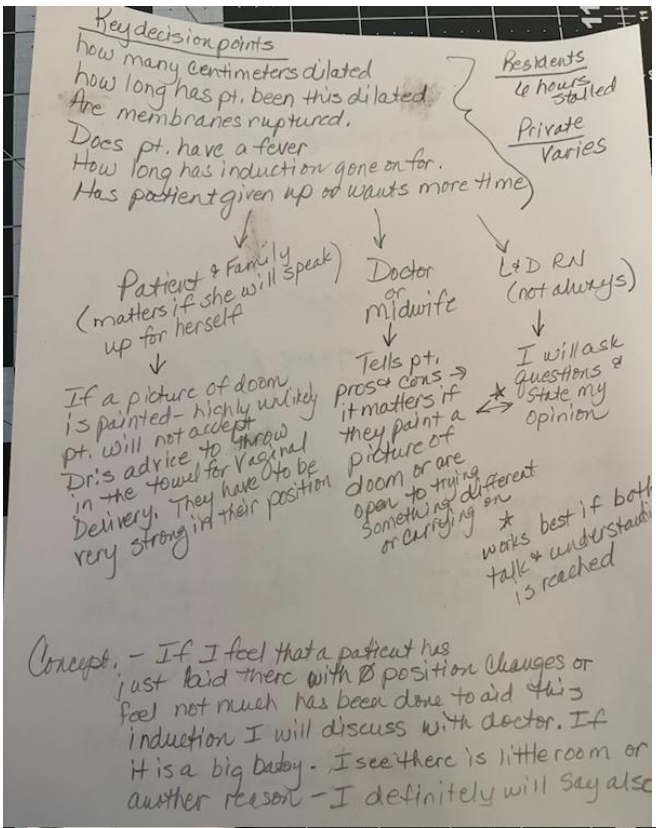


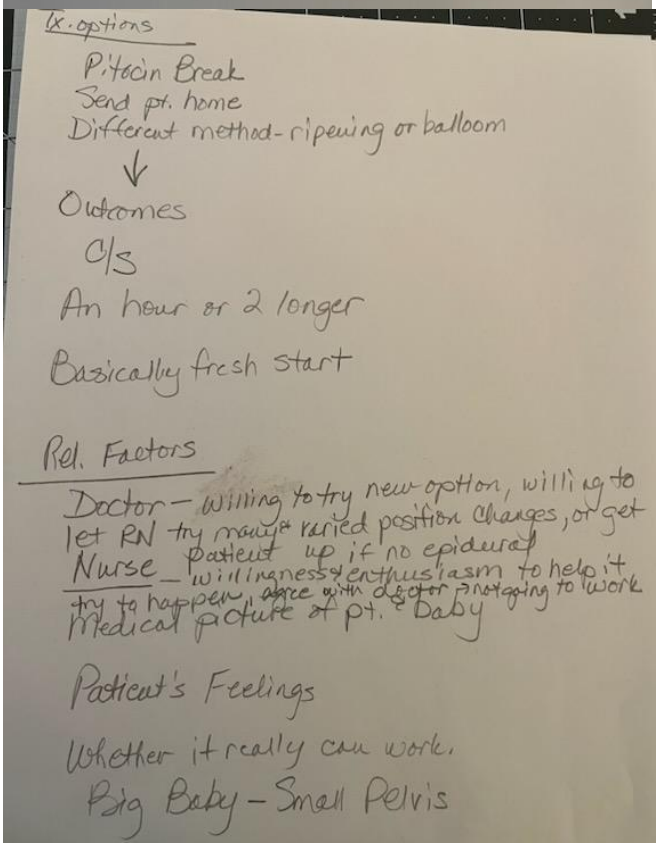


June (RN first assist, MSN in Education)

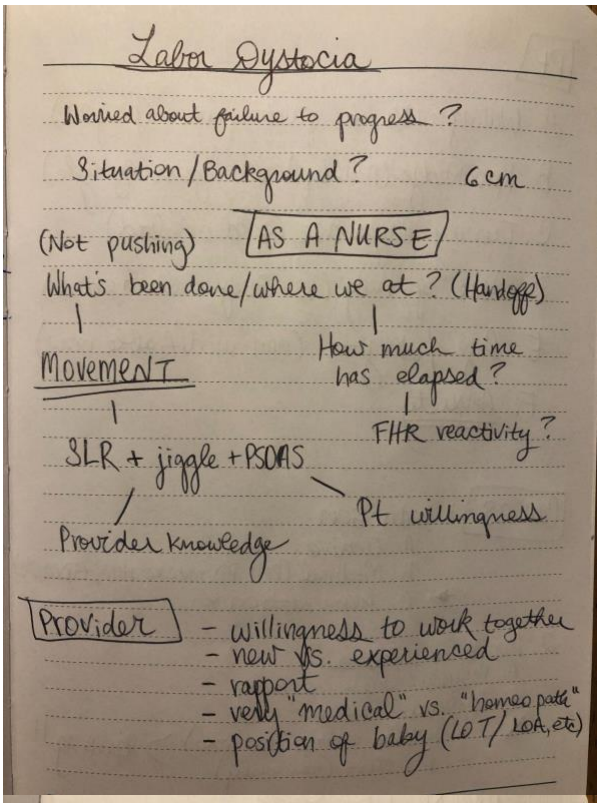


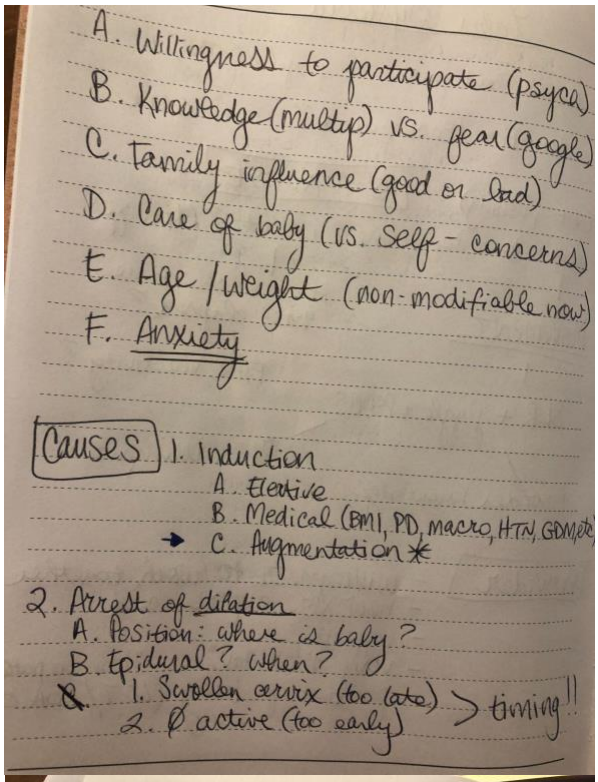
Lucy (RN, RNC-OB, academic medical center)

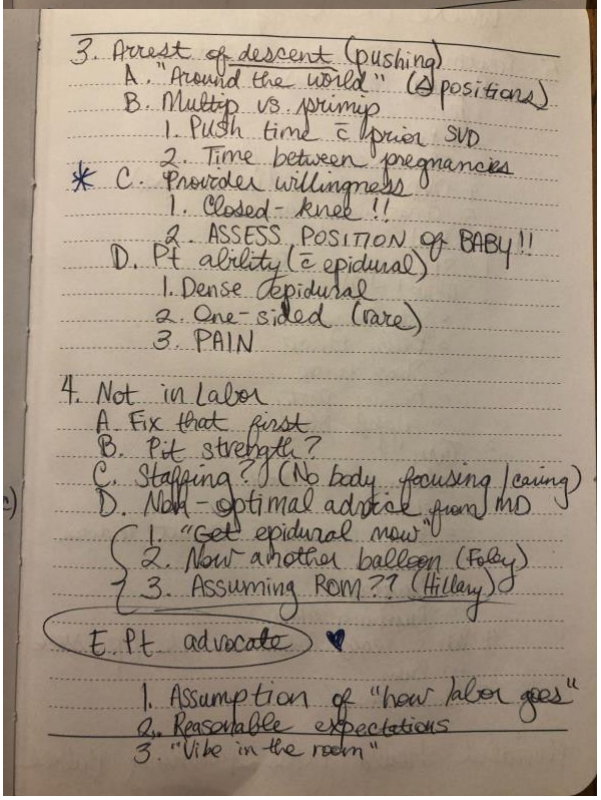


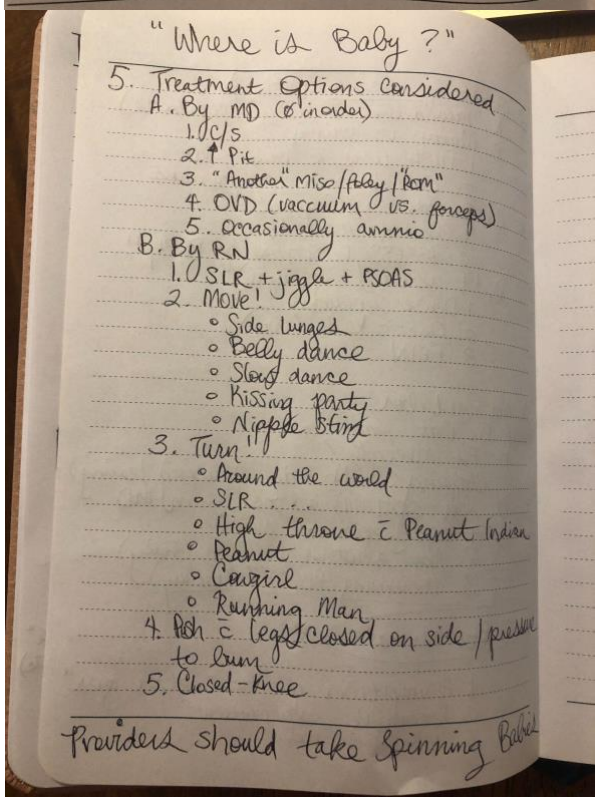


Regina (RN, public hospital)

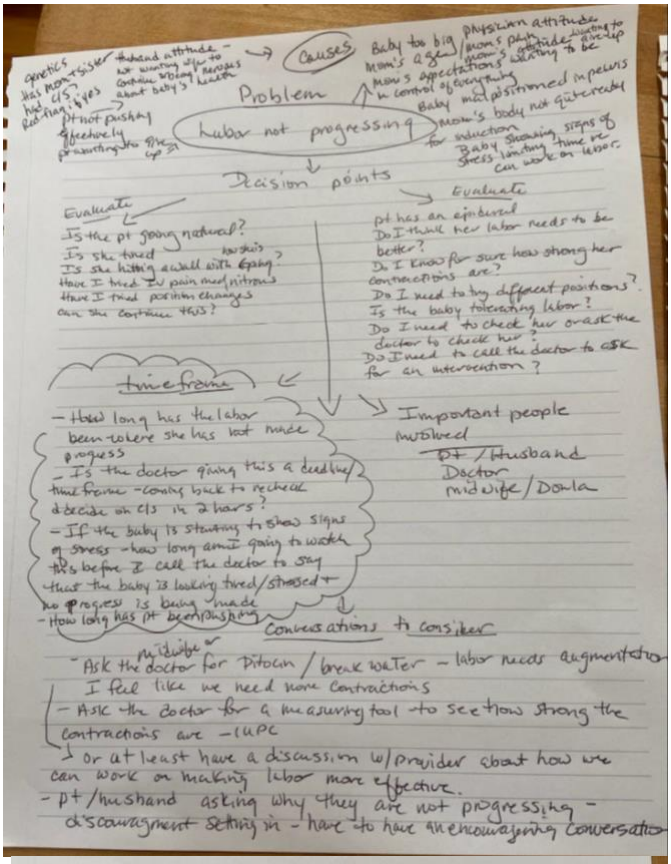


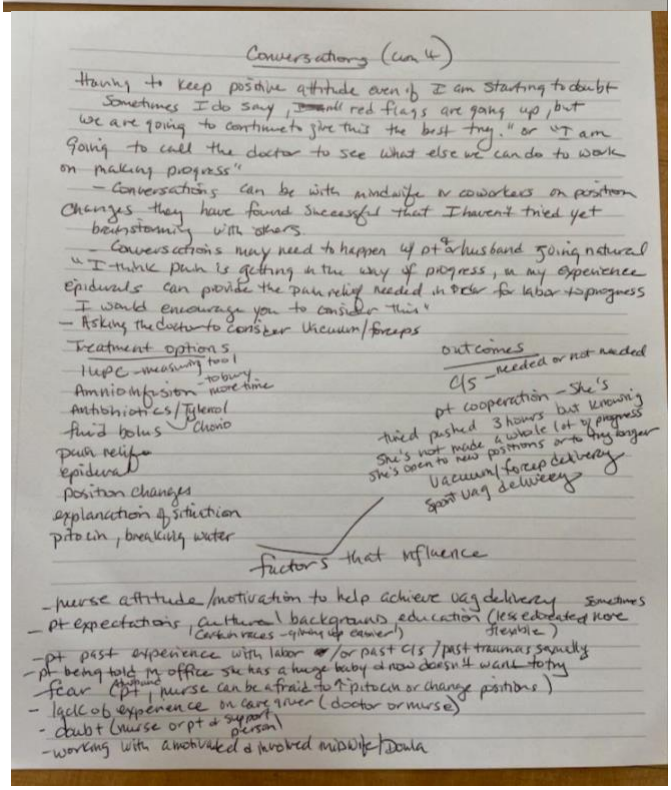




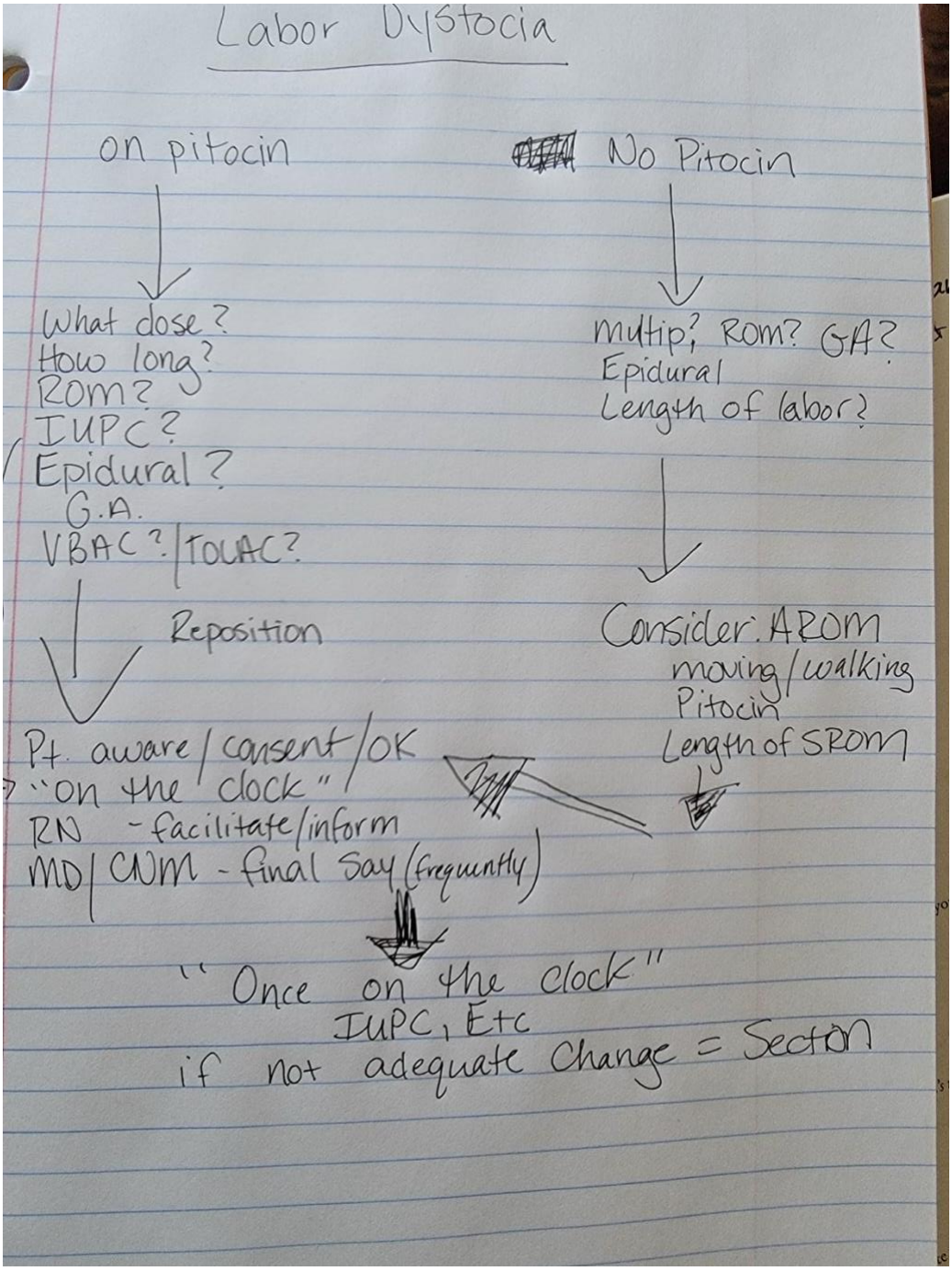


Lily (RN, private hospital)

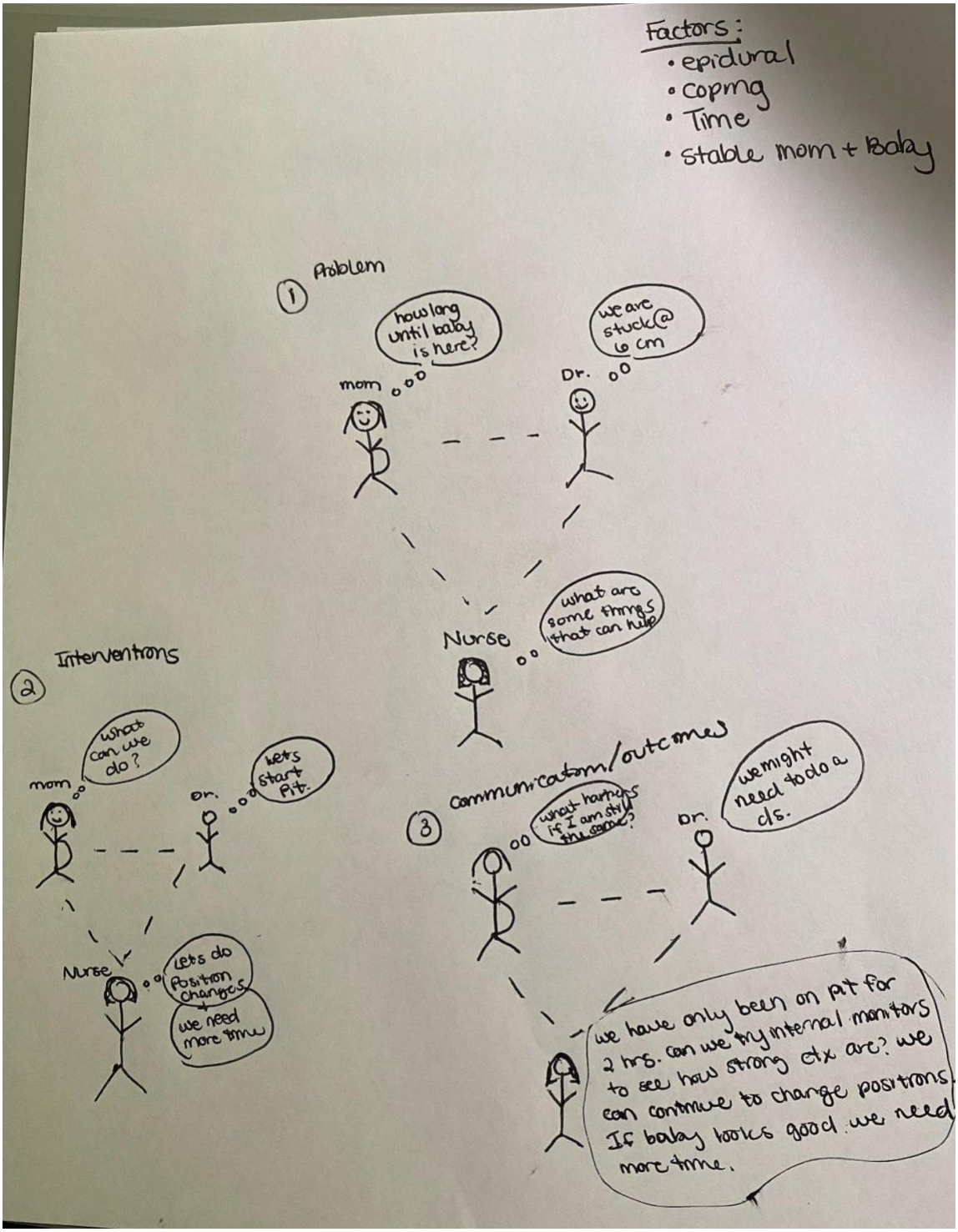




Ruby (RN, community hospital)



Piper (RN, private hospital)



APPENDIX D

Coding Scheme

Category	Subcategory	Code	Description
Background info		My team includes the following professionals...	The participant's description of the various health professionals who make up a typical labor and delivery patient's care team
		My role is...	The participant's description of their role on the labor and delivery care team
Stakeholders	Healthcare professionals	Resident physician	Referring to the involvement of a resident physician in decision making
		Certified nurse midwife (CNM)	Referring to the involvement of a certified nurse midwife (CNM) or general "midwife" in decision making
		Attending physician	Referring to the involvement of an attending physician (e.g., an OBGYN or MFM) in decision making
		Nurse	Referring to the involvement of a nurse (e.g., labor and delivery nurse, charge nurse, OR nurse) in decision making
		Other healthcare professional	Referring to the involvement of any other type of healthcare professional (e.g., neonatologist, anesthesiologist) in decision making
	Support persons	Partner	Referring to the involvement of the birthing person's partner in decision making
		Family & friends	Referring to the involvement of family or friends in decision making
		Doula	Referring to the involvement of a doula (e.g., birth doula) in decision making
Medical stuff	Defining labor dystocia	I define labor dystocia as...	The participant's definition of labor dystocia
		Updated definition of active labor	Referring to the updated medical guidelines on how to define active labor
	Diagnosing labor dystocia	Evaluation / assessment	Referring to a healthcare professional conducting an evaluation or assessment of the patient
		Cervical dilation x time	Referring to amount of cervical change over a certain amount of time, e.g., "centimeters" (i.e., in the first stage of labor); could also reference "arrest of dilation" as the indication

	Pushing x time	Referring to amount of time spent pushing (i.e., in the second stage of labor); could also reference "arrest of descent" as the indication
	Suspecting labor dystocia / concerned	Referring to the care team being worried/concerned about possible labor dystocia
	Labor dystocias along the way	Referring to a patient having more than one dystocia during the course of labor.
Referring to labor dystocia	...with colleagues	Terms commonly used to describe the present study's focal diagnosis with colleagues or in medical writing
	...with patient	Referring to terms or descriptors used with patients to describe the present study's focal diagnosis
Causes underlying labor dystocia	"5 Ps" / "3 Ps"	Referring to 3-5 factors that affect the labor and delivery process (i.e., Passenger, Passageway/Pelvis, Positioning, Powers, Psyche)
	Cephalopelvic disproportion	Referring to the maternal pelvis shape or size, especially in relation to the fetus, as an underlying cause of dystocia (or "Pelvis" / "Passageway"); can also refer to spinal/hip/pelvic alignment
	Fetal positioning	Position of the fetus, e.g., occiput posterior (OP), breech, asynclitic, compound presentation, malposition/malpresentation, a nuchal cord
	Fetal macrosomia	Referring to large fetal size as an underlying cause of dystocia (or "Passenger")
	Intrauterine growth restriction (IUGR)	Referring to small fetal size as an underlying cause of dystocia (or "Passenger")
	Maternal positioning	Maternal positions or movement (or "ambulation") that facilitate or impede labor progress
	Contraction pattern	Referring to contraction pattern (e.g., not frequent enough or too frequent) as an underlying cause of dystocia (or "Power")
	Contraction strength	Referring to contraction strength (e.g., too strong or not strong enough; measured by Montevideo units) as an underlying cause of dystocia (or "Power")
	Is mom coping well?	Referring to the birthing person's psycho-emotional state as an underlying cause of dystocia (or "Psyche")

	NEST: Emotional/mental dystocia	Referring specifically to the mind-body connection as a type of labor dystocia (e.g., "mind controls your body")
	Iatrogenic causes	Referring to causes related to medical management of labor (i.e., augmentation/interventions or lack thereof)
Monitoring labor dystocia (surveillance)	Start the clock	Referring to time in labor, the timeline, or defining an "endpoint" (e.g., putting a patient "on the clock")
	Fetal monitoring/tracing	Referring to fetal monitoring broadly (e.g., "fetal heart rate tracing," "fetal heart rate category")
	Non-reassuring fetal surveillance / Fetal intolerance of labor	Referring to fetal monitoring that indicates the fetus is not tolerating later or that there is concern about fetal heart rate (or "decels")
	Intrauterine pressure catheter (IUPC) / monitoring contraction strength	Referring to the use of an intrauterine pressure catheter (IUPC; "internal monitor") to monitor contraction strength (measures Montevideo units); may also be used if a participant references monitoring contraction strength without specifying the use of an IUPC
	Reviewing progress	Referring to a healthcare professional reviewing or assessing the birthing person's labor progress (e.g., seeing signs of progress)
	Cervical exam	Referring to a cervical examination, pelvic examination, or "checking" the patient
	Weighing risks and benefits	Referring to a healthcare professional actively considering risks and benefits in their clinical decision-making
	Predicting the future	Referring to a healthcare professional predicting an outcome (e.g., assuming that a patient will eventually deliver via cesarean) and **that outcome occurs**
	Outcomes defying expectations	Referring to times when the care team predicts an outcome and **a different outcome occurs** (e.g., birth mode)
	Go back and do it again	Referring to the need to repeat the labor dystocia decision-making process multiple times (i.e., the iterative nature, re-evaluating)
Labor management (treating labor dystocia)	Delivering interventions	Referring generally to delivering interventions (i.e., an umbrella code for use if the type of intervention is not

	specified or otherwise captured by another code, e.g., "tried all sorts of things")
Pain relief: General	Referring generally to pain relief (i.e., an umbrella code for use if the type of pain relief is not specified or otherwise captured by another code, or if pain is not being managed)
Pain relief: Epidural	Referring to epidural anesthesia as a pain relief intervention
Pain relief: Other pharmacological methods	Referring to other pharmacological methods of pain relief (e.g., nitrous oxide, opioids)
Pitocin	Referring to the use of Pitocin
Position changes	Referring to the use of position changes as a labor management or pain relief strategy
Movement	Referring to the use of movement (or "ambulation") as a labor management strategy
Cervical sweep	Referring to the use of a cervical sweep as a labor management or induction strategy
Breaking the water	Referring to amniotomy, or the artificial rupture of membranes (AROM), as a labor management or induction strategy
Other induction methods	Referring to other commonly used methods for inducing labor (e.g., a Foley bulb or balloon catheter, Cytotec, misoprostol or "miso")
Non-pharmacological methods	Referring to non-pharmacological methods for labor management, induction, or pain relief (e.g., showers/baths, hot/cold, aromatherapy, massage)
Pushing techniques	Referring to interventions aimed at increasing the efficacy of pushing (e.g., breathing/counting guidance, chin tucking, using a birthing or "squat" bar)
Breathing	Referring to interventions targeting breath (e.g., encouraging the patient to breathe)
Helping maternal coping	Referring to interventions targeting maternal coping broadly as a labor management strategy (e.g., stress relief strategies)
Reframing perceptions	Referring to cognitive restructuring or efforts to shift perceptions
Giving more time / waiting	Referring to the use of time ("wait and see") as a component of labor management; expectant management

		Amnioinfusion	Referring to amnioinfusion (most commonly performed during labor when a fetus shows signs of a slow or irregular heart rate due to low amniotic fluid); "fluid bolus"
		Medication	Referring broadly to medications not otherwise specified that are given to birthing persons (e.g., Benadryl)
Communication / decision-making	Care team communication	Care team communication	Referring generally to how the extent to which members of the care team communicate with one another
		Seeking consultation / asking questions	Referring to healthcare professionals seeking intra- or inter-professional consultation (e.g., asking a team member for their opinion on appropriate labor management, encouraging a teammate to try something)
		Barriers to communication	Referring to factors that pose barriers to communication between healthcare professionals
	Care team modes of communication	Team huddle	Referring to communication that occurs within the context of a care team meeting or huddle
		Electronic Medical Record (EMR)	Referring to communication that occurs via the electronic medical record (e.g., Epic, Canopy)
		Placing orders	Referring to communication that occurs in the form of official orders (e.g., a physician "ordering" medication)
		Handoffs and sign-outs	Referring to communication that occurs between care team professionals between changing shifts (may be verbal or written/typed)
		One-to-one conversations / face-to-face interactions	Referring to communication that occurs via a one-on-one, face-to-face conversation between healthcare professionals
		Organic communication	Referring to communication that occurs spontaneously (e.g., when sharing space/coworking)
	"Discussion with the patient and family" (or "patient counseling")	Shared decision making	Referring to the shared decision-making model broadly (e.g., the extent of its applicability within this context)
		Assessing decision-making preferences	Referring to a healthcare professional assessing the birthing person's preferences regarding involvement in decision-making

	(e.g., the extent she wants to be in control versus defer to clinician recommendations, which support persons she would like to involve)
Assessing goals and preferences	Referring to a healthcare professional discussing the patient's preferences or goals (e.g., reviewing their birth plan with them, asking their thoughts about interventions)
Who is present -- healthcare professionals	Referring to which care team members are present for discussions with the birthing person (e.g., "team-based counseling" in which the whole team counsels the patient together, if a physician and nurse do so together)
Recapping labor course	Referring to a healthcare professional reviewing the details of the labor course in a discussion with the birthing person
Providing information or education	Referring generally to providing information or patient education (e.g., explaining what labor dystocia is, explaining the reasons, sharing the risks and benefits of an intervention)
Referencing the literature	Referring to a healthcare professional discussing research/evidence/literature with the birthing person
Assessing understanding or health literacy	Referring to a healthcare professional assessing the birthing person's comprehension or their health literacy (e.g., asking if they have questions, asking them if they understand, asking them to repeat something back)
Expressing concerns	Referring to a healthcare professional expressing their concerns to a birthing person (e.g., about labor progress)
Discussing options for interventions	Referring to a healthcare professional discussing labor management options with the birthing person or providing a menu of options to choose from
Discussing possibility of c-section	Referring to a healthcare professional discussing the possibility of cesarean delivery with the birthing person (may be at any time during the labor and delivery process)
Making recommendations -- to patient/family	Referring to a healthcare professional offering a recommendation, e.g., for intervention (may or may not be a specific intervention)

		Giving time to consider	Referring to a healthcare professional allowing the birthing person and their support persons time to consider a decision
		Obtaining consent / informed refusal	Referring to a healthcare professional obtaining consent or informed refusal from the birthing person (e.g., "consenting the patient")
		Inviting patient feedback or input	Referring to a healthcare professional actively soliciting the birthing person's feedback or input on counseling or recommendations (e.g., inviting the patient to choose between more than one option, making them feel heard and their opinions valued)
		Supporting the birthing person's decisions	Referring to a healthcare professional respecting the birthing person's decision or request (e.g., "patient request for c-section")
		Encouraging / motivating / coaching	Referring to a healthcare professional encouraging, motivating, guiding, or coaching the birthing person
		Layman's terms versus "medical jargony"	Referring to healthcare professional's use of simplified, descriptive, colloquial language OR their use of complex medical jargon when talking with patients
		Directive versus easing into it	Referring to healthcare professionals' counseling style -- whether they offer directive recommendations or take a less directive approach
		Honesty / transparency	Referring to being transparent with the patient and giving them detailed information (or not)
Factors that influence decision-making and outcomes	Care team factors	Care team structure	Referring to aspects of the care team's structure (e.g., division into high-risk and low-risk teams, supervision structure, presence of students)
		Teachable moment	Referring to the presence of a learning opportunity (e.g., whether a resident/student continues to manage care in the presence of dystocia)
		Weekdays, weeknights, weekends	Referring to differences in care team composition/structure or other aspects of patient care due to the time of day or day of the week
		Shift work versus continuity of care	Referring to the structure of shifts -- either a healthcare professional works for a set number of hours or they care for the

	patient through their delivery. This code may also be used to note shift-related factors (e.g., a cesarean being scheduled based on timing of shift changes) or patients being managed by multiple clinicians.
Physician-driven versus nursing-driven care	Referring to whether patient care and decision-making is mainly driven by physicians, nurses, or other stakeholders (e.g., could also be physician-driven versus midwife-driven, "autonomous" nurses)
Learning from one another	Referring to learning/teaching that occurs among healthcare professionals
Interdisciplinary relationships	Referring to the quality or nature of the relationships between professionals of different disciplines
Professional role differentiation	Referring to differences in professional roles and the extent to which care team members know and respect those various roles
Respect	Referring to the extent to which healthcare professionals respect one another (or not) AND/OR the extent to which healthcare professionals recognize and respect established professional power hierarchies in medicine (beliefs and/or behaviors)
Conflicting opinions among care team / mixed signals	Referring to a difference of opinion between healthcare professionals about labor management (e.g., giving a birthing person mixed signals because the care team isn't on the same page)
Tension -- among care team members	Referring to interpersonal tension between healthcare professionals
Requiring a physician	Referring to decisions or interventions that require a physician or for which one healthcare professional would defer to another (e.g., a nurse deferring to a physician)
Leveraging nurses	Referring to decisions, interventions, communication, or processes in which nursing staff is leveraged, valued, or relied upon
Patient rounding / time spent "on the floor"	Referring to the nature of patient rounds (e.g., the frequency of rounding, which professionals are involved)
Working as a team	Referring generally to collaboration/teamwork among members

		of the care team (or alignment / "being on the same page")
Patient factors	Health literacy	Referring to the birthing person's health literacy level overall
	Knowledge level (birth-related)	Referring to the birthing person's knowledge level related to medical care or birth specifically (could also be "knowing what to expect")
	Education level	Referring to the birthing person's level of educational attainment
	Patient preferences	Referring broadly to the birthing person's preferences for labor and delivery (e.g., their openness/willingness to interventions). See "Assessing goals and preferences" if a healthcare professional is assessing for preferences.
	Work done prenatally	Referring to the birthing person's prenatal preparation for birth (e.g., childbirth education, information shared during prenatal appointments)
	Birth plan	Referring to a birth plan or "birth preference sheet" that the patient has prepared in advance
	Past experiences with the healthcare system	Referring to the birthing person's history with the healthcare system (e.g., past childbirth trauma, institutional betrayal, intergenerational trauma)
	Insurance	Referring to the birthing person's insurance status
	Financial situation	Referring to the birthing person's income level or socioeconomic status; homelessness
	Cultural	Referring to the birthing person's cultural background (or cultural traditions/practices); this can also include refugee status
	Religion	Referring to the birthing person's religious background/beliefs
	Race/ethnicity	Referring to the birthing person's race/ethnicity (e.g., elevated risks for Black birthing persons)
	Sexuality/gender	Referring to the birthing person's sexual orientation or gender identity (e.g., the LGBTQ community)
	Stress and anxiety	Referring to the birthing person's psycho-emotional state during labor and delivery; can also include "fear of intervention"

	Mental health history	Referring to the birthing person's mental health history, including pregnancy; neurodevelopmental delays, cognitive disabilities, substance use disorders
	Maternal exhaustion	Referring to the birthing person's physical exhaustion (e.g., during pushing, due to lack of sleep)
	Maternal effort	Referring to the birthing person's level of effort (e.g., insufficient effort during pushing)
	Motivation	Referring to the birthing person's level of motivation, perseverance, or determination (or lack thereof, feeling defeated or like giving up); birth-related self-efficacy
	BMI	Referring to birthing person's body size or composition (e.g., obesity, BMI, weight)
	Maternal age	Referring to patient's age as a factor considered in decision making processes (e.g., advanced maternal age (AMA), teen pregnancy)
	Childbearing plans / family planning; adoption, abortion	Referring to patient's desire or plans to have more children or not
	Maternal health issues / comorbidities	Referring to patient's health condition(s) as a factor considered in decision making processes (e.g., gestational diabetes, preeclampsia)
	Maternal risk factors (not specified)	Referring *broadly* to maternal risk factors (i.e., factors that may place some patients at higher risk; only use this code of a specific risk factor is not specified)
	Beliefs about birth	Referring to beliefs held by birthing people about childbirth
	Assertiveness / self-advocacy	Referring to the degree to which a patient is assertive or advocates for herself (e.g., communicating her birth preferences, refusing interventions)
Healthcare professional factors	Patience	Referring to healthcare professionals' level of patience (e.g., willingness to wait or give more time before moving to c-section); this code may also be used in reference to the idea that cesareans are more common around dinnertime (e.g., that clinicians want to go home at five o'clock)
	Investment	Referring to healthcare professionals' level of investment in a birthing person or an

	outcome (e.g., a strong desire to help a patient achieve a vaginal delivery)
Psycho-emotional factors	Referring to healthcare professionals' psychological or emotional state (e.g., fear, nervousness)
Identity-related or cultural factors (e.g., clinician race or gender)	Referring to the healthcare professional's identities, demographics, or cultural background
Comfort level / Risk tolerance	Referring to healthcare professionals' level of comfort (may be broadly or referring to comfort level with a specific intervention, etc.) and/or degree of tolerance for medical risk
Experience level	Referring to healthcare professionals' level of experience (e.g., number of years working in this role)
Educational background	Referring to aspects of healthcare professionals' education or training
Time / other responsibilities	Referring to healthcare professionals' limited time or competing priorities (e.g., how many other patients they are caring for, administrative duties)
How they describe	Referring to healthcare professionals' individual communication style
Biases	Referring to healthcare professionals' biases (e.g., implicit).
Respect for patient's point of view / desire to involve patient in their decision-making	Referring to differences in healthcare professionals' openness to shared decision making and/or level of respect for patient birth preferences
View on what their role is	Referring to differences in healthcare professionals' views on the scope of their role (can also include "scope of practice" or viewing their role as a patient "advocate")
Who your nurse is	Referring generally to the importance of nursing staff
Active care versus passive care	Referring to healthcare professionals' level of engagement in patient care (e.g., spending time in patient rooms versus sitting at a desk for extended periods of time)
Continuing education	Referring to additional training, continuing education, certifications, etc. that healthcare professionals have completed

	Public versus private care	Referring to whether a physician is a private practitioner versus a public practitioner (e.g., private obstetricians working within public hospitals)
Patient-clinician factors	Quality of relationship	Referring to the quality of the relationship between a birthing person and a healthcare professional (e.g., how well they get along, rapport built)
	Established relationship versus Meeting for the first time	Referring to whether a patient has a pre-existing relationship with their clinician (e.g., if they received prenatal care from this clinician) versus the patient and clinician are meeting for the first time during labor and delivery
	Language barrier / translator	Referring to a difference in languages spoken between birthing persons and healthcare professionals, or referring to the use of an interpreter/translator
	Personality	Referring to congruence between patients' and healthcare professionals' personalities; the connection between them
	Trust or distrust	Referring to the extent to which a birthing person trusts or distrusts the healthcare professionals caring for them (could be referring to a specific professional or healthcare professionals in general); could also be degree of respect for medical authority
	Power differential	Referring to the power differential between patients and clinicians (e.g., efforts to reduce the power differential)
	Patient-clinician communication	Referring to the communication between patients and clinician generally (e.g., a patient advocating for herself, a clinician listening)
Social context	Social support	Referring to the social support that the birthing person is receiving (e.g., helpfulness of the support persons, social/relational dynamics, types of support they are receiving)
	Supporting birthing persons' decisional autonomy (or not)	Referring to the degree to which the patients' support persons are supporting their decisions, trying to influence different decisions, taking over decision-making, etc.

Hospital factors	Type of hospital	Referring to the type of hospital (e.g., private hospital, academic medical center, community hospital)
	Busyness of the floor	Referring to the busyness of a labor and delivery unit, e.g., patient volume or number of available beds
	Hospital policies	Referring to any hospital policies that may or may not impact labor dystocia decision-making and management; a set of rules that is designed to reach certain objectives
	Hospital protocols	Referring to any hospital-enacted medical protocols (e.g., for labor management); a set of procedures or steps to be followed for the accomplishment of a given task
	Staffing & coverage	Referring to the availability/unavailability of staff (e.g., due to shifts, tending to other patients)
	Anesthesia	Referring to the availability/unavailability of anesthesia (e.g., due to shifts, tending to other patients)
	Frequency of monitoring	Referring to the frequency of monitoring; can be any care team member (e.g., nurses, physicians)
	Triaging	Referring to patient triaging (e.g., needing to prioritize the highest risk patient/situation)
	Practice pay structure	Referring to the practice's pay structure (e.g., how healthcare professionals' pay is determined)
	Cost of medical care	Referring to the cost of medical interventions, medications, etc. (e.g., how the hospital charges for interventions, cost of cesarean versus vaginal delivery)
	Counseling or remediation	Referring to healthcare professionals being counseled or receiving feedback from hospital leadership or others
	Whistleblowing	Referring to the reporting of concerning behavior by team members or related processes
	Hospital initiatives re: cesarean rates	Referring to any hospital initiatives aimed at lowering cesarean rates (e.g., research, guidance, incentives)
	Environmental	Referring to aspects of the labor and delivery setting that may influence decision-making

	Ethics board	Referring to hospital ethics board or efforts by leadership in support of medical ethics
Other factors	Technology, tools, supplies	Referring to technology, tools, devices, equipment, or supplies (e.g., birth balls, Doppler units)
	Legal	Referring to legal factors (e.g., laws, threat of lawsuit); hospital insurance; documentation
	Healthcare system level	Referring to broader system-level healthcare factors (e.g., healthcare professional shortages, scheduling wait times)
	Medical racism	Referring to the existence or impacts of medical racism
	Social media / access to information	Referring to information obtained by birthing persons via social media or other similar resources (can also include Google)
	Timing of admission	Referring to the timing of a birthing person's hospital admission in relation to labor (e.g., how long they labor at home, whether they are in active labor at time of admission)
Medical factors	If their water was broken	Referring to membrane rupture (or not) -- can be spontaneous or artificial (AROM) -- as a factor involved in decision-making (e.g., premature rupture of membranes (PROM). See "Breaking the water" if referring to rupturing the amniotic sac as an intervention.
	Magnesium	Referring to the use of magnesium (e.g., for preventing seizures in patients with preeclampsia); a patient being "mag'ed out" (lethargy is a common side effect)
	Elective induction versus spontaneous labor	Referring to whether labor was induced versus began spontaneously
	Cervical ripening / antenatal	Referring to methods of cervical ripening used antenatally (e.g., nipple stimulation)
	Previous c-section	Referring to whether the birthing person has delivered via cesarean previously (e.g., a "vaginal birth after cesarean" or "VBAC", a "trial of labor after cesarean" or "TOLAC")
	Fetal health issues	Referring to fetal anomalies or health conditions (e.g., heart conditions,

			developmental disabilities, NICU admission)
		Gestational age	Referring to the gestational age (i.e., # of weeks, fetal age) at time of birth
		Infection / fever	Referring to signs or presence of infection, e.g., intrauterine infection (chorioamnionitis or "chorio"), maternal or neonatal sepsis or "septic", high temperature, febrile
		Vital signs	Referring to vital signs, e.g., respiration, blood pressure, heart rate
		Gravidity / parity	Referring to the birthing person's number of previous births or previous pregnancies (e.g., referring to a patient as a "G1" or "G2P1", primiparous, nulliparous, multiparous, "prime" or "multip")
		Perinatal journey	IVF, past birth experiences, etc.
		Medical emergencies	Referring to medical emergencies (e.g., how they change the way decision making occurs)
Outcomes / end goals	Birth mode	Vaginal delivery	Referring to vaginal delivery as an outcome generally (e.g., its risks and benefits; do NOT use this code every time vaginal delivery is mentioned, but rather when a participant provides meaningful commentary about it)
		Operative vaginal delivery	Referring to operative vaginal delivery (i.e., vacuum or forceps-assisted delivery) as an outcome generally or indications for it (do NOT use this code every time operative delivery is mentioned, but rather when a participant provides meaningful commentary about it)
		Cesarean delivery	Referring to cesarean delivery as an outcome generally or indications for it (e.g., its risks and benefits; do NOT use this code every time cesarean delivery is mentioned, but rather when a participant provides meaningful commentary about it)
	Other outcomes or goals	Healthy mom, healthy baby	Referring to the ultimate goal for birth as "healthy mom" and "healthy baby" (i.e., rather than any specific birth mode or interventions)
		Desired birth preference	Referring to the birthing person's birth preferences as a goal that healthcare professionals attempt to achieve

	Going against somebody's birth wishes	Referring to the birth outcomes that diverged from the birthing person's birth plan or preferences
	Patient experience / birth satisfaction	Referring to the birthing person's experience, e.g., patient satisfaction or dissatisfaction with the birth experience
	Treating patients the same	Referring to the importance of treating all patients the same or approaching decision-making the same for all patients
	Individualized care	Referring to the importance of individualizing or tailoring patient care
	Medical errors / inaccuracies	Referring to medical error or inaccuracies that contribute to decisions being made or outcomes
	Evidence-based care	Referring to the importance of following evidence-based medical recommendations for labor management / delivering evidence-based care
	Whole-person care	Referring to the importance of looking at the whole person (not just medical management and physiology)
	Equitable care	Referring to the importance of providing care that is equitable
	Patient-centered care	Referring to the importance of patient-centered or person-centered care
	Feeling inadequate / like a failure	Referring to a birthing person feeling inadequate or like a "failure" in some way due to e.g., birth mode, the birth experience, use of interventions (or *not* feeling that way)
	Birth trauma	Referring to a birthing person feeling traumatized or being exposed to birth trauma
	Postpartum mental health	Referring to a birthing person's mental health during the postpartum period (e.g., postpartum mood and anxiety disorders), especially as related to their birth experience
	Other adverse health outcomes	Referring to a birthing person experiences adverse outcomes following labor dystocia (e.g., hemorrhage/bleeding, hysterectomy, vaginal tearing/episiotomy/perineal laceration, shoulder dystocia, morbidity/mortality)
Other commentary	Scientific evidence	Referring to the literature on labor dystocia, e.g., that there is limited evidence

	Medical guidelines or practice standards	Referring to the medical guidelines, e.g., from ACOG, published in the literature for the appropriate management of labor dystocia
	Suggestions for practice improvements	Referring to any ideas or suggestions shared by participants related to improving medical practice, patient care, or other surrounding issues
	Myths and misconceptions	Referring to a myth or misconception that is perpetuated related to perinatal health/experiences
	Recipe/formula versus artform	Referring to a clinician's beliefs (and related behaviors) regarding whether labor management is a nuanced artform or ought to follow a recipe or formula (or where they fall on this continuum); could also be "textbook"
	Gray zones	Referring to areas in labor management that are "gray areas" or difference between clinicians in their obstetric beliefs and behaviors
	Personal experiences with birth/pregnancy	Referring to a participant's personal experience as a birthing person or other aspects of the perinatal period
Important quote		This code may be used to make note of any quotes that seem especially important/quotable (will not be used in calculating intercoder reliability)