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What is normal progress in the first stage of labour? A vignette study of similarities and differences between midwives and obstetricians

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ABSTRACT

Objective: intrapartum referrals are high-risk situations. To ensure patient safety, care professionals need to have a shared understanding of a labouring woman's situation. We aimed to gain insight into similarities and differences between midwives and obstetricians in the assessment of a prolonged first stage of labour and the decision to refer a woman to a clinical setting in the Netherlands.
Design: factorial survey.
Setting: in the Netherlands, the main caregivers for women with low risks of pathology are primary-care midwives working in the locality. Approximately half of all women start labour under supervision of primary-care midwives. Roughly 40% of these women are referred to a hospital during labour, where obstetricians take over responsibility. In 2013, the reason for referral for 5161 women (14.1% of all referrals during labour) was a prolonged first stage of labour.
Participants: respondents consisted of primary-care midwives ($N=69$), obstetricians ($N=47$) and hospital based midwives, known as clinical midwives ($N=31$).
Measurements: each respondent assessed seven hypothetical vignettes. The assessment of a prolonged first stage of labour and the decision to refer a woman to a clinical setting based on this indication were used as outcome measures, rated on a 7-point Likert scale (1 = very unlikely to 7 = very likely). Data were analysed using a linear multilevel model with a two-level hierarchy.
Findings: compared to primary-care midwives, obstetricians were more likely to define a prolonged first stage of labour when progress in cervical dilation was slow (b: 1.11; 95% CI: 0.66 – 1.57). The attributes parity, progress, intensity of uterine contractions and the woman's state of mind, were used by all three groups in the decision to refer a woman to clinical setting based on a prolonged first stage of labour.
Key conclusion and implications for practice: we found relevant interprofessional differences and similarities in the assessment of a prolonged first stage of labour and consequent referral. Further interprofessional alignment of clinical assessments, for instance through interprofessional discussions and a review of professional guidelines, might help to improve collaborative care.

Introduction

Patient referrals are situations where patient safety is at risk. The transfer of patient care to another care professional increases the chances of communication failure and adverse events (Leonard et al., 2004; WHO - Collaborating centre for patient safety solutions, 2007; Ong and Coiera, 2011). In obstetrics, intrapartum referrals are related to adverse perinatal outcomes, which underlines the need to ensure continuity of care (Evers et al., 2010; Offerhaus et al., 2013). For this, there must be clear interprofessional

Abbreviations: BMI, body mass index; CRM, Crew Resource Management; LOC, Local Obstetrical Collaboration; NICE, National Institute for Health and Clinical Excellence; PFSoL, prolonged first stage of labour (dependent variable); REFER, referral based on a prolonged first stage of labour (dependent variable).

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communication about the woman's state of health and the anticipated actions needed (Riesenberg et al., 2009; Manser, Foster, 2011). This is referred to as situational awareness (Leonard et al., 2004). Discrepancies in situational awareness between team members can lead to conflicting actions or failures and thus undermine patient safety (Reader et al., 2011).

Pregnancy and childbirth are notorious for the high frequency of patient referrals between care professionals, especially in countries where primary-care midwives are the main caregivers for women with low risks of pathology. Women are referred to a hospital when risks of adverse foetal or maternal outcomes are anticipated or when complications arise (Sandall et al., 2015). During these referrals, care professionals form a multidisciplinary team across different locations. A prolonged first stage of labour is a common indication for referral (Offerhaus et al., 2015). For example, in the Netherlands 50.6% (N=84,175) of all women started labour under supervision of primary-care midwives in an out-of-hospital setting in 2013. Of those women, 36,593 women were referred to a clinical setting during labour and for 5161 women (14.1% of all intrapartum referrals) the reason for referral was a prolonged first stage of labour (Dutch Perinatal Registry [Stichting Perinatale Registratie Nederland], 2014).

While primary-care midwives are the initiators of a referral due to a prolonged first stage of labour, the expectations and actions of all the different care professionals need to be well attuned. Guidelines on a prolonged first stage of labour are readily available (Ness et al., 2005; NICE - National Institute for Health and Care Excellence, 2014). However, it is unclear what information different obstetrical professionals use to assess a prolonged first stage of labour and to decide when to refer to a clinical setting. To increase shared situational awareness during a patient referral, it is important to determine whether variation exists in assessments and decision-making. We aimed to gain insight into perceptions of womens' situation among different obstetrical professionals in order to improve patient safety during intrapartum referrals. Therefore the research question for this study was: What are the similarities and differences between primary-care midwives, obstetricians and hospital based midwives (known as clinical midwives) with respect to the assessment of a prolonged first stage of labour and the decision to refer a woman to a clinical setting?

Methods

Participants and data collection

This study was performed in the north-western region of the Netherlands. We included respondents from obstetrical departments in hospitals and surrounding primary-care midwifery practices, known as Local Obstetrical Collaborations (LOCs). Four LOCs, referred to as LOC A, B, C and D, took part in this study. Three obstetrical professions were involved: (1) obstetricians and residents in obstetrics, (2) clinical midwives and (3) primary-care midwives working in independent practices. Data collection took place at the end of team training sessions in every LOC. These team training sessions focused on non-technical skills based on Crew Resource Management (CRM) principles and were aimed at implementing a tool for standardized communication (Romijn et al., 2016). CRM team training focuses on team performance and coordination in an effort to improve patient safety (Salas et al., 2006).During the team training sessions, no attention was paid to case descriptions of women with a prolonged first stage of labour. For the data collection, participants were asked to assess vignettes on a paper survey form. Participation was voluntary and anonymous. Data were collected between March 2014 and December 2014.

Table 1
Attributes and associated levels.

Attribute	Level 0	Level 1
Parity	Nulliparous woman (G1, AD 38 +5)	Multiparous woman (G3, P2, AD 38 +5)
Body Mass Index	23 kg/m^2	29 kg/m^2
Command of Dutch	Good command	No command
Estimated birthweight	3000 g	4000 g
Cervical dilation	4 cm	7 cm
Progress in cervical dilation	2 cm every 2 hours	1 cm every 2 hours in the last 4 hours
Woman's state of mind	Not anxious and is dealing well with the uterine contractions	Anxious and has problems dealing with the uterine contractions
Intensity of uterine contractions	Four powerful contractions every 10 minutes	Two or three weak contractions every 10 minutes

Vignettes and attributes

We used hypothetical case scenarios, known as vignettes, to assess variation in the assessment of a prolonged first stage of labour and consequent referral. A vignette is a brief description of a person or situation simulating key features of real-world scenarios. In a factorial survey, vignettes contain predefined attributes relevant to eliciting a judgement or decision (Taylor, 2006; Evans et al., 2015). The attributes are categorical variables with two or more levels that are randomly varied across the vignettes (Taylor, 2006; Brauer et al., 2009). This method is increasingly being applied in healthcare settings to study the judgements, perceptions and decision-making processes of care professionals (Bachmann et al., 2008; Brauer et al., 2009).

In this factorial survey, we included eight dichotomous attributes (Table 1). A review of the literature and professional guidelines provided information for determining the relevant attributes and associated levels. Next, we carried out a pilot study of the case description and the selection of attributes to optimise the final version. Box 1 presents the standard case description and placement of attributes. The eight attributes with dichotomous levels allow a total of 256 different case descriptions (2^8). All possible combinations represented realistic scenarios and were therefore used in the survey.

The paper survey forms were generated by computer. Each survey form contained a randomly selected set of seven of the 256 possible vignettes. Questions regarding the respondent characteristics of age, sex, work location, profession and clinical experience were also included. For each vignette the respondent rated two outcome measures on a 7-point Likert scale (1=very unlikely to 7=very likely). These measures were (1) the assessment of prolonged first stage of labour (PFSoL) and (2) the decision to refer to a clinical setting based on a prolonged first stage of labour (REFER).

Statistical analysis

Descriptive statistics were used to study the characteristics of the respondents. In order to answer the research question, we investigated interprofessional differences for the two outcome measures PFSoL and REFER. We analysed whether there were differences between the three obstetrical professions regarding the influence of attributes and respondents' characteristics on both outcome measures. Thus, in the analysis the two outcome measures PFSoL and REFER acted as dependent variables, and attributes and respondent characteristics as independent variables. Since every respondent assessed multiple vignettes, data were analysed using a linear multilevel model. We incorporated a two-