

Arbitrary time limits for the second stage of labour — do they disempower women from achieving normal birth? A literature review

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This paper explores whether arbitrary time limits for the second stage of labour disempower women from achieving normal birth. This study is based upon my own observations during clinical placements while studying for the BSc Hons in Midwifery.

As this was the basis for an academic assignment, there was a word limit which in turn affected the extent to which information resources could be included. A literature review was performed, exploring and analysing factors associated with time limits for the second stage. Aspects studied and critically evaluated include the perception of the actual definition of the second stage through expert opinion, the origins of arbitrary time limits and their application to clinical practice, maternal and neonatal outcomes where second stage was prolonged and, finally, papers that reported opinions and narratives.

The traditional obstetric definition of the start of the second stage as beginning at full dilation of the cervix may be ambiguous in practice today, as some midwives and obstetricians prefer to measure progress by fetal descent rather than relying on full dilation of the cervix in isolation. In addition, some experts argue that the second stage may not actually occur until the fetal head has reached the pelvic floor and the woman has an

overwhelming spontaneous urge to push. This ambiguity in definition is related to arbitrary time limits, which were originally recommended based upon small scale research to prevent maternal and fetal morbidity and mortality. However, these time limits originated at a time prior to electronic fetal heart monitoring, tocographs and fetal scalp blood analysis, and at a time when there was no predictive value of outcome other than time limits. A systematic review of recent research of maternal and neonatal outcomes with prolonged second stages suggests that there is no risk to the fetus with a second stage lasting up to four hours. There may, however, be an increase in risk of postpartum haemorrhage for the mother, although this may be directly attributed to the intervention of instrumental delivery. The experts' opinions collectively emphasise that the duration of the second stage of labour is only of significance if there are consequences for maternal and fetal well-being.

Midwives must strive to promote normal birth wherever possible. Therefore more research is recommended into both the definition of the second stage and its application in practice, as well as the constraints of the current time limits and their current predictive value in reducing maternal and fetal morbidity and mortality.



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Introduction

Pregnancy and childbirth are life changing and transforming events in women's lives. In 2005, the Royal College of Midwives (RCM) launched a major UK-wide initiative called the *Campaign for normal birth*, which aims to inspire and support normal birth practice in the midwifery profession. The RCM recommends that maternity service providers review their policies and guidelines to ensure they are based on a philosophy committed to maximise normal birth and to ensure that a range of options are available to women (RCM 2005).

The NHS Maternity Statistics, England (2003–4) estimated that 46% of deliveries were normal, defined as those without medical or surgical intervention. In addition, instrumental deliveries were rated at 12% and the caesarean rate at 23% (DoH 2005). These figures showed a decline in normal birth with a corresponding

incremental increase in the previous year (DoH 2004). A normal birth rate as low as 46% requires consideration, as this would suggest that if normal birth is to be promoted then the history of the current downward trend must be explored to gain better understanding. The National Institute for Health and Clinical Excellence (NICE 2006) issued a press release stating that a guideline on care during labour is in development. It was stated that the aim of this guideline is to make birth as normal as possible, by reducing unnecessary medical interventions.

Rationale

As a student midwife, I had the opportunity to care for women during the second stage of labour in the labour ward and in a midwifery-led birth centre. Utilising Gibbs' (1988) experiential learning cycle during these clinical placements, I came to realise that different perceptions of the second stage of labour can result in different outcomes for the woman. Box 1 and 2 give examples of the clinical care which prompted this enquiry. Any identification of the women has been minimised to maintain client confidentiality in keeping with the NMC (2002) Code of Professional Conduct.

As a student midwife I felt disillusioned by my experience on the labour ward in comparison to that of the birth centre. There did not appear to be any justification for the ventouse delivery other than second stage time limits being reached. The fetus was in an occipito-anterior position without asynclitism, clear liquor had been noted and the fetal heart rate was reassuring.

It was due to these contrasting experiences that I chose to explore this subject further. Through a process of desktop research, exploring narratives and evidence-based texts, I set out to resolve this apparent conflict, by undertaking

Box 1.

At the birth centre I cared for a multiparous woman under supervision from the midwife. The woman was considered low-risk and remained mobile and upright throughout all stages of labour. Her second stage of labour lasted two hours and 45 minutes and resulted in a spontaneous vaginal delivery of a live male infant, weighing 4kg with healthy Apgar scores of 9 at one and five minutes. Although the woman was tired she was able to have immediate skin-to-skin contact and establish breastfeeding soon after birth. As a student midwife, I was well aware that the second stage time limit exceeded the hospital trust guideline for a multiparous woman; however, the midwife felt that there was no cause for referral as both the maternal and fetal observations were within normal limits suggesting well-being. Although the second stage was confirmed by vaginal examination as the cervix being fully dilated and the time for this duly noted, the woman did not push for the duration of two hours and 45 minutes, but only for the final 45 minutes, following her own instinctual urges to push, as and when she felt like it.

a literature review to explore whether arbitrary time limits disempower women from achieving normal birth.

Scope of the literature and methods of searching

An extensive literature review was undertaken using CINAHL, MEDLINE, PubMed, MIDIRS and the British Library. The scope of the literature search was broad and included an international perspective. The focus was on the promotion of normal birth, therefore the literature and research cited mostly pertains to the low-risk woman who is mobile during her labour. However, some research papers and literature quoted also have high-risk variables which are taken into account in the discussion. This is a very large topic area and constraints were imposed by the need to conform to a set word limit. It is therefore acknowledged that this might have led to some studies not being included which would have had relevance to the review, but that the papers included offer a reasonable overall perspective to the enquiry.

Definitions of the second stage of labour: an exploratory analysis

In practice, diagnosing the onset of the second stage is a subjective method whereby the midwife will use a range of observations; these include external signs denoting physical changes and fetal advancement, changes in the woman's behaviour, or assessment of cervical dilatation upon findings from a vaginal examination.

The obstetric view is that the second stage is the time from complete cervical dilation until the baby is born (Arulkumaran *et al* 2004). Arulkumaran clarifies that the physiological aspect of the second stage commences when the mother has a desire to bear down when the cervix is fully dilated. The Royal College of Obstetricians and Gynaecologists (Strachan 2005) state that there is an indication for operative delivery in the nulliparous woman with a second stage of two hours and for the multiparous woman with a second stage of one hour in the absence of regional epidural anaesthesia. Although this guideline also clarifies that this indication is not absolute and each case should be considered individually, it nonetheless enables intervention and thus reduces the likelihood of normal birth.

However, defining the second stage from the timing of complete cervical dilatation is questionable. Where this is determined by vaginal examination (as opposed to signs of the presenting part at the vulva), upon finding the cervix completely dilated the midwife must time it from that point, although the time that this occurred is really unknown as it may have been some time previously.

In the hospital Trust where I have my clinical placement, the second stage is also defined as beginning with full dilation of the cervix and ending with the birth of the baby. The guideline emphasises that the second stage is divided into two phases: the descent and the outlet phase. The descent phase is from full cervical dilatation until the fetal head reaches the pelvic floor and the outlet phase is from when the presenting part reaches the pelvic floor to the birth of the baby. Although this guideline appears evidence-based and well referenced, the onus is on the

Box 2

There was a contrasting experience on the labour ward in the consultant maternity unit. A multiparous woman resting semi-recumbent on the bed had reached the second stage of labour. This had been confirmed by vaginal examination as the cervix being fully dilated. The woman, however, was unsure if she felt the need to push, but she was encouraged to do so by the midwife during contractions, as the midwife assessed that the vertex had reached the ischial spines and that birth was imminent. Nonetheless, the woman pushed for one hour during contractions and there were no external signs that the vertex was advancing. The midwife followed the hospital trust guideline for second stage management and made a referral to the obstetric registrar on call. There was not any evidence of maternal or fetal compromise at this point. The registrar arrived, an episiotomy was performed and then a ventouse extraction resulted in the delivery of a live male infant weighing 3.65kg with Apgar scores of 9 at one and five minutes. Following suturing of the episiotomy, skin-to-skin contact was made available for the mother with her baby. However, breastfeeding was not established as the woman had too much perineal discomfort, required analgesia and needed time to recover from the birth events.

midwife to refer all women who have been actively pushing for one hour to the obstetric team. Therefore, although the mother may be well and the fetal heart rate reassuring, a registrar must be called to the room to reassess the progress of labour. This may, in effect, disempower the woman from trusting her own body to be capable of giving birth normally as she shifts from an active woman giving birth into a dependent woman who is not progressing as stipulated in the guideline. The midwife's autonomy is also undermined as care is handed over to the obstetric team. This recommendation is designed to reduce maternal and fetal morbidity and mortality. However, it may still be necessary to consider if the woman has been 'coached' to push actively or influenced by her midwife's opinions of what should be happening at that point, rather than following her own instinctual and involuntary urges to push.

When the onset of the second stage is diagnosed by full dilation of the cervix, two key problems occur during labour care (Long 2006). The first is that the presenting part can still be high above the ischial spines, which creates the problem of deciding how much time should be allowed for fetal descent. Linked to this is the second problem of when pushing should be encouraged, or more specifically, when the end of the 'latent' or fetal descent phase has occurred and the 'active' or physiological urge to bear down phase starts. In a paper which challenges the long established parameters for the second stage of labour, Long (2006) suggests that in order to negotiate this problem and give the woman more time within the set time guideline for second stage, midwives sometimes withhold confirming full dilation, by either not

performing a vaginal examination or deciding there is a thin rim of cervix left upon examination. The article also set out a proposal for a new definition for the second stage in order to facilitate and promote normal birth; this is referred to as the 'rest and be thankful stage' but may also be called 'pause for rotation'. This occurs after transition, when the cervix is likely to be fully dilated, contractions may slow down, the woman becomes relaxed and when the presenting part completes rotation, it is in the anterior-posterior diameter and passes through the cervix. Long (2006) also proposes the new 'second stage', from where the presenting part has passed through the cervix and is thus below the ischial spines, to the baby being born. It would appear that with this proposed new second stage definition, a woman will instinctively bear down as the presenting part has reached the pelvic floor. The concern with such a new definition is that it makes time limits difficult to set. It may be that this would be resolved by stipulating timing of the second stage from the presenting part reaching the pelvic floor, but this is not clarified in her article. The 'rest and be thankful stage' proposed also has no time or measurable criteria attached to it. Therefore, the potential risk involved where there might be an issue of cephalopelvic disproportion or malpresentation is not addressed here, where the pause allowed for rotation may not, in fact, occur.

Jean Sutton, an experienced midwife and lecturer from New Zealand, suggests that just because a mother's cervix is fully dilated, it does not mean she is in second stage (Sutton 2001). Sutton states that the baby must have finished rotating the shoulders into the transverse in order for fetal descent and maternal expulsive efforts to occur. This gives added support to the need for a second stage definition that would be more suited to the presenting part passing the ischial spines and reaching the pelvic floor. Her work is based upon her vast experience and communications with other midwives rather than upon research studies. As a result, within the current need for an evidence base for practice (NICE 2006), Sutton's work could be construed as alternative or radical by some, although where its focus is entirely upon promoting normality, this may be reflected in the future research agenda.

Second stage time limits and their application in practice

The time limits and statistical norms for the duration of the stages of labour were established in 1954 by the American obstetrician Emanuel A Friedman in 'Friedman's curve of labour'. Cesario (2004) describes how Friedman's research results were based on a relatively small sample of 100 primiparous white women in their early 20s. This was a time prior to electronic fetal heart monitoring and fetal scalp blood gas analysis, when outcomes could only be judged strictly by time rather than the more extensive assessment of maternal and fetal well-being undertaken today. Nonetheless, Friedman's research became the benchmark for assessing progress in labour from the 1950s onwards. Friedman's work inspired the obstetric professor RH Philpot and university lecturer WM Castle (1972) to perform their own research in Rhodesia for using cervicographs in the management of labour in primigravida women. Although this research was on a larger scale and involved a prospective study of

624 women in labour, all women were black Africans either in rural or city areas in South Africa. The World Health Organization (WHO) performed a systematic review of maternal morbidity and mortality with the prevalence of uterine rupture in labour, which highlighted that a higher incidence of a contracted pelvis occurs in black African women, which contributes to an increase in intrapartum complications such as labour dystocia and cephalopelvic disproportion (Hofmeyr *et al* 2005). Therefore, collectively these works could be seen as being responsible for the variations in the partograph in worldwide use today. It is from these variations that the gold standards for time limits were set, although the variables of ethnicity, parity, maternal age and intrapartum maternal positions or mobility were not factors explored in either of the original research studies. The exclusion of maternal positioning or level of mobility in these older studies exploring the timing variables for labour duration is considered an imperative factor today — many recent evidence-based papers, including the work of Gupta and Nikodem (2000), emphasise the reduction in duration of labour in mobile, upright women.

An observational study to explore the duration of labour in low-risk healthy women measured the length of active labour, first and second stages, in a multicultural population of low-risk women in nine midwifery practices across the US (Albers *et al* 1999). Intrapartum details were collected from 4,745 consenting participants by their attending nurse-midwives. The analysis data set was restricted to low-risk healthy women with spontaneous onset of labour at term, with a fetus in the cephalic presentation and without medical intervention such as augmentation, epidural anaesthesia or instrumental delivery. Maternal age, ethnicity, level of education, health insurance or Medicaid, and parity are also included in this study, alongside other key variables such as maternal position during the second stage and the use of opiate analgesia.

In Albers' study, the length of the second stage was defined as the time in minutes from complete cervical dilatation to delivery of the infant. The results portrayed the mean length of second stage as 54 minutes for nulliparas and 18 minutes for multiparas. However, the statistical limits for normal ranged from 146 minutes for nulliparas and 64 minutes for multiparas, without any detrimental effect on neonatal Apgar scores or maternal morbidity, although it was nulliparous women aged over 30 who had the longest second stages. The study therefore demonstrated new evidence to support the theory that normal labour, both first and second stages, takes much longer than had been originally suggested by Friedman.

A systematic review of the research on maternal and neonatal outcomes with prolonged second stage of labour

Traditionally, the second stage of labour has been regarded as a time of particular risk to the fetus (O'Connell *et al* 2003). For midwives, ideal care during the second stage of labour should maximise normality and attempt to minimise the probability of maternal or fetal compromise that may lead to urgent interventions.

A retrospective cohort study of 15,759 nulliparous, term, cephalic, singleton births was undertaken at the University of California between 1976 and 2001 (Cheng *et al* 2004). This assessed whether prolongation of the second stage of labour affected maternal and neonatal outcomes. Maternal outcomes were measured by the second stage of labour being sub-divided into hourly intervals ranging from 0–1 hours to more than four hours. Outcomes evaluated included postpartum haemorrhage (PPH), chorioamnionitis, perineal trauma and instrumental and caesarean delivery. Neonatal outcomes examined included the presence of meconium stained liquor, umbilical artery pH and base excess, 5-minute Apgar scores and admission to the intensive care nursery.

Maternal outcomes displayed an increase in the incidence of PPH from 7.1% in the 0–1 hour interval of second stage to 30.9% when the second stage progressed beyond four hours. The authors acknowledge the correlation between the use of instrumental delivery and prolonged second stages of more than four hours, and that this may have contributed to the rise in PPH in this group. The results for neonatal factors suggested that prolongation of the second stage of labour was not associated with poor neonatal outcomes. This was a large population study over a considerable period of time (1976–2001) during which practices, protocols and practitioners underwent many changes; such factors may impinge upon the study's reliability and validity.

The relationship between the duration of the second stage and early neonatal and maternal morbidity was explored in a retrospective analysis of a regional obstetric database of 17 maternity units in the North West Thames region. This was a large study that included 25,069 women of whom 10,932 were nulliparous and 14,137 were multiparous. Inclusion criteria were spontaneous onset of labour from 37 weeks' gestation, and singleton pregnancy with cephalic presentation. Maternal outcomes were measured, including the incidence of PPH and postpartum infection. Neonatal outcomes measured included one and five minute Apgar scores and frequency of admission to SCBU. A schematic representation of the second stage is given showing half hourly intervals ranging from 30 minutes to more than 240 minutes. The results concur with those of Cheng *et al* (2004) by identifying a rise in PPH and postpartum infection where the second stage is longer than three hours. The authors stipulate that this rise is in direct relation to the higher incidence of instrumental delivery in the prolonged group. Thus, the incidence of PPH varied from 5% with a second stage duration of less than two hours to 35% with a second stage of more than four hours. However, maternal age was not a consideration in this study, and this too may have implications for affecting outcomes. Neonatal outcomes for prolonged second stage duration did not demonstrate any relation to low Apgar scores or admission to SCBU.

The authors acknowledge that the duration of active maternal pushing is not recorded on their database and that this may have potential significance for future studies. The ethnicity of women is also not recorded and this too may have practice implications in relation to pelvic shape and dimensions.

Systematic review of maternal and neonatal outcomes with prolonged second stage of labour					
<p>Cheng et al 2004</p> <p>Quantitative: Retrospective cohort study</p>	<p>15,759 nulliparous term, cephalic singleton births from 1976 - 2001</p>	<p>Maternal: increase in incidence of PPH from 7.1% in 0–1 hr 2nd stage to 30.9% in > 4 hr 2nd stage.</p> <p>Neonatal: prolonged second stage not associated with poor neonatal outcome.</p>	<p>No apparent risk to fetus or neonate associated with prolonged 2nd stage of labour up to 4 hours.</p> <p>Risk of maternal PPH increased in relation to intervention of instrumental delivery for prolonged 2nd stage.</p>	<p>Construct validity: use of chi-squared and t-test: a probability value of < .05 was used to indicate statistical differences in results.</p> <p>Reliability: data collection tool not mentioned in study. Potential confounders were controlled for with multivariate logistic regression.</p>	<p>Study design assessed short term maternal and neonatal outcomes only.</p> <p>Limited to nulliparous women only.</p> <p>Implications for practice: requires further research, prospective randomised controlled study would be more feasible to reduce possibility of bias.</p>
<p>Janni et al 2002</p> <p>Quantitative: Retrospective analysis</p>	<p>1,200 births, cephalic, singleton presentation from 34 weeks' gestation. 562=nulliparous 638=multiparous</p>	<p>Maternal: increase incidence of PPH by 1.8% in 2nd stages > 2 hours. Increase in 3rd degree tears 7.7%.</p> <p>Neonatal: Slight decrease in 1 minute Apgar for prolonged 2nd stage, no difference at 5 and 10 minutes. Slight increase in CRP in prolonged group.</p>	<p>No apparent risk to fetus or neonate with 2nd stage more than 2 hours.</p> <p>Risk of maternal PPH and 3rd degree tears in prolonged group attributed to instrumental delivery.</p>	<p>Construct validity: use of Fisher's exact test and the Mann-Whitney U-test to calculate the means that had continuous variables.</p> <p>Reliability: data collected contemporaneously by survey of patient records. Inter-rater reliability not measured.</p>	<p>Study design assessed short term outcomes only.</p> <p>Actual incidence of prolonged second stage in study was 20.3% which may have implications in practice.</p> <p>Implications for practice: study not focused on term births exclusively, thus further research is required to quantify term birth results.</p>
<p>Saunders et al 1992</p> <p>Quantitative: Retrospective analysis of regional obstetric database</p>	<p>25,069 cephalic, singleton births from 37 weeks' gestation 10,932 nulliparous 14,147 multiparous</p>	<p>Maternal: increase incidence of PPH to 35% with 2nd stage > 4 hours.</p> <p>Neonatal: prolonged 2nd stage not associated with poor neonatal outcome.</p>	<p>No apparent risk to fetus or neonate with prolonged 2nd stage up to 4 hours.</p> <p>Risk of maternal PPH and postpartum infection attributed in prolonged group to instrumental delivery.</p>	<p>Construct validity: 95% confidence intervals for differences in mean values + unadjusted odd ratios calculated using CIA software. Probability value of < 0.01 was used for results.</p> <p>Reliability: inter-rater reliability not measured.</p>	<p>Study design assessed short term outcomes only.</p> <p>Largest study in group and reflects similar results to other studies cited. Implications: duration of pushing time not recorded, this requires further research.</p>

Janni *et al* (2002) performed a detailed survey of 1,457 women's maternity clinical records in Munich, to establish the prognostic impact of a prolonged second stage on maternal and fetal outcome. Of this study population, 257 women had caesarean sections and were thus excluded. Of the remaining 1,200 women, inclusion criteria included the variables of singleton pregnancy, cephalic presentation beyond 34 weeks' gestation, and epidural anaesthesia. In addition, augmentation with oxytocic drugs for 7.3% of the study sample was included. The study comprised 562 multiparous women and 638 nulliparous women of whom the mean age was 31 years. Maternal outcomes measured in relation to duration of second stage included the incidence of PPH, third degree perineal tears, vaginal deliveries, operative deliveries and postpartum pyrexia. Neonatal outcomes measured included one, five and ten minute Apgar scores, umbilical artery pH and admission to SCBU.

Once again, a finding of increased rates of PPH were identified (1.8%) where women had a second stage lasting more than two hours but this was considered to be in direct relation to the increase in instrumental delivery. The study concluded there was also a higher prevalence of third degree tears with a prolonged second stage (with a ratio of 7.7%) than for women with a second stage

duration of less than two hours. Neonatal outcome showed a slight decrease in 1-minute Apgar scores for prolonged second stage, but no differences at five and ten minutes. In addition, umbilical artery pH results demonstrated no significant difference in relation to duration of second stage. The only statistically relevant difference was that the levels of neonatal C-reactive protein during the first three days were elevated in those born following second stage durations of more than two hours.

In their discussion, the authors reflect on the historical background pertaining to potential hazards from prolonged second stages and state that these were originally provoked by the British Perinatal Mortality Survey of 1958, which suggested an increase in perinatal mortality following prolonged second stage. The incidence of the second stage lasting more than two hours was 20.3% in this study group which is demonstrably higher than the other studies and thus the results may have more validity.

The study also highlights the association of an increased incidence of PPH and third degree tears with the intervention of instrumental deliveries, rather than the actual duration of the second stage. The findings from this

study appear valid and legitimate with one exception where women were included who received oxytocic augmentation (7.3%): this may have had an effect upon the outcomes as an independent variable.

Collectively, these studies share similarities; they suggest that there is little or no risk to the fetus from a prolonged second stage (2–4 hours), but that this is associated with an increase in maternal PPH, perineal tears and postpartum pyrexia, although these may in part be attributed or associated with instrumental delivery.

The experts' opinions

Failure to progress in the second stage of labour is defined as a second stage exceeding two hours in a primigravida woman or one hour in a multigravida woman (RCOG 2005). Failure to progress in the second stage of labour provides obstetric justification for intervention to hasten delivery by methods of augmentation, instrumental delivery or both, with the aim of reducing neonatal and maternal morbidity and mortality.

Walsh (2000) argues that the fact that robust research over the last 20 years has had little impact on midwifery practice may be partly due to the pervasive culture of consultant-led labour wards, where such research findings are marginalised within an interventionist environment. Walsh explains how, faced with labour ward policies, midwives adopt interesting tactics to beat the system and empower their women by hiding their real clinical findings, to give women more time to give birth spontaneously. However, some midwives may also feel protected by such policies and fear that women or their unborn babies may come to harm in their care should their second stages go beyond the prescribed time limits.

A possible inequity exists whereby the RCOG (2005) will allow the woman with epidural anaesthesia an extra hour for fetal descent in the second stage, but not the woman who chooses not to have an epidural. Therefore, a presumption is made that the woman without an epidural will be mobile, will feel the sensation to push and will not require an extra hour for fetal descent. However, in practice this may not be true, as some women will rest very still, semi-recumbent on the bed during the second stage, they may be tired, afraid to move or sedated from opiate analgesia. Likewise, women having modern low-dose mix epidurals do have varying degrees of mobility and lower limb strength and some find they can kneel on the bed and even stand beside it during the second stage in order to aid fetal descent. Nonetheless, arbitrary time limits for the second stage set by the RCOG are entirely aimed at reducing fetal and maternal morbidity and mortality. The RCOG guideline on operative delivery (RCOG 2005) states that their goal is to reduce the risk of morbidity and, where morbidity occurs, to minimise the likelihood of litigation without limiting maternal choice. This statement appears to be an ethical paradox: for if maternal choice is limited surely this also increases the risk of litigation.

Joyce Roberts (1996), a professor and certified nurse midwife from the USA, has a special interest in events and care around the second stage of labour. She argues that a diagnosis of second stage using only the anatomical

landmark of complete dilation is illogical and is not related to the physiological status of labouring women. Roberts emphasises that the second stage should be timed from when the fetal head reaches the pelvic floor and the woman has an overwhelming spontaneous urge to push.

The famous French obstetrician Michel Odent (2000) explains that a cultural misunderstanding of birth physiology is the main reason why the birth of a baby is preceded by a second stage. Odent suggests that it is in fact the 'fetus ejection reflex' which occurs in order to facilitate birth and that it is dependent upon the surge in maternal oxytocin which triggers this involuntary expulsive stage. This, he suggests, will not occur if the woman is coached into pushing or inhibited by vaginal examinations or a change of environment. Odent (2000) clarifies that the true role of the midwife is to protect the woman and to protect the environment so that the fetus ejection reflex will occur.

Discussion

The literature reviewed outlined how the traditional obstetric definition of the second stage, from full dilation of the cervix to birth of the infant, may in fact be ambiguous in today's environment. The significance of the diagnosis of the second stage cannot be underestimated, because it is from that point that emphasis is placed on the woman delivering her baby within the set time limit. However, as the literature states, this is subjective, since some midwives do not confirm this by vaginal examination and prefer to observe external signs such as changes in the woman's behaviour or signs at the external genitalia. Where midwives do not confirm the onset of second stage by vaginal examination, then how do they know when it occurred? Full dilation may have simultaneously occurred with the urge to push or it may have occurred many hours before. In addition, both the literature reviewed and the local hospital protocol appear to acknowledge that there are phases *within* the second stage and it is not a single event or process. Firstly, the fetal descent stage following complete dilation and then the outlet phase during which the woman has the spontaneous urge to push as the fetal head reaches the pelvic floor.

It is the descent phase that may raise uncertainty in practice as there is no set time limit for this, with the exception of the woman who has epidural anaesthesia since she is allowed an extra hour for fetal descent following diagnosis of complete cervical dilation. This guideline is evidence-based (RCOG 2005) and aims at increasing the time in the second stage by one hour and thus reducing the likelihood of instrumental delivery for women with epidural. However, the woman without an epidural is not given the grace of an extra hour, even if she is exhausted or sedated by analgesia. Taking this at face value — on a purely time frame basis — this does not appear fair or just, for although the woman with epidural has reduced sensation and possibly reduced pelvic floor muscle tone, it is not clear what underpins the view that she can have 'one more hour' to achieve a normal birth, where this practice is not observed for the apparently low-risk, 'normal' labouring women without epidural anaesthesia.

A number of 'experts' (Long, Sutton, Roberts and Odent) collectively challenge the timing of the second stage and state that it should be from a woman's own instinctive spontaneous urge to push as the fetal head reaches the pelvic floor. Although not overtly underpinned by what is considered a conventional research base, arguably the midwives and obstetrician cited have a wealth of direct observation and experience on which to base their professional opinions.

Thus, the ambiguity of the second stage definition may need revising if midwives are to promote normal birth. This, however, needs to be closely aligned to risk assessment and the need for sometimes overt strategies to monitor it, which might include the use of electronic fetal heart monitoring, fetal blood sampling and other related technology along with the usual midwifery observations undertaken in the second stage.

Likewise, the arbitrary time limits and the evolution of the partograph were based upon very small studies of how long women spent in the first and second stages of labour. Therefore, it is legitimate to question whether these time frames for progress in labour should apply to all women. Nonetheless, in rural, isolated areas midwives are dependent upon the partograph as a tool to alert them when they should consider transferring women to hospital in order to reduce maternal and fetal morbidity and mortality.

The quantitative research on maternal and neonatal outcomes for prolonged second stages provided strikingly similar results. This in effect quantifies the results and proves their reliability and credibility in practice to offer a baseline of evidence where there is little or no impact on neonatal outcome for second stages lasting up to four hours. However, there may be an increased risk of PPH, third degree tears and infection in women with prolonged second stage, although all studies highlighted that this may be due, in part, to the sequelae of events associated with instrumental delivery.

Conclusion

The original question was 'do arbitrary time limits disempower women from achieving normal birth?'. It is clear that arbitrary time limits may disempower some women from achieving normal birth. Conversely, the time limits may also protect some women who suffer from complications such as cephalopelvic disproportion and, where these factors can be identified early, this should reduce morbidity and mortality. What has become evident, however, is the ambiguity of the second stage definition in clinical practice. From the research reviewed there appears to be no contraindications for not allowing women a longer time frame in the second stage — for up to four hours, although there must always be an individualised risk assessment. Consideration still needs to be given to the geographical location of the birth — where, in developed countries there is access to a wide

range of supporting services, in isolated, rural areas and third world countries, prolongation of the second stage might carry different risks.

In practice, midwives must always work within the boundaries of their local hospital and national guidelines, while promoting normal birth and advocating for women in their care.

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Editor's note:

The recent NICE intrapartum guidelines refer to this topic and would be of interest