# Maternal and Perinatal SIR Sub-Committee

# Lessons and Learnings

## Emergency Caesarean Sections

### Detecting fetal deterioration in the operating theatre

- Monitor fetal welfare utilising a continuous Cardiotocograph (CTG) and recommence immediately if removed during transfer to the operating theatre.
- Continuing the CTG in the operating theatre will identify any further deterioration in fetal condition that could require escalation and a need to expedite the birth.
- CTG interpretation, response and escalation must utilise a standardised approach irrespective of the location.
- Escalate concerns for fetal welfare to the most senior obstetric medical officer.
- Ensure concerns for fetal welfare are communicated to all members of the care team, including theatre and anaesthetic teams.

### Case background

A **37-year-old** woman was admitted to the maternity unit at 36+1 weeks gestation with worsening gestational hypertension, requiring an increase in her medication. Her preference was for a repeat LSCS.

Investigations were completed and resulted in the woman being diagnosed with pre-eclampsia. Fetal welfare assessment was performed including an ultrasound and cardiotocograph (CTG). Both were normal. An ongoing care plan was made that included daily CTG, 4 hourly maternal observations, daily pre-eclampsia bloods and an increase in her antihypertensive medication.

The following day, the woman reported the onset of contractions and a CTG was commenced. She also reported having a headache. Following further maternal and fetal assessment, evidence of fetal and maternal deterioration was identified and escalated in accordance with the local Clinical Emergency Response System (CERS).

A senior obstetric medical officer attended for a clinical review. Consent was obtained to perform a vaginal examination, and she was found to be 2 cm dilated. Following discussion with the woman, the decision was made for Category 2 emergency LSCS.

The CTG was discontinued as the woman was being transferred to the operating theatre. The CTG remained off while the woman was undergoing spinal anaesthesia. Following several attempts to administer the spinal anaesthetic, the fetal heart rate (FHR) was auscultated with a doppler and found to be 80 bpm. Concerns for both maternal and fetal welfare were escalated, and a general anaesthetic was administered to expedite birth. A male neonate was born in poor condition. He was resuscitated and required transfer to a Tertiary Referral Hospital. Despite maximal therapy, he continued to deteriorate and sadly passed away the following day.

### Case discussion

Despite there being evidence of fetal deterioration that required ongoing fetal monitoring, this did not occur. The review team found that not recommencing CTG monitoring on arrival to theatres and maintaining monitoring during the insertion of spinal anesthetic was normal practice within the unit.



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The review team discovered that the degree of concern for fetal welfare was not well communicated to the anaesthetic and theatre staff on arrival to theatre, and clinical handover was inadequate. There was an absence of maternity staff in theatres for approximately 30 minutes, as they were called to respond to another emergency on the birth unit. When called away they asked theatre staff to call them back when the spinal had been done.

These factors impacted on the situational awareness of all teams in recognising and responding to further fetal deterioration in theatres, resulting in a period of more than 40 minutes where fetal welfare was not assessed. There was a missed opportunity for more timely recognition and escalation of deterioration and decision making to expedite the birth.

It was concluded that the loss of situational awareness and failure to recognise and respond to fetal deterioration in theatre within an appropriate timeframe contributed to the outcome.

## Caesarean section urgency categories and timeframes

- Ensure consistency of terminology is used to describe urgency / category of caesarean section across all care settings and clinical teams.
- Ensure the urgency / category of the caesarean section is clearly and effectively communicated with the multidisciplinary team.
- Ensure there are appropriate processes for communicating and escalating delays to ensure caesarean section category timeframes are met.
- When there are ongoing concerns regarding fetal deterioration this must be escalated to the most senior obstetric medical officer and prompt review of the urgency of the caesarean section must occur.

## Case Background

A 27-year-old woman, G1P0 presented to the Day Assessment Unit at 39+2 weeks gestation with decreased fetal movements for 24 hours and contractions. On arrival an A-G systematic assessment was performed, and it was identified that she was having mild regular contractions. A CTG was commenced, and on assessment noted the presence of occasional decelerations, absent reactivity, and reduced variability. Following discussion with the midwifery team leader, transfer to the Birth Unit was arranged for ongoing assessment and obstetric review.

On arrival to the birthing unit, the CTG was recommenced, and a clinical review was undertaken by an obstetric medical officer. It was noted that there had now been reduced variability and reactivity for > 45 minutes, with occasional decelerations. With the woman's consent, a vaginal examination (VE) was attended, and the cervix was found to be 3 cm dilated. There was no fetal heart response to the digital stimulation on VE. Shortly after spontaneous rupture of membranes occurred, and thick meconium-stained liquor (MSL) was evident. Following discussion with the woman, a decision was made for a Category 2 emergency caesarean section (LSCS) based on fetal welfare concerns. The obstetric consultant was already in theatres with another case and would attend as soon as possible.

The woman was transferred to theatre after 90 minutes and during this time there was a second clinical review for concerns regarding further fetal deterioration. However, the category of the emergency remained unchanged.

Upon arrival of the woman and the obstetric consultant to the theatre and review of the CTG, the decision was made to immediately convert to general anaesthetic to expedite birth. The baby was born in poor condition, with the cord noted to be very tight around the baby's neck and body. Following resuscitation, the baby was transferred to the Neonatal Intensive Care Unit (NICU). Despite all efforts, following redirection of care the baby sadly passed away two days later.

## Case discussion

The review team identified several factors that contributed to the delay of the birth.

Despite there being concerns regarding further fetal deterioration, the urgency of the LSCS was not re-evaluated or upgraded. There was no consultation with a senior obstetric medical officer at this time and as a result they were not aware of ongoing concerns of further fetal deterioration.

The theatre team were also not made aware of the ongoing concerns of fetal deterioration at the time the second clinical review was attended. As a result, in consultation with the obstetric consultant the theatre team had prioritised another emergency case before the LSCS.

There was confusion between the teams regarding the expected timeframe for the LSCS and urgency due to differing terminology used between the maternity and theatre team. The review team identified that there are differences in terminology between guiding documents for theatre and maternity teams and awareness of this was limited.

The review team concluded that the lack of recognition of deterioration and escalation to a senior obstetric medical officer to re-evaluate the urgency for the LSCS, the different terminology used and poor communication between teams were considered contributing factors in the death of the baby.

## CEC resources:

Perinatal Safety Education is designed to improve the safety and quality of care by facilitating and promoting a collaborative approach to assessing, detecting, escalating, and managing clinical deterioration in maternal, fetal, and newborn conditions.

Human factors are included in Perinatal Safety Education to raise awareness and knowledge of the impacts these can have on clinical care.

Safety Huddles are a systematic approach to teamwork and communication and can be utilised when transferring a woman to the operating theatre for an emergency caesarean section.

They are a brief focused exchange of information between teams and address potential or existing safety risks. They enhance communication and teamwork, which contributes to improved outcomes.

## NSW Health resources

NSW Health Guideline - Maternity – Fetal Heart Rate Monitoring (GL2018_025).

NSW Health Policy Directive - Recognition and management of patients who are deteriorating (PD2020_018). Local Clinical Emergency Response (CERS) should be utilised and reflect the standardised escalation process outlined within the above documents.

## Additional resources

RANZCOG guidelines for the categorisation of urgency for caesarean section.

NSW Emergency Surgery Guidelines and Principles for Improvement (PD2021_007)

We value your feedback. If you have any questions or comments about this report, please email CEC-PatientSafety@health.nsw.gov.au



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