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## **Guideline for the Intrapartum and Immediate Neonatal Management of Meconium Stained Liquor**

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## **Guidelines Definition**

Clinical guidelines are systemically developed statements that assist clinicians and patients in making decisions about appropriate treatments for specific conditions.

They allow deviation from a prescribed pathway according to the individual circumstances and where reasons can be clearly demonstrated and documented.

## **Minor Amendments**

If a minor change is required to the document, which does not require a full review please identify the change below and update the version number.

Type of change	Why change made	Page number	Date of change	Version 1 to 1.1	Name of responsible person
New guideline for CTMUHB	In line with National NICE Evidence				Kathryn Greaves

## **Equality Impact Assessment Statement**

This Procedure has been subject to a full equality assessment and no impact has been identified.

## **Related Guidelines**

- All Wales Fetal Surveillance Standards
- All Wales Midwifery Led care

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## **Introduction**

Between 8% and 25% of all pregnancies over 34 weeks gestation are associated with meconium-stained liquor (MSL). However, in some circumstances, the passage of meconium in utero is associated with significant increases in perinatal morbidity and mortality. The aspiration of meconium into the lungs during intrauterine gasping, or when the baby takes its first breath, can result in a life-threatening disorder known as meconium aspiration syndrome (MAS) which occurs in around 3% of live births and accounts for 2% of perinatal deaths. Meconium staining often occurs in conjunction with other causes of fetal distress. It is rare in babies born under 34 weeks of gestation.

## **Rationale**

Births complicated with meconium-stained liquor are associated with additional adverse pregnancy outcomes, such as increased rates of labour dystocia, delivery by caesarean section and fetal distress. Therefore, monitoring and early recognition is vital. This guideline does not cover care on the neonatal unit or the management of Meconium Aspirate Syndrome (MAS).

## **Definition**

**Light meconium** stained liquor (MSL) is defined as a thin greenish/yellow-tinged fluid.

**Significant MSL** is defined as 'dark green or black amniotic fluid that is thick or tenacious, or any meconium-stained amniotic fluid containing lumps of meconium' (NICE 2014)

## **Risk factors for Meconium Stained Liquor**

- Placental insufficiency
- Maternal hypertension and pre-eclampsia
- Oligohydramnios
- Smoking
- Substance misuse (particularly cocaine abuse)
- Increased maternal age
- Post 41 weeks gestation

## **Pre labour rupture of membranes**

Any woman that makes contact with the maternity service and reports spontaneous rupture of membranes with any meconium staining should be advised admission to the obstetric unit for review. If significant MSL is confirmed, continuous electronic fetal monitoring (CEFM) should be commenced, review by a senior obstetrician should take place, and a plan made for Induction of labour (IOL).

## **Intrapartum Care in the Community Setting**

When MSL occurs at home or in Birthing Units, several factors must be considered as to whether it is necessary or safe to transfer in utero to the Obstetric Unit. Light meconium staining in the absence of other risk factors should be considered normal and women can remain in a MLC setting if no other concerns are evident

If during labour, significant MSL becomes evident (as described above), a risk assessment should be undertaken to include, the stage of labour, parity, current fetal wellbeing and transfer time. If transfer to a unit with neonatal facilities can be achieved before birth, the

woman should be advised to transfer by ambulance to an Obstetric Unit. If birth is expected before transfer can be facilitated, preparations should be made for resuscitation of the new-born and consideration given to calling an ambulance for transfer of the baby following birth. General principles for safe transfer as outlined in the All Wales Midwifery Led Care Guidelines should be followed.

### **Low Risk Intrapartum Care on the Obstetric Unit**

If the woman is on the All Wales Normal Labour Pathway and significant MSL is identified, she should be informed of the significance and that Continuous Electronic Fetal Monitoring (CEFM) is indicated. She should also be made aware of the need for a member of the neonatal team to attend the birth, and that observation of the baby will be advised in the postnatal period.

The white board should be updated and the coordinator and senior obstetrician on duty informed of the presence of significant MSL.

Light MSL should be considered a normal variation, and in the absence of other risk factors, the woman should remain on the All Wales Normal Labour Pathway in her chosen birth environment.

### **High Risk Intrapartum Care on the Obstetric Unit**

If the woman already has risks factors requiring CEFM and significant MSL is identified, the white board should be updated and the coordinator and senior obstetrician on duty should be informed. The woman should be informed of the implications of significant MSL and

that a member of the neonatal team will be called for the birth, and observation of the baby will be advised in the postnatal period.

If significant meconium is present, ensure that a senior obstetrician trained in fetal blood sampling is available during labour.

Light MSL should be considered normal, and the current plan of care adhered to.

### **Care of a Baby Born Through Light Meconium Stained Liquor**

- If the baby is in good condition, delayed cord clamping should be performed as usual. If the baby is vigorous and breathing at birth with no signs of airway obstruction, no action is required and baby can remain skin to skin with its mother
- For any baby born through meconium stained liquor with signs of initial depression but responds rapidly to suction and has no ongoing abnormal respiratory signs, the attending paediatrician must make and document a plan for the baby to be admitted to the postnatal ward/area.
- Any baby with initial depression requiring more prolonged resuscitation or where meconium is aspirated from below the cords should be assessed by the neonatal team and admission to the neonatal unit considered.
- For **ALL** babies a **NEWTT scoring chart** should be completed and this should be an indicator for the ongoing care needs of the neonate. All observations should be completed on a NEWS chart.
- All babies at risk of MAS and who show signs of respiratory distress should be admitted into the neonatal intensive care unit. Close monitoring is important since they can deteriorate very quickly.

- If no concerns are identified, these well babies can be discharged. Babies born through **light MSL** can remain in a MLC setting and the recommended observations at 1 & 2 hours old undertaken in the MLU or at home unless any concerns arise.

### **Ongoing Care of a Baby Born Through Significant Meconium Stained Liquor**

- If the baby is vigorous at birth, a **NEWTT scoring chart** should be completed and this should be an indicator for the ongoing care needs of the neonate. All observations should be completed on a NEWTT chart. A plan should be made and documented by the attending paediatrician for observations to be carried out at 1 hour and 2 hours of age and then 2 hourly until 12 hours of age and then 4 hour to 24 hours of age. If the initial 2 sets are normal, the baby may be transferred to the postnatal ward with its mother.
- Any baby with initial depression requiring more prolonged resuscitation or meconium is aspirated from below the cords should be assessed by the neonatal team and admission to the neonatal unit considered.
- The neonatal observations should include;
  - ✓ General wellbeing
  - ✓ Chest movements and nasal flare
  - ✓ Skin colour including perfusion, by testing capillary refill
  - ✓ Feeding
  - ✓ Muscle tone
  - ✓ Temperature
  - ✓ Heart rate and respiration.



- All babies at risk of MAS and who show signs of respiratory distress should be admitted into the neonatal intensive care unit. Close monitoring is important since they can deteriorate very quickly.
- All babies with significant MSL should be discharged home by a paediatrician.

## **Updated Guidance from the Resuscitation Council (2015)**

### ***Airway suctioning with or without meconium:***

- Routine elective intubation and suctioning of vigorous infants at birth, does not reduce meconium aspiration syndrome (MAS). Nor does suctioning the nose and mouth of such infants on the perineum and before delivery of the shoulders (intrapartum suctioning). Even in non-vigorous infants born through meconium-stained amniotic fluid who are at increased risk of MAS, intubation and tracheal suctioning has not been shown to improve the outcome. **There is no evidence to support suctioning of the mouth and nose of infants born through clear amniotic fluid.**

### ***Recommendation***

- Routine intrapartum oropharyngeal and nasopharyngeal suctioning for infants born with clear and/or meconium-stained amniotic fluid is not recommended.
- The practice of routinely performing direct oropharyngeal and tracheal suctioning of non-vigorous infants after birth with meconium-stained amniotic fluid was based upon poor

evidence. The presence of thick, viscous meconium in a non-vigorous infant is the only indication for initially considering visualising the oropharynx and suctioning material, which might obstruct the airway. **If an infant born through meconium-stained amniotic fluid is also floppy and makes no immediate respiratory effort, then it is reasonable to rapidly inspect the oropharynx with a view to removing any particulate matter that might obstruct the airway.** Tracheal intubation should not be routine in the presence of meconium and is performed only for suspected tracheal obstruction. **The emphasis is on initiating ventilation within the first minute of life in non-breathing or ineffectively breathing infants and this should not be delayed, especially in the bradycardic infant.**

## **Auditable Standards**

- All staff who may be involved in the resuscitation of the newborn should receive regular training (100%)
- Observations should be carried out as described on all babies where there has been meconium staining of the liquor (100%)
- Where a baby has been born through significant MSL, a plan should be documented by the attending paediatrician (100%)

## References

All Wales Midwifery Led Guideline (2015) EM Davies M Lewis

Clinical audit of babies delivered through meconium stained liquor. Ashton M. NWH 2001

Intrapartum care: care of healthy women and their babies during childbirth; NICE Clinical Guideline (Updated 2017)

Predictors of mortality in neonates with meconium aspiration syndrome. Indian Paediatrics, Louis D, Sundaram V, Mukhopadhyay K, et al;. 2014 Aug 8; 51(8):637-400

Resuscitation Council (2010) Resuscitation and support of transition of births at birth. Available from:

<https://www.resus.org.uk/resuscitation-guidelines/resuscitation-and-support-of-transition-of-babies-at-birth/> (Accessed 23/10/2018)

**Appendix One MSL Flow Chart**

**Significant Meconium Staining of Liquor (MSL)**

**Light Meconium Stained Liquor (MSL)**

If presenting with SROM before labour, perform CTG and request senior obstetric review. Induction of labour should be offered immediately

If already high risk and having CEFM, continue as per plan

Advise continuous monitoring throughout labour. Inform senior staff if any concerns

If on All Wales Pathway for Normal Labour, continue with intermittent auscultation

If at home/ birth centre, risk assess and transfer to Obstetric Unit if birth not imminent. Prepare for neonatal resuscitation

If any concerns, commence CEFM

**Request paediatrician to attend birth**

If the baby is in good condition, delay cord clamping. If vigorous with no signs of airway obstruction, baby should remain skin to skin with its mother.

**Baby born in good condition, 1 hour, 2 hours and 2 hourly until 12 hours old. Observe;**

- General wellbeing
- Chest movements and nasal flare
- Skin colour
- Oxygen saturation
- Feeding
- Muscle tone
- Temperature
- Heart rate

**Baby has depressed vital signs;**  
Laryngoscope and suction under direct vision by a professional trained in advanced neonatal life support

**For light stained meconium liquor observe at 1 & 2 hours of age;**

- General wellbeing
- Chest movement & nasal flare
- Skin colour
- Feeding
- Muscle tone
- Temperature
- Heart rate & respirations

**Report any concerns to a paediatrician and consider SCBU**

If no concerns, discharge by a midwife trained in newborn examination or paediatrician