



Aneurin Bevan University Health Board

Management of Babies where there has been Meconium-Stained Liquor Guideline

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.

Title: Management of babies where there has been meconium-stained liquor guidelines

Owner: Maternity Services

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Number: ABUHB/F&T/0613

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1 Executive Summary

This document is a clinical guideline designed to support safe and effective practice.

1.1 Scope of policy

This guideline applies to all clinicians working within maternity services.

1.2 Essential Implementation Criteria

Auditable standards are stated where appropriate.

2 Aims

To provide support for clinical decision making.

3 Responsibilities

The Maternity Management Team.

4 Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision.

5 Introduction

Meconium is comprised of gastrointestinal secretions, bile, mucus, vernix caseosa, lanugo hair, cellular debris and amniotic fluid. It has a dark green colour, highly viscous and cumulates in the fetal intestinal tract during the third trimester of pregnancy, meconium is the first intestinal discharge normally released within 48 hours following birth (Argyridis and Arulkumaran 2016).

Meconium-stained liquor is associated with increased perinatal mortality and morbidity. It is estimated to occur in approximately 13 % of all live births, 0.5% of these may be at risk of developing meconium aspiration syndrome which may be attributed to poor

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outcomes. In post term pregnancies it is much more common and studies show that its prevalence may be as high as 23-52% in pregnancies at 42 weeks and 27.1% in pregnancies at 41 weeks. As part of an ongoing assessment, it is the midwife's responsibility to document the presence or absence of significant meconium (NMC 2019).

Meconium-stained amniotic fluid is graded as non-significant and significant.

Non-Significant Meconium-Stained Amniotic Fluid is defined as a large volume of volume of amniotic fluid which is lightly stained by meconium.

Non-significant meconium-stained amniotic fluid is not an indicator for continuous electronic fetal monitoring (NICE 2014).

Significant Meconium-Stained Amniotic Fluid is defined as either dark green or black amniotic fluid that is thick or tenacious, or any meconium-stained liquor containing lumps of meconium. If no liquor is seen following rupture of the membranes there should be a high degree of suspicion that the liquor is heavily stained with meconium. If significant meconium-stained amniotic fluid is present the woman would require transfer to the obstetric led unit provided that it is safe to do so and birth is unlikely to occur before the transfer is completed.

Continuous fetal monitoring and facilities for neonatal resuscitation have been recommended (NICE 2014). A doctor should be present at delivery if there is significant meconium staining with or without fetal distress, the doctor should be competent in endotracheal intubation.

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6 Management at delivery

Vigorous Baby with non-significant meconium-stained amniotic fluid.

Oropharyngeal suction / intubation is not necessary

Following birth of a baby with lightly meconium-stained liquor, the following observations should be undertaken at 1 and 2 hours of age (Appendix 2), taking into consideration the below assessment:

- a. General wellbeing
- b. Chest movement and nasal flare
- c. Skin colour
- d. Feeding
- e. Muscle tone
- f. Temperature
- g. Heart rate and respiration

The mother and baby should be transferred in to a hospital setting for neonatal review if the baby's condition causes concern at any time.

Depressed baby at birth with significant meconium-stained liquor

If there has been significant meconium and the baby does not have normal respiration, heart rate and tone, follow nationally accredited guidelines for neonatal resuscitation, including early laryngoscopy and suction under direct vision (NICE 2014).

If heart rate is low during the procedure, proceed to active resuscitation as per NLS guidelines (Appendix 1).

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If the paediatrician / neonatologist team consider the baby can be cared for on the maternity ward perform the following observations:

Observation of the baby at 1, and 2 hours of age and then 2 hourly until 12 hours of age and document on neonatal trigger score chart (Appendix 2):

- a. General wellbeing
- b. Chest movement and nasal flare
- c. Skin colour
- d. Feeding
- e. Muscle tone
- f. Temperature
- g. Heart rate and respiration

7 Criteria for Neonatal Review

Any concerns should be referred to the on call neonatal doctor or neonatal team.

Any baby with respiratory distress should be admitted to the neonatal unit.

Babies with normal observations throughout who are feeding well with no other concerns can be considered for transfer home at 12 hours of age.

Paediatric / neonatal review is required if any of the following are observed after any degree of meconium:

- 1** The respiratory rate is >60 per minute.
- 2** The presence of grunting.
- 3** The baby's heart rate is <100 beats per minute or >160 beats per minute.
- 4** The oxygen saturation is below 95% (measuring oxygen saturation is optional after non-significant meconium).
- 5** The presence of central cyanosis, confirmed by pulse oximetry.

6 Capillary refill time is above 3 seconds.

Explain the findings to the mother and inform her about what to look out for and who to talk to if she has any concerns (NICE 2014). Document all events regarding neonatal resuscitation on the Neonatal Resuscitation Documentation Proforma (Appendix 3) (All Wales Midwife-Led Care Guidelines).

8 Appendices

Appendix 1- Infants born through Meconium

Postnatal Management Guideline

Introduction

Meconium-stained liquor occurs in up to 10% of deliveries – approximately 2% of these babies (0.2% of total births) develop meconium aspiration syndrome (MAS). It is possible that symptoms associated with meconium aspiration will not appear immediately. So it is recommended that babies born through meconium-stained liquor are observed for a period of time in all birth settings

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. This guideline provides information to personnel caring for infants born to mothers who have had meconium-stained liquor during labour and thus are at increased risk of developing meconium aspiration syndrome.

Delivery Room Management

A doctor or ANNP should attend the delivery if there is significant MSL. A doctor or ANNP should attend the delivery if there is light MSL and an additional sign of fetal compromise. Stabilisation of the infant is in line with NLS guidance and is not the focus of this document. If the infant has respiratory distress from birth or requires resuscitation, then NICU

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management is indicated. If the infant has no respiratory distress and no oxygen requirement from birth, then manage as below.

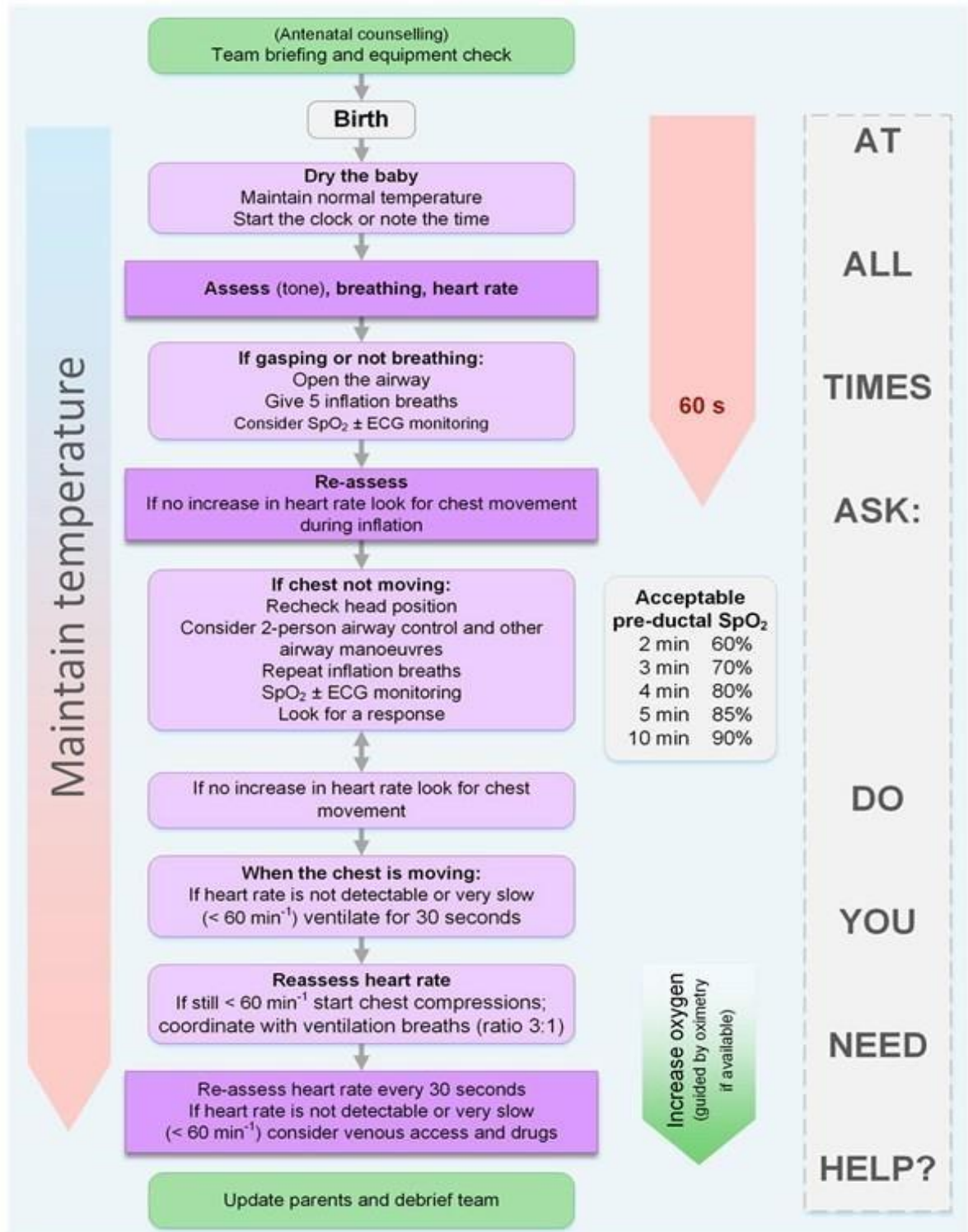
Light MSL

Light MSL does not necessarily trigger any change of care pathway for the mother. MLC can continue; this judgement will be made by those managing the mother. The infant should have observations using NEWTT chart at 1 hour and 2 hours of age. These can be performed in any setting. If normal at 2 hours, no further observations are required and revert to normal newborn baby care. If observations outside normal range, refer to neonatal team.

Significant MSL

Observations using NEWTT chart at 1 hour and 2 hours and 2 hourly until 12 hours of age. If normal at 12 hours, no further observations and revert to normal new-born baby care. If observations outside normal range, refer to neonatal team.

Appendix 2- Maintaining Temperature



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Appendix 3- Neonatal Trigger Score

Name:

Hospital Number:

DOB:

Birth Weight:

Kg

Gestation:

/ 40

| Score |
|-------|
| 0 |
| 1 |
| 2 |
| 3 |

Neonatal Trigger Score (NTS)

| Date | | | | | | | | |
|--|---------------------------------|--------|---------|---------|---------|---------|----------|----------|
| Time | | | | | | | | |
| Hours From time of birth | Birth | 1 Hour | 2 Hours | 4 Hours | 6 Hours | 8 Hours | 10 Hours | 12 Hours |
| Temperature (°C) | > 38.0 | | | | | | | |
| | 37.5-38.0 | | | | | | | |
| | 36.5-37.4 | | | | | | | |
| | 36.0-36.4 | | | | | | | |
| Heart rate (Beats per minute) | <36.0 | | | | | | | |
| | >220 | | | | | | | |
| | 180-219 | | | | | | | |
| | 160-179 | | | | | | | |
| | 100-159 | | | | | | | |
| Respiratory Rate (Breaths per minute) | 80-99 | | | | | | | |
| | <80 | | | | | | | |
| | > 70 | | | | | | | |
| | 51-70 | | | | | | | |
| Respiratory distress | 31-50 | | | | | | | |
| | 20-30 | | | | | | | |
| | <20 | | | | | | | |
| Conscious level | Present | | | | | | | |
| | Absent | | | | | | | |
| Pre-feed blood sugar (mmol) | Alert / sleeping | | | | | | | |
| | Irritable / lethargic / jittery | | | | | | | |
| | Unresponsive | | | | | | | |
| [] Tick if indicated | Time (pre-feed only) | | | | | | | |
| | > 6.0 | | | | | | | |
| | 2.0 – 5.9 | | | | | | | |
| Patient Reviewed <input checked="" type="checkbox"/> | 1.1-1.9 | | | | | | | |
| | <1.0 | | | | | | | |
| <input checked="" type="checkbox"/> If passed urine | | | | | | | | |
| <input checked="" type="checkbox"/> If passed meconium | | | | | | | | |
| Total NTS Score | | | | | | | | |

| Total NTS Score | Action |
|-----------------------------|---|
| 0 | Warm baby / skin-to-skin contact – repeat temperature measurement in 1 hour |
| 1 | Continue |
| 2 | Medical review: consider partial septic screen and antibiotics |
| | Urgent medical review: consider admission to NICU |
| Any observation in red zone | Strongly consider cardiac arrest call (x2222) |

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Appendix 4 Neonatal Resuscitation Proforma

Date of birth: Time of
birth: Time of cord
clamp: Affix maternal
addressograph

1. Start clock
2. Dry & wrap (or place in plastic wrap if preterm baby <30 weeks)
3. Initial assessment at birth: please circle one in each row:- 4.Call for help

| | | | | |
|------------------|---|-----------------|----------------|---------------------|
| 5. Resuscitate | <60 | 60 – 100 | >100 | (Listen with |
| baby & | stethoscope) | document below | & on next page | Heart |
| Rate | | | | |
| Breathing | No breathing | Occasional gasp | Crying | |
| Colour | Pale / White | Blue | Pink | |
| Time | Document resuscitation needed and time when done | | | |

Place head in neutral position

5 inflation breaths – chest movement YES NO

Reassess heart rate **(Listen with stethoscope)** <60 60 – 100
>100

If no chest movement, consider these:

- reposition

- double jaw thrust

- other airway manoeuvre (consider LMA if baby 2 – 5 kg & > 34/40)

- give 5 effective inflation breaths

Chest movement YES NO

Reassess heart rate **(Listen with stethoscope)** <60 60 – 100
>100

If no chest movement, consider these:

- reposition

- double jaw thrust

- other airway manoeuvre (consider LMA if baby 2 – 5 kg & > 34/40)

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- give 5 effective inflation breaths

Time **Document resuscitation needed and time when done continued**

Chest movement YES NO

Reassess heart rate (**Listen with stethoscope**) <60 60 – 100
>100

Once 5 effective inflation breaths given, continue with ventilation breaths for 30 seconds

If heart rate less than 60 - start chest compressions @ 3:1

- continue 3 cardiac compressions to 1 ventilation breath for 30 seconds

Attach saturation probe if available: saturation = %, Heart rate =

If available, give oxygen to achieve saturation of > 90%

Reassess heart rate (**Listen with stethoscope**) <60 60 – 100
>100

Consider calling NICU & 999

P.T.O

Continue CPR @ 3:1 if heart rate less than 60

Reassess heart rate (**Listen with stethoscope**) <60 60 – 100
>100

Discontinue CPR once heart rate more than 60 & rising Continue ventilation breaths until regular spontaneous breathing Reassess heart rate: & breathing:

If available, attach saturation probe to allow continuous monitor of pulse & sats

During transfer, please document: heart rate, sats (if available), any resuscitation required.

Document times. Please use additional paper as required. Condition on arrival at NICU:

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9 References

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