



# ALARM



## Management of Labour



**ALARM** Management of Labour

### Objectives

Participants will:

- Identify key information from the antenatal record/ultrasound essential for planning and care during labour
- Diagnose labour accurately
- Recognize normal and abnormal labour patterns
- Apply appropriate prevention/management strategies for labour and birth
- Select no-pharmacological and pharmacological methods for intrapartum pain management for maternal and fetal well-being
- Determine types of twins and options for twin birth



### **Case Study**

Natalie has come to the triage area of your birthing area at midnight. She has come because her contractions are keeping her awake. She provides the following history:

- 34 years old
- G1 at 39 5/7 gestation; GBS negative
- Normal weight (told her BMI was 26 at first visit)
- Contractions about 2 in 10 minutes for the last 6 hours
- Partner drove her to the hospital

Assessment has shown

- Moderate contraction strength by palpation (able to talk through)
- FHR in LLQ @ 145 bpm and normal by IA
- Vaginal exam: 50% (2 cm long), 2 cm dilated and station -2
- Maternal Vital Signs: BP 125/78, P 82, RR 16

This is an actual case. It is not meant to demonstrate “perfect” clinical practice but rather to provide thought for discussion.



Before you do your own physical assessment of Natalie, **what further information would you like and where would you find it?**

**What would you include in your physical assessment?  
What would you do at this point?**

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**Before you do your own physical assessment of Natalie, what further information would you like and where would you find it?**

### **Presenting Complaint**

- Contracting 2 in 10 mins
- No gush of fluid or sense membranes have ruptured
- Partner drove her to hospital

### **Current Pregnancy**

- 34 years old
- G1 at 39 5/7 weeks gestation; GBS negative
- normal weight (told her BMI was 26 at first visit)
- partner drove her to hospital
- U/S and growth, labs WNL (within normal limits)

### **Obstetrical History**

- Genetic testing negative

- Took prenatal classes
- Natalie attended regular prenatal visits

### **Medical History**

- Healthy

### **Medication / Allergies**

- None
- Taking no meds (except Tums & Multivitamins) & no recreational drugs

### **Social History / Exposures**

- Grade 8 teacher/Partner teacher

### **Vital Signs / Examination**

- moderate contraction strength by palpation (able to talk through)
- FHR in LLQ @ 145 bpm and normal by IA
- Vaginal exam: 50% (2cm long), 2cm dilated and station -2
- **Maternal Vital Signs:** BP 125/78, P 82, RR 16
- Pain score about 5-6/10
  - What has she tried? i.e. shower, bath, massage, walking (nothing tried)
  - Natalie did not know if she could take a Tylenol - if it was OK
- Maternal
  - General well-being;
  - Abdominal palpation to assess position, station and estimated fetal size
- Fetal
  - **Do you need EFM?** NO: in low risk pregnancy, IA is appropriate
  - Baby moving ( $\geq$  6 FM in 2 hours)

### Source:

- Ask Natalie directly
- From prenatal records - discuss options for access (carried by Natalie, EMR, sent to hospital)
- Send in antenatal sheets after results of 18-20 week ultrasound so available if

presents to triage prior to when the full record is sent after GBS results known

- Best to have hard copy of ultrasound & labs sent to avoid potential transcription errors if not computerized

**What would you do at this point?**

Summary of your assessment

Is she in labour? What is her stage of labour?



### First Stage

Frequent regular uterine contractions AND cervical change (dilation & effacement)

#### Latent Phase

- Uterine activity → progressive effacement and dilatation of the cervix proceeding to active phase,
- Complete when nulliparous woman = 4 cm dilatation / parous woman = 4-5 cm.
- Cervical length is generally less than 1 cm or 75% effaced

#### Active Phase

- Pattern of contractions → ongoing cervical effacement and dilatation after latent phase is complete



### Second Stage

Full dilation to delivery of the baby

Passive	• Full dilation but without active pushing
Active	• Full dilation with active pushing

### Plan of care for Natalie

- In latent phase labour so could send home
- If remains in triage due to weather or transportation, IA in latent phase is done once every hour– some facilities have early labour lounge
- Address pain needs – extra strength Tylenol; if use Morphine will need to observe Natalie in triage for side effects; encourage non-medical pain relief strategies i.e. shower, bath
- Address teaching needs regarding when to return (ideal if handout), document teaching
  - If pain increases in frequency or intensity; needs pain mgmt.
  - ROM
  - Bleeding
  - Worried or concerned
  - Decrease in fetal movement



You are called at 0800 and told that Natalie has returned to triage. She is:

- Contracting about 4 to 5 times in a 10 minute period
- They feel stronger than before
- Vaginal exam 4 cm dilated, 90% effaced (0.5 cm long) and station is -2 cm
- Membranes remain intact
- Fetal Heart is heard in the LLQ at 140 bpm by IA

**What is your impression of her status now?**

**What is your plan?**

**Can Natalie have something to eat or drink?**

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**What is your impression of her status now?**

- Meets definition for Active Labour
  - 4 cm dilatation, regular contractions 3 in 10 minutes, increased effacement

**What is your plan?**

- Admit (discuss with the woman)

Maternal care

- Supportive care: who will be with her? – partner
- Assess contractions strength: How to palpate contraction strength - if it feels like the end of your nose= mild, chin= moderate, forehead= strong- remains subjective
- Position: does she wish to walk, use tub or shower?
  - Position in chair or bed is her choice – whatever is comfortable
- Discuss her plan for pain mgmt.: what had she considered – make her aware if there are limitations, i.e. no epidural or only until a certain time due to anaesthesia availability;

- Blood work: Discuss practices at your centre.
- **IV – would you start?**
  - No need for IV at this time but could put in saline lock if veins are challenging or she is adverse to needles i.e. do it once at the time of blood work
- **Should you rupture her membranes?** – no, does not shorten labour

### Fetal surveillance

- Intermittent auscultation every 15-30 minutes
- Documentation of baseline rate, post contraction rate, rhythm, increases (accelerations) and decreases (decelerations) and category of normal or abnormal

### **Can Natalie have something to eat or drink?**

For labour in women at low risk of requiring general anesthesia, women should have the choice to eat or drink as desired or tolerated. Risk status should be continuously reassessed as needed re potential for intervention

### Documentation

- Begin documenting progress of labour
- May use partogram to facilitate communication with team re labour progress
  - Insufficient evidence to support the use or non-use of partograms for change in clinical outcomes
- Document comfort with a pain scale and consider a coping scale
  - Document pain scale (usually 1-10 or 1-5)
  - Consider documenting coping scale 1-10 or 1-5



Natalie chooses to ambulate and use the tub as a comfort measure.

The decision is to not rupture membranes at this point.

**If Natalie had a BMI of 38, what other concerns would you have?**



### Clinical concerns regarding pre-pregnant BMI > 30kg/m<sup>2</sup>

↑ Fetal and maternal morbidity

Antenatal	Labour
<ul style="list-style-type: none"><li>• Gestational hypertension</li><li>• Gestational diabetes</li><li>• Fetal macrosomia</li><li>• Still birth</li></ul>	<ul style="list-style-type: none"><li>• Slower labour curve</li><li>• Shoulder dystocia</li><li>• Operative delivery</li><li>• Caesarean section</li></ul>

#### What practical clinical care issues arise with women with high BMI?

- Need for beds, stretchers with sufficient weight bearing capacity
- May need to prepare woman and partner for possible shoulder dystocia
- Assist with mobility and transfers (air pads, lifts) potential for staff injury
- May need internal spiral electrode/IUPC to monitor UA and FHR as external IA or EFM may not pick up the uterine activity or FHR
- Use stirrups to support legs during pushing and birth to prevent staff injury
- Soft tissue obstruction to birth
- Use disposable ring retractor for CS (e.g. Alexis or Mobius)
- Support for breast feeding postpartum
- Postpartum thromboprophylaxis if BMI >30 (pre-pregnancy or first antenatal visit) and one additional risk factor (smoking, preeclampsia , IUGR, previa, emergency CS, PPH> 1L, maternal disease (e.g.: SLE, cardiac, IBD, gross varicose veins, gestational diabetes), preterm birth, stillbirth)



1100

Natalie has increased discomfort and wishes for more pain relief.

- Vaginal exam 5 cm, 100% effaced, station -2 cm.
- Membranes intact.
- Contractions are about 4-5 in a 10 minute window, moderate by palpation lasting 40-50 seconds.
- FHR: IA normal.

**What is your impression of her labour progress?**

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- Over 3 hours (0800-1100), effacement increased from 90-100% and dilation changed from 4 to 5 cm, station remains at -2
- Contraction length OK but a bit short
- Does she meet the criteria for dystocia?
  - Slow progress; does not meet formal definition of dystocia



## Criteria for Dystocia

- 4 hours of  $< 0.5$  cm/hr dilation
  - No cervical dilation over 2 hours
- OR
- $> 1$  hour with no descent while pushing

### What would you do at this point?

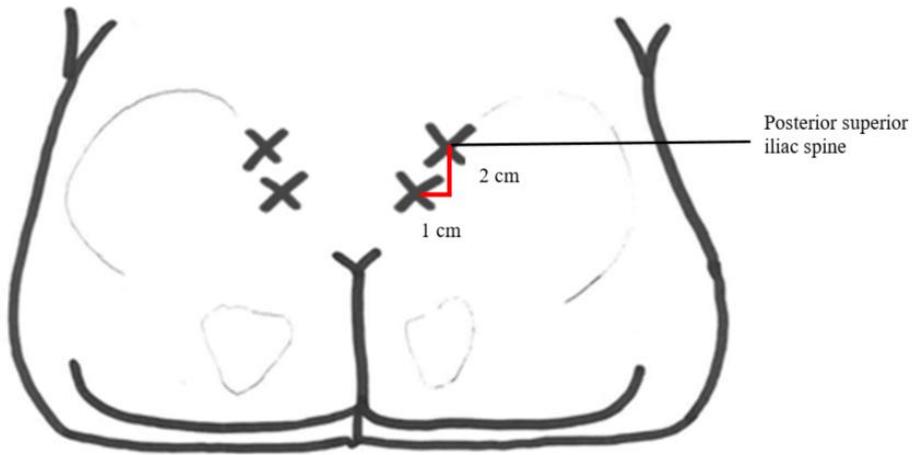
Position according to woman's preference

#### Other considerations

- Discuss ARM – not necessary but useful to discuss with woman as something that could be done in the future

#### Pain Management

- Discuss options:
  - non pharmacological methods (discuss with participants the options available at their centre e.g. sterile water injections, TENS)
  - pharmacological methods (likewise discuss options)
  - review timing of when to give Opioids according to labour progress



### Opioid use in Labour

Stage of labour	Nulliparous	Parous
Latent phase	IM Morphine	IM Morphine
Early active phase	IM or IV Morphine	IV Morphine or Fentanyl
Late active phase	IV Morphine or Fentanyl	IV Fentanyl
Second stage	IV Fentanyl	IV Fentanyl
Avoid Meperidine – longer ½ life		



Natalie decides to have an epidural – it was inserted at 1200 hours

**When should a woman receive an epidural?**

**Can you continue with IA after epidural?**

**How long will you wait before your next vaginal examination?**

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**When should a woman receive an epidural?**

- The timing of initiation of labour epidural is dependent upon the woman's choice once the diagnosis of labour has been established;
- Sensory epidural blockade provides good labour analgesia; motor epidural blockade can interfere with progress in labour. Historical studies examining the effect of epidural analgesia in labour do not always make this distinction (increased AVB with high motor blockade).
- Can use PCEA (patient controlled epidural) – overall less drug used and associated less interventions

**Can you continue with IA after epidural?**

- Yes however need to assess FHR and B/P frequently (q 5 min x 30 min and after top up) - some hospital have a P&P indicating EFM post epidural but is not required in the guidelines

**How long would you wait before your next examination?**

- Assess impact of pain relief
- Change in contractions or ROM?
- Maximum of 4 hours (2 to 4) – some may do earlier if feel epidural has made a change



**1600 hours**

**Natalie has been resting comfortably since the epidural was started**

- Vaginal Exam: 6 cm, 100% effaced, cephalic, Spines – 1cm
- OA, membranes intact
- FHR normal

**What do you think of her labour progress?**

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What else do you need to know?

- Contraction pattern – 2-3 contractions per 10 min window x 30-40 seconds
- Frequency and length criteria for normal = 4-5 in 10 minutes x 50-60 seconds mod to strong

What do you think of her labour progress?

- 5 hours since last exam 1100-1600 with 1 cm change in dilation
  - with slow progress initially could exam sooner as would pick up problem earlier
- Meets criteria for dystocia as defined above



### Etiology of Dystocia and Obstructed Labour

	Dystocia	Obstructed Labour
Powers	<ul style="list-style-type: none"><li>• Hypotonic contractions</li><li>• Ineffective maternal expulsive efforts</li></ul>	<ul style="list-style-type: none"><li>• Adequate contractions</li></ul>
Passenger	<ul style="list-style-type: none"><li>• Cephalopelvic disproportion<ul style="list-style-type: none"><li>• fetal position/attitude</li><li>• fetal size</li><li>• fetal anomalies</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Lack of descent of presenting part</li><li>• Presence of caput and molding</li></ul>
Passage	<ul style="list-style-type: none"><li>• Cephalopelvic disproportion<ul style="list-style-type: none"><li>• pelvic structure</li><li>• soft tissue obstruction<ul style="list-style-type: none"><li>• full bladder</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• Lack of cervical dilation</li></ul>
Psyche	<ul style="list-style-type: none"><li>• Anxiety and pain</li></ul>	<ul style="list-style-type: none"><li>• Adequate maternal effort without progress</li></ul>
What do you do?	<ul style="list-style-type: none"><li>• Search for cause</li><li>• Treat</li></ul>	<ul style="list-style-type: none"><li>• AVB if feasible</li><li>• CS</li></ul>

#### What do you think is the problem?

- Inadequate contractions
- If an IUPC is in place, you have a quantitative measure of contraction strength.

#### What actions would you take?

- Continue good analgesia
- Has IV because of epidural but how often has she been emptying her bladder? Consider hydration
- Artificial rupture of membranes (? prior to oxytocin or treat as dose increases)
- Augmentation with oxytocin
  - Define low dose and high dose protocol
  - What is the ideal level?
  - What protocol would you use with Natalie?
    - Nulliparous with epidural could consider high dose
    - High dose is more effective with nulliparous woman
- Institute EFM due to Oxytocin



## Oxytocin Protocols

	Example of Low Dose	Example of High Dose
Initial dose	1-2 mU/min	2-4 mU/min
Increase interval	30 minutes	30 minutes
Dosage increment	1-2 mU/min	4 mU/min
Usual dose for good labour	8-12 mU/min	8-12 mU/min
Max dose before reassessment	20-30 mU/min	20-30 mU/min

**In this situation, rupture of membrane was not done but low dose oxytocin was started.**

**When would you perform next vaginal examination?**

2 – 4 hours



1800

- Cervix 7 cm, fully effaced, station at spines -1 cm
- Contractions 2-3 in a 10 minute window
- Lasting 40 seconds
- FHR normal

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### **Progress of labour?**

- 1 cm change in cervical dilatation over 2 hours;
- Contractions short duration
- Need to know contraction strength – if unable to assess consider IUPC – want 50-60 mmHG over baseline for adequate strength; Montevideo units = 200 over 10 minutes (total of contraction strength)

### **What actions would you take?**

- ARM
- Consider IUPC; set resting tone to 10-20 mmHg; measure rise of pressure over baseline
- Oxytocin is continued (discuss recommended dose)
- Consider advising OR team if not in house that there is a possibility of a CS

**You choose to insert an IUPC and find the contraction strength is 20 - 30 mmHg over baseline. Oxytocin is at 6 mu/min. Your plan is to continue to increase the oxytocin following the protocol.**



2100 hours

- Cervix 8cm, station at spines
- EFM normal heart rate
- Oxytocin at 12mU/min
- Contractions 40-50 mmHg, x 30-40 seconds, 4-5 in a 10 minute window

**What do you do now?**

- Good communication with Natalie and partner regarding potential for CS
- Contraction strength not optimal
- Baby is well per fetal heart tracing
- Discuss implications at different size facilities regarding staffing, time of day – do you alert or call an OR team and anaesthesia?



**After a full discussion with Natalie and her partner, they decide that they would “like to wait a bit longer”**

**2300**

- Uncomplicated variables present
- Cervix fully dilated, station at Spines +1cm
- Contract strength 50-60 mmHg, x 60 sec, 4-5 in a 10 minute window
- No urge to push

**What would you do now?**

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- Assess fetal well-being by interpreting EFM = normal baseline, moderate variability, verify uncomplicated variables
  - Change maternal position
- Delay pushing until urge present is preferable to reduce maternal exhaustion
  - However, a 2018 study comparing immediate and delayed pushing in nulliparous women with epidurals showed NS difference in SVD, neonatal morbidity or perineal lacerations. The immediate pushing group had a 30 minute shorter second stage, pushed for 9 minutes longer, and had a lower rate of chorioamnionitis and PPH.
- Don't stop or turn down epidural, if present
- Ensure the bladder is empty
- Physical examination to re-assess pelvic adequacy and fetal attitude
- Discuss with the patient and partner the possible need for assisted vaginal birth (better to discuss early)
- Inform staff with NRP skills (may be family physician, paediatrics or nursing) and anaesthesia



### **Management of Passive Second Stage**

- Assess maximum duration of passive second stage considering:
  - Urgency of delivery
  - Parity
  - Epidural
- Determine presentation of fetal head
  - Consider benefit of manual rotation of occiput posterior to occiput anterior
- Evaluate progress / descent
  - Establish goals

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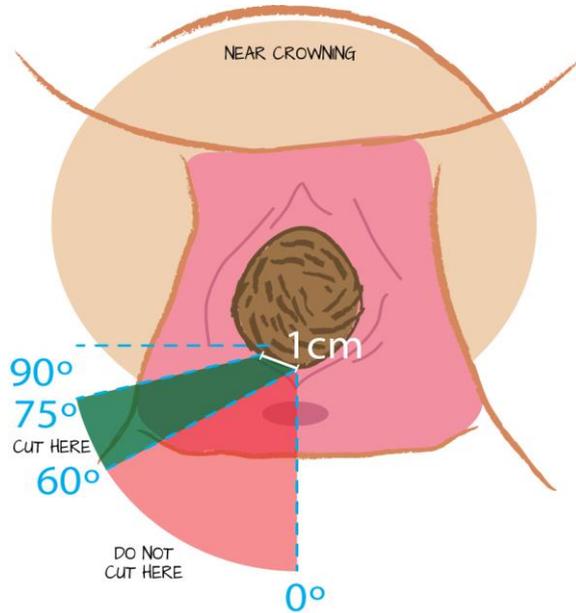
#### **When would you encourage early pushing?**

- Atypical or abnormal EFM
- Maternal status (e.g. chorioamnionitis)
- Prioritizing a busy labour unit

**Natalie started to push at 2345 hours. You are wondering if you will need an episiotomy**

#### **What are important points in performing an episiotomy?**

- **routine episiotomy not recommended** as does not shorten 2<sup>nd</sup> stage;
- midline episiotomy not recommended as threatens anal sphincter
- selective mediolateral episiotomy recommended for women at risk of OASIS (Obstetrical Anal Sphincter Injuries) e.g. nulliparous woman requiring AVB
  - perform at more than 60 degrees from the midline when the head is crowning
  - angle will decrease by 20 degrees after delivery
- if performed at < 60 degrees will be too close to the anal sphincter



**After pushing for 45 minutes, Natalie's baby was delivered with Apgars of 8 and 9**