What Do We Need To Do Reduce Risk In the OB

- Develop consistent, reliable processes for the things we can anticipate.
- Focus on improving our ability to respond to and manage the unexpected.

Sounding The Alarm

Each year 1-3% of term laboring patients undergo emergency cesarean delivery. Greater than 50% of emergent deliveries occur in response to or in association with FHR complications, commonly fetal bradycardia and/or prolonged decelerations.
When the alarm is sounded, decision-making usually accomplished in minutes or hours must now be made in seconds.

Fetal Bradycardia: Sounding the Alarm

“Event to Delivery” Time

Decision to Incision
Or
“Event to Delivery” Time

Case Presentation
Patient Profile

• 21 y.o.
• G₁ P₀
• @ 41 ½ weeks

21:00

21:08 Bradycardia begins
21:18 Patient in OR

Is this tracing associated with a significant acidosis?

Birth at 21:30

Patient in OR by 21:18
10 minutes after bradycardia begins

Bradycardia begins @ 21.08

Birth at 21:30, 22 minutes after start of bradycardia
DELIVERY
• 4410 gram male
• Birth by stat C/S
• Apgar score of 1/6

Cord gases
• CUA: 6.92/64/24/-22
• CUV: 7.22/54/56/-7
Umbilical cord gases suggestive of a prolapsed cord

“Event to Delivery” Time
Birth at 21:30
• 22 minutes after start of bradycardia
Cord gases
• CUA: 6.92/64/24/-22
• CUV: 7.22/54/56/-7

Event To Delivery Time”
Any Unwarranted Delay In:
• Observing the emergent pattern
• Recognizing it’s significance
• Notifying the physician capable C/S
• Ensuring a bedside evaluation
• Initiating preparations for immediate delivery
• Accomplishing delivery in a time frame in keeping with the urgency of the situation.
Goal: Reduce variation between providers how they interpret, communicate and respond to FHR tracings.

A consistent approach in teaching and training creates consistent expectations and actions.

The 3 R’s of Emergent

Delivery Rate
Route
Room

At the core of a timely and effective response to Fetal Bradycardia is the assessment of 3 key clinical variables. Simply remembered by the mnemonic, RATE, ROUTE, ROOM. In rapid sequence:

R
A
T
E

The FHR tracing is evaluated to determine if an emergent response is truly warranted or if conservative measures and continued observation is appropriate.
If the fetal heart rate suggests emergent delivery a SVE should immediately be performed, unless previa is suspected, to assess whether the fetus can be born vaginally or cesarean section is required.

Route
From above…
….or below?

If rapid vaginal delivery is possible, help and equipment (vacuum, forceps) should be brought to the patient. Moving the patient to the OR in this scenario may simply create an unnecessary delay in delivery.

If vaginal delivery is not imminent, move the patient to the operating room for assisted or surgical intervention.

Room

Nurses: In my current clinical situation I am empowered to independently make the decision to move a patient to the OR if I feel the situation is emergent and there is no MD or CNM immediately available to make the decision.

a. Yes I am  b. No I am not
MD’s: I believe the nursing staff should be empowered to independently make the decision to move a patient to the OR if they feel the situation is emergent and there is no MD or CNM immediately available to make the decision.

a. Yes, they should
b. No, they should wait until an MD arrives and makes the decision to move to the OR.

The 1-2-3 “Guideline”

1 minute
2 minutes
3 minutes

The “1-2-3 Guideline”

In the middle of the time pressure, chaos and sense of danger that accompanies bradycardia A simply way to think about when to move to the OR is to remember the 1-2-3 Guideline.
Fetal Bradycardia

For bradycardia $\leq 60$ bpm or $\leq 80$ bpm remote from delivery) delivery within ten minutes is optimal time frame. Outcomes from a large series of uterine ruptures indicate a window of opportunity between 12-17 minutes is generally available depending on the status of the tracing and fetus prior to onset of the bradycardia.

1-2-3 Guideline

1st minute

During the first minute of a deceleration $\leq 60$ bpm the bedside provider can observe the tracing for evidence the pattern is resolving, attempt to correct the source of the problem, and do a sterile vaginal exam. There is no exact order in which these interventions should be carried out and often they are initiated simultaneously, by multiple providers.
1-2-3 Guideline 1st minute
However, make sure that in the first minute, a SVE is accomplished and the results are well communicated. This will quickly establish for everyone involved the likely route of delivery if it should be necessary.

1-2-3 Guideline 2nd minute
By the start of the second minute additional help should be mobilized, and the room be made ready for easy exit in the event the pattern does not resolve.

1-2-3 Guideline 3rd minute
By 3 minutes move to the OR unless you have a good reason not to. The choice of 3 minutes as a threshold for moving a patient is arbitrary. Pragmatic considerations simply suggest when a fetal bradycardia of 60 bpm or less does not resolve quickly the patient should be moved the OR and prepared for delivery.
Once in the OR, “resuscitative” measures can be continued while the patient is prepared for delivery.

By quickly moving the patient into the OR, skin preparation, Foley catheter placement can be accomplished while the anesthesiologist is preparing the patient for intubation (hemodynamic monitoring, cardiac monitoring, hyper oxygenation, line placement, drug administration.

This allows for pre-surgical preparations to be completed and shortens the time interval from arrival of the anesthesiologist to the beginning of surgery.
Case Presentations

Are all Fetal Bradycardia And Prolonged Deceleration the Same?

Second Stage Bradycardia

Late in the second stage of labor it is not uncommon for patients to have prolonged decelerations and “end stage bradycardia” which are likely the result, of head compression as the fetal vertex descends into the pelvis and is further compressed during pushing.
It appears that these second stage reflex bradycardia, presumably from head compression, that retain their reactivity during the deceleration, are less likely to be associated with a significant acidemia. As a result a more conservative management approach to these bradycardia in the second stage of labor may be considered.

Supporting these findings a study that looked at acid accumulation in term fetuses with second stage bradycardia found that the fetus most likely to become acidemic...
• Lose its variability in less than three minutes from the beginning of the bradycardia or,
• Will lose its fetal heart rate variability during the bradycardia for a total of more than 4 minutes

In addition, the loss of variability was found to be more predictive of a severe acidosis than was the length of the bradycardia.

As a general guideline as long as the reactivity during the deceleration is maintained the patients can be allowed to continue pushing and attempt a vaginal delivery. This plan of care presupposes that unit has the ability to immediately rescue the fetus if the situation changes (the variability becomes minimal-absent or the deceleration deepens).
Not all fetal bradycardia or prolonged decelerations will ultimately result in or require emergent delivery. Most fetuses with bradycardia will not experience a complete cessation of oxygen during the intrapartum period, and instead experience a short and intermittent reduction in oxygen delivery.

Are all Fetal Bradycardia the Same?

This may explain why most fetal bradycardia will resolve with little or no intervention. If after transport to the OR the bradycardia resolves, the decision to deliver should be re-evaluated. Simply moving a patient to the OR should not be a fait accompli that delivery is required.

Once In the OR Re-evaluate

This may explain why most fetal bradycardia will resolve with little or no intervention. If after transport to the OR the bradycardia resolves, the decision to deliver should be re-evaluated. Simply moving a patient to the OR should not be a fait accompli that delivery is required.
Case Presentation

Bradycardia - iatrogenic

Tachysystole
Second Stage Bradycardia
Use R-R-R and 1-2-3- to Evaluate Both

- Emergent
- Urgent – Non-Emergent

Right People… Right Place… Right time…

Doing the Right Things

Call to Action
1. Adopt policy that enables bedside provider to make decision to move pt. to OR if senior provider not present
2. Develop standardized approach to emergent situations and FHR patterns (R-R-R, 1-2-3 guidelines)
3. Develop emergency simulation preparedness drills with required attendance by all providers.