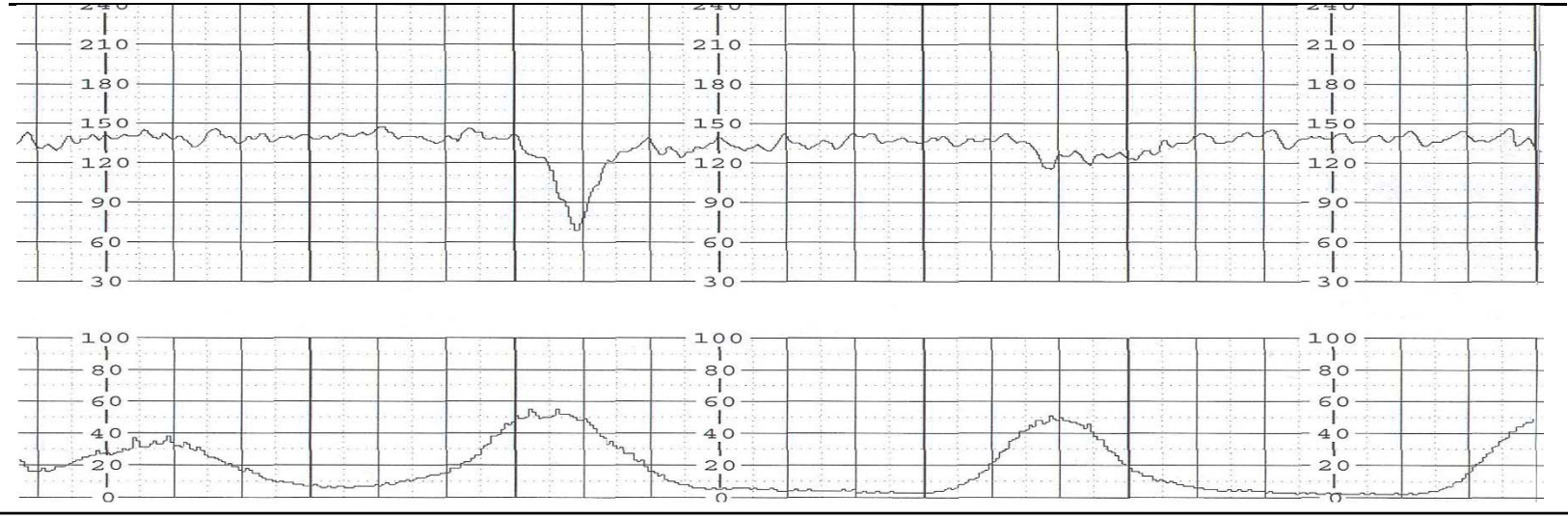
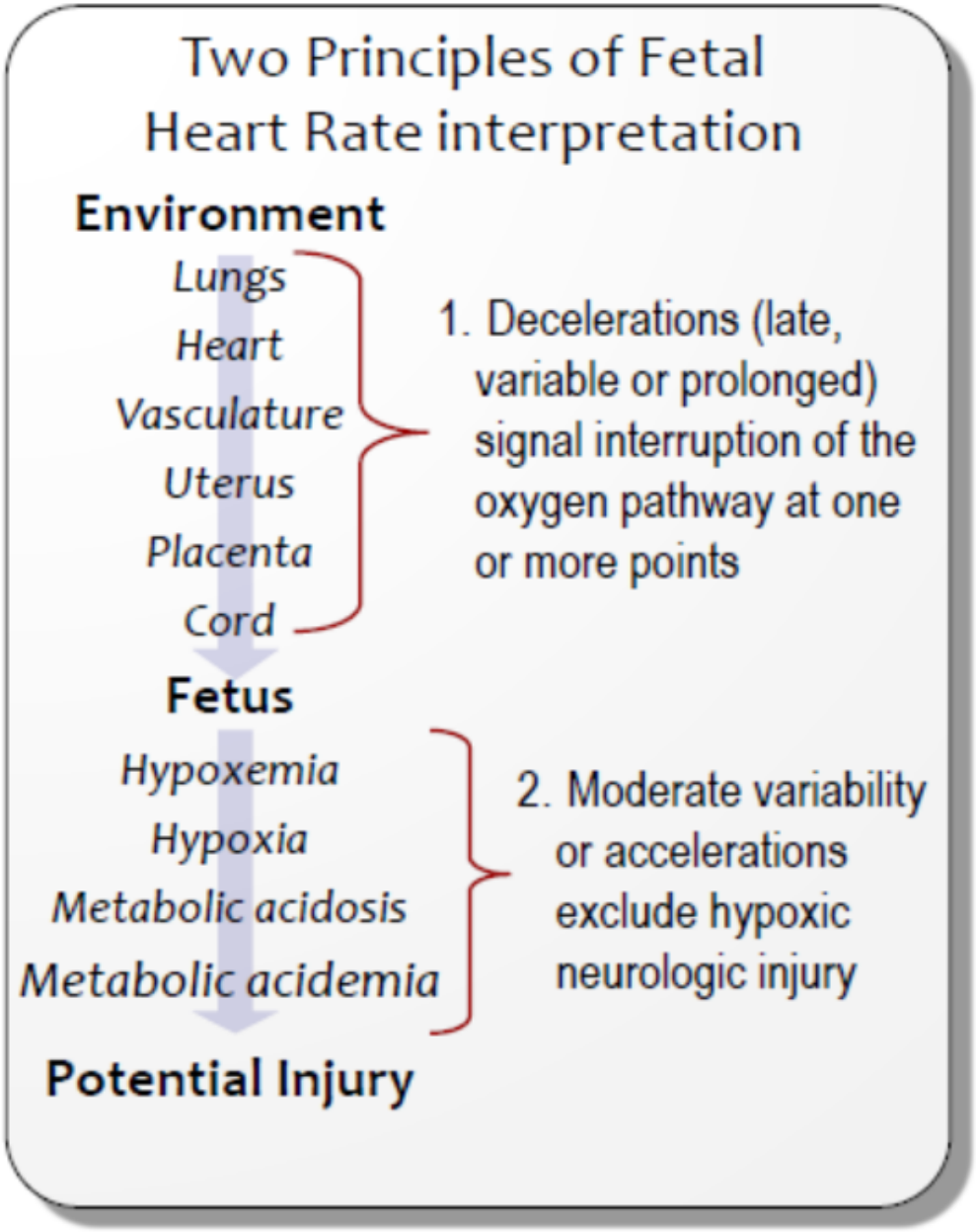
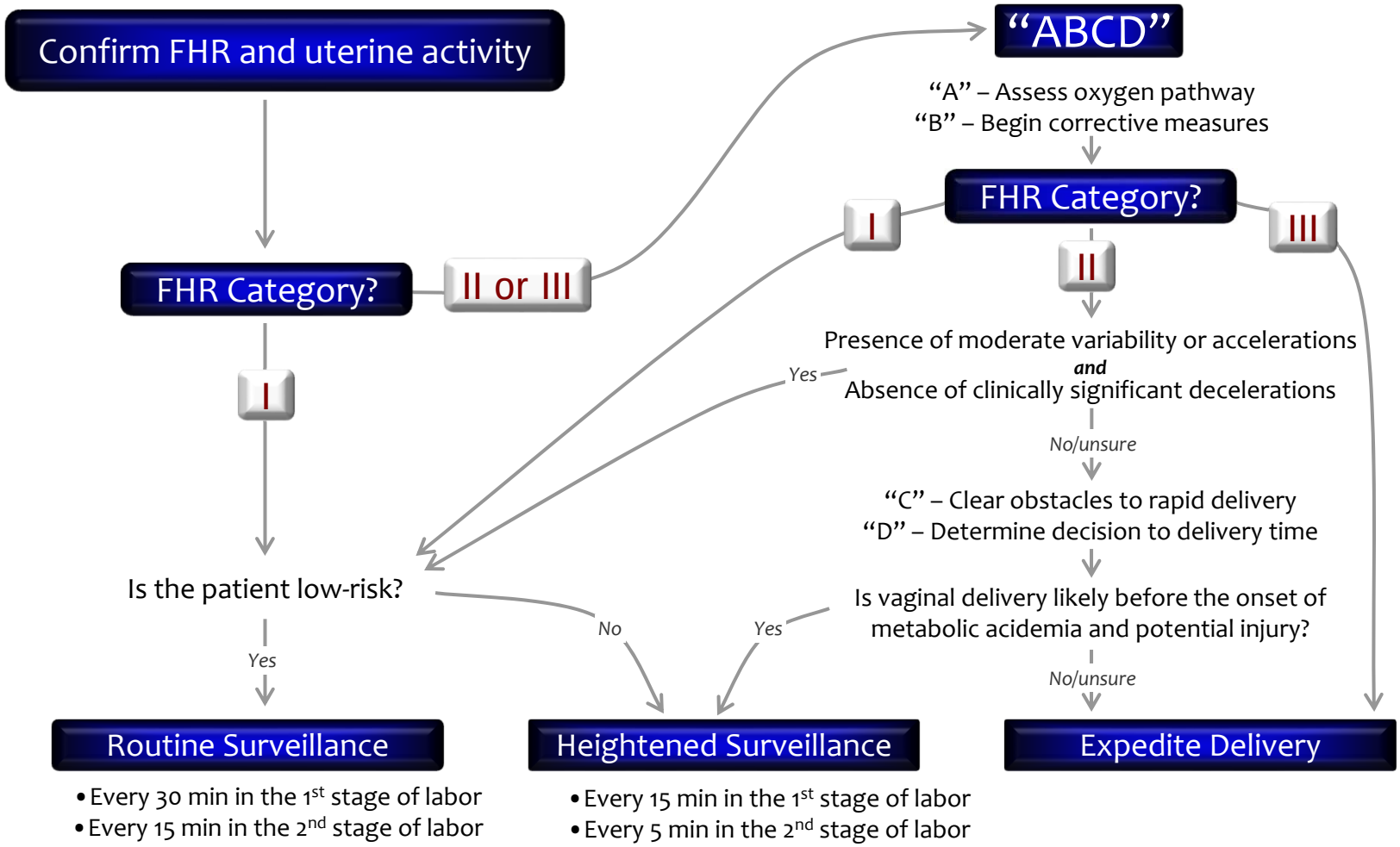
Case Studies & Critical Thinking in Fetal Monitoring




Two Principles of Fetal Heart Rate interpretation
Environment
Lungs
Heart
Vasculature
Uterus
Placenta
Cord
1. Decelerations (late, variable or prolonged) signal interruption of the oxygen pathway at one or more points
Fetus
Hypoxemia
Hypoxia
Metabolic acidosis
Metabolic acidemia
2. Moderate variability or accelerations exclude hypoxic neurologic injury
Potential Injury

Intrapartum Fetal Heart Rate Management Decision Model



Fetal Heart Rate Categories

I — Category I includes all of the following:
- Baseline rate 110-160 bpm
- Moderate variability
- No late decelerations
- No variable decelerations
- No prolonged decelerations

II — Category II includes all tracings not assigned to Category I or Category III

III — Category III includes at least one of the following:
- Absent variability with recurrent late decelerations
- Absent variability with recurrent variable decelerations
- Absent variability with bradycardia for at least 10 min
- Sinusoidal pattern for at least 20 min

A Practical "ABCD" Checklist Approach to FHR Management

	"A" Assess Oxygen Pathway	"B" Begin Corrective Measures
Lungs	❑ Airway and breathing	❑ Supplemental oxygen
Heart	❑ Heart rate and rhythm	❑ Position changes ❑ Fluid bolus
Vasculature	❑ Blood pressure ❑ Volume status	❑ Correct hypotension
Uterus	❑ Contraction strength ❑ Contraction frequency ❑ Baseline uterine tone ❑ Exclude uterine rupture	❑ Stop or reduce stimulant ❑ Consider uterine relaxant
Placenta	❑ Check for bleeding ❑ Exclude abruption	
Cord	❑ Vaginal exam ❑ Exclude cord prolapse	❑ Consider amnioinfusion

	"C" Clear Obstacles to Rapid Delivery	"D" Determine Decision to Delivery Time
Facility	Confirm: ❑ OR availability ❑ Equipment availability	Consider ❑ Facility response time ❑ Location of OR
Staff	Consider notifying ❑ Obstetrician ❑ Surgical assistant ❑ Anesthesiologist ❑ Neonatologist ❑ Pediatrician ❑ Nursing staff	Consider: ❑ Staff availability ❑ Training ❑ Experience
Mother	Consider ❑ Informed consent ❑ Anesthesia options ❑ Laboratory tests ❑ Blood products ❑ Intravenous access ❑ Urinary catheter ❑ Abdominal prep ❑ Transfer to OR	❑ Surgical considerations *(prior abdominal or uterine surgery)* ❑ Medical considerations *(obesity, hypertension, diabetes)* ❑ Obstetric considerations *(parity, pelvimetry, placentation)*
Fetus	Consider: ❑ Estimated weight ❑ Gestational age ❑ Presentation ❑ Position	Consider: ❑ Numer of fetuses ❑ Estimated fetal weight ❑ Gestational age ❑ Presentation ❑ Position ❑ Anomalie
Labor	❑ Consider IUPC	Consider: ❑ Arrest or protraction disorder ❑ Remote from delivery ❑ Poor expulsive efforts

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*Other Causes of Fetal Heart Rate Changes

Fetal	Maternal
❑ Fever	❑ Fever
❑ Infection	❑ Infection
❑ Medications	❑ Medications
❑ Anemia	❑ Hyperthyroidism
❑ Arrhythmia	
❑ Heart block	
❑ Congenital anomaly	
❑ Extreme prematurity	
❑ Preexisting neurologic injury	
❑ Sleep cycle	

OBSTETRICS

Intrapartum management of category II fetal heart rate tracings: towards standardization of care

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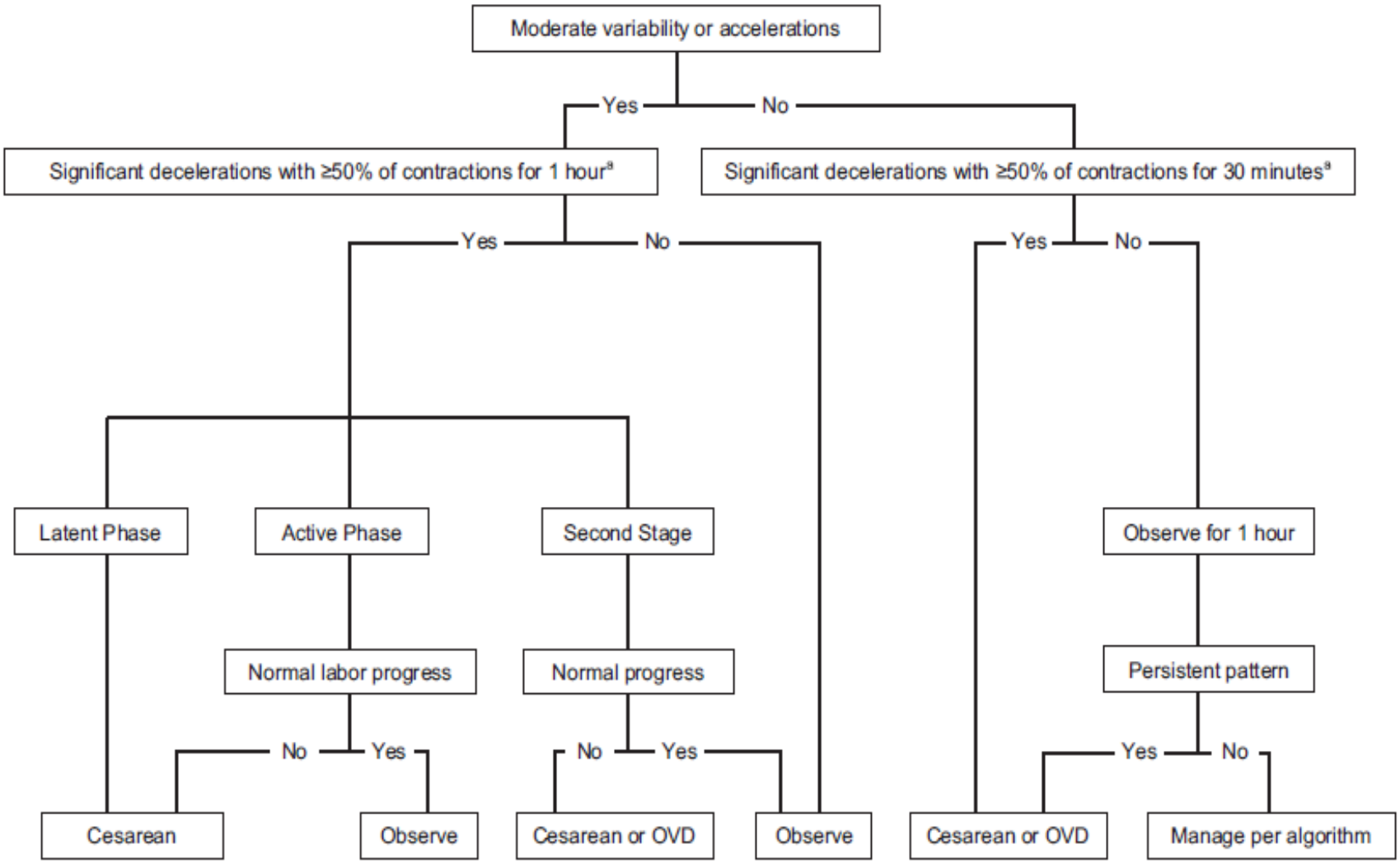
Interpretation and management of fetal heart rate (FHR) patterns during labor remains one of the most problematic issues in obstetrics. Multiple basic science investigations and clinical trials have been published since the introduction of this technique in the late 1950s.[1-7] Unfortunately, this body of work has primarily served to raise more questions than it has answered—as a medical community, we seem to know less than we thought we did 30 years ago regarding the utility of this ubiquitous technique.

There is currently no standard national approach to the management of category II fetal heart rate (FHR) patterns, yet such patterns occur in the majority of fetuses in labor. Under such circumstances, it would be difficult to demonstrate the clinical efficacy of FHR monitoring even if this technique had immense intrinsic value, since there has never been a standard hypothesis to test dealing with interpretation and management of these abnormal patterns. We present an algorithm for the management of category II FHR patterns that reflects a synthesis of available evidence and current scientific thought. Use of this algorithm represents one way for the clinician to comply with the standard of care, and may enhance our overall ability to define the benefits of intrapartum FHR monitoring.

Key words: fetal heart rate monitoring, neonatal encephalopathy, patient safety

Algorithm for management of category II fetal heart rate tracings



OVD, operative vaginal delivery.

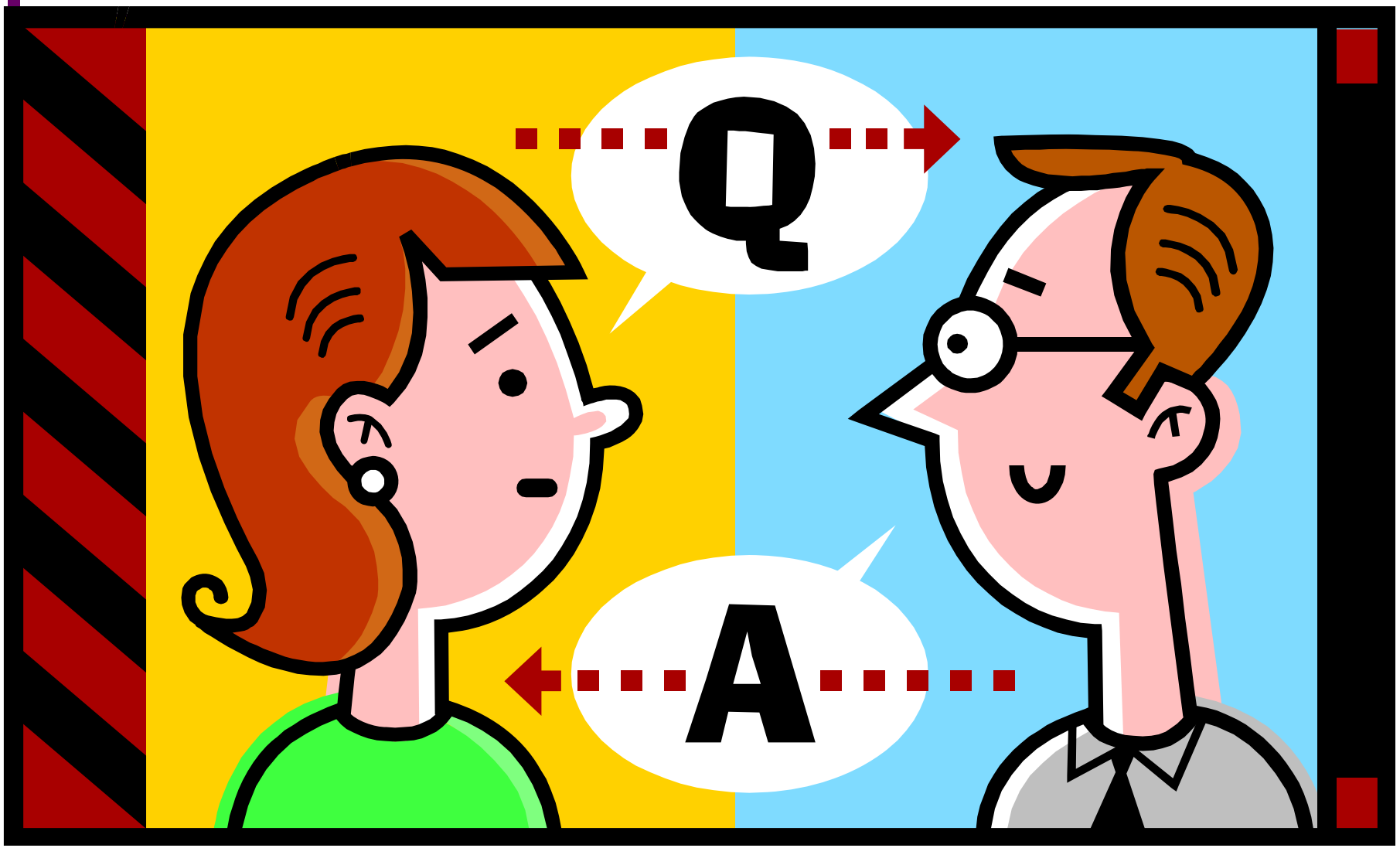
[a]That have not resolved with appropriate conservative corrective measures, which may include supplemental oxygen, maternal position changes, intravenous fluid administration, correction of hypotension, reduction or discontinuation of uterine stimulation, administration of uterine relaxant, amnioinfusion, and/or changes in second stage breathing and pushing techniques.

Clark. Category II FHRT. Am J Obstet Gynecol 2013.

Keys to Successful Pitocin Use

- Knowledge of uterine physiology
- Knowledge FHR changes
- Knowledge related to oxytocin
- A team approach that includes a clear plan, with mutual “buy-in”, understanding of terminology, and patient understanding & accord

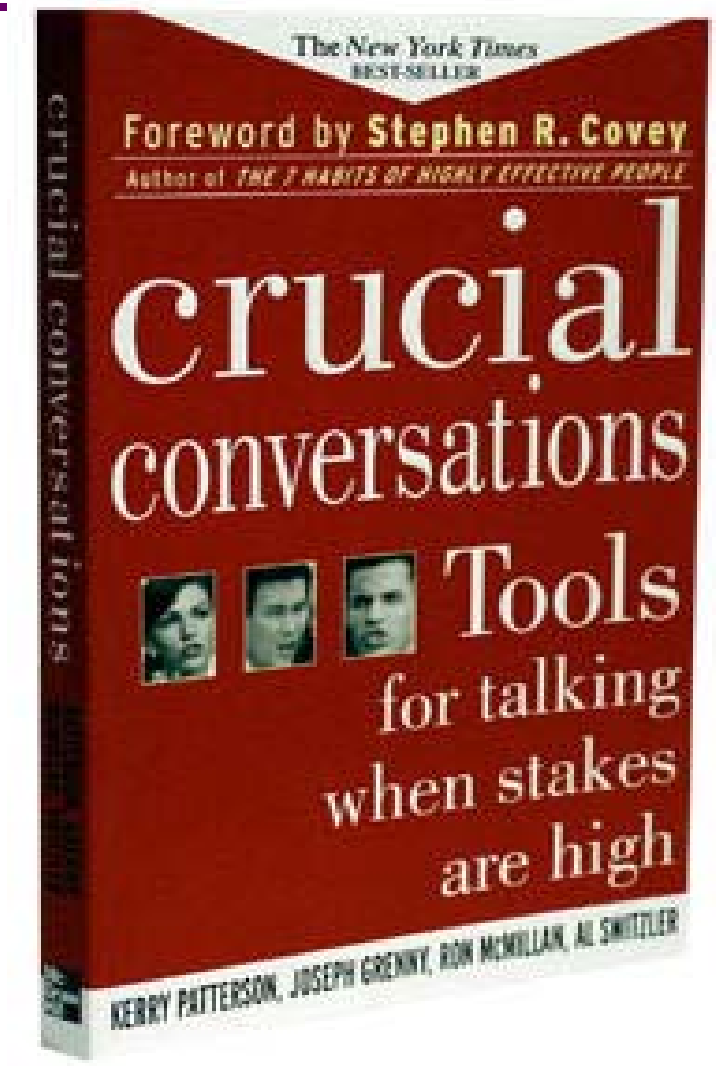
Key Safety Tool!!
Right under your nose!!



JCAHO Sentinel Event Alert # 30 – Suggested Risk Reduction Strategies

- Revise orientation & training 70%
- Physician education & counseling 36%
- Revise communication protocols 36%
- Reinforce chain of communication 28%
- Revise competency assessment 25%
- Conduct team training 25%
- Revise consultation/on-call policies 23%

Lessons from Industry



- Finally! An easy to read, easy to learn system for learning and applying true communication skills to every relationship
- Let's talk about a few key concepts

What is a "Crucial Conversation"?

"A discussion between two or more people where (1) stakes are high, (2) opinions vary, and (3) emotions run strong."

Ineffective Responses

Silence

- Masking
- Avoiding
- Withdrawing

Violence

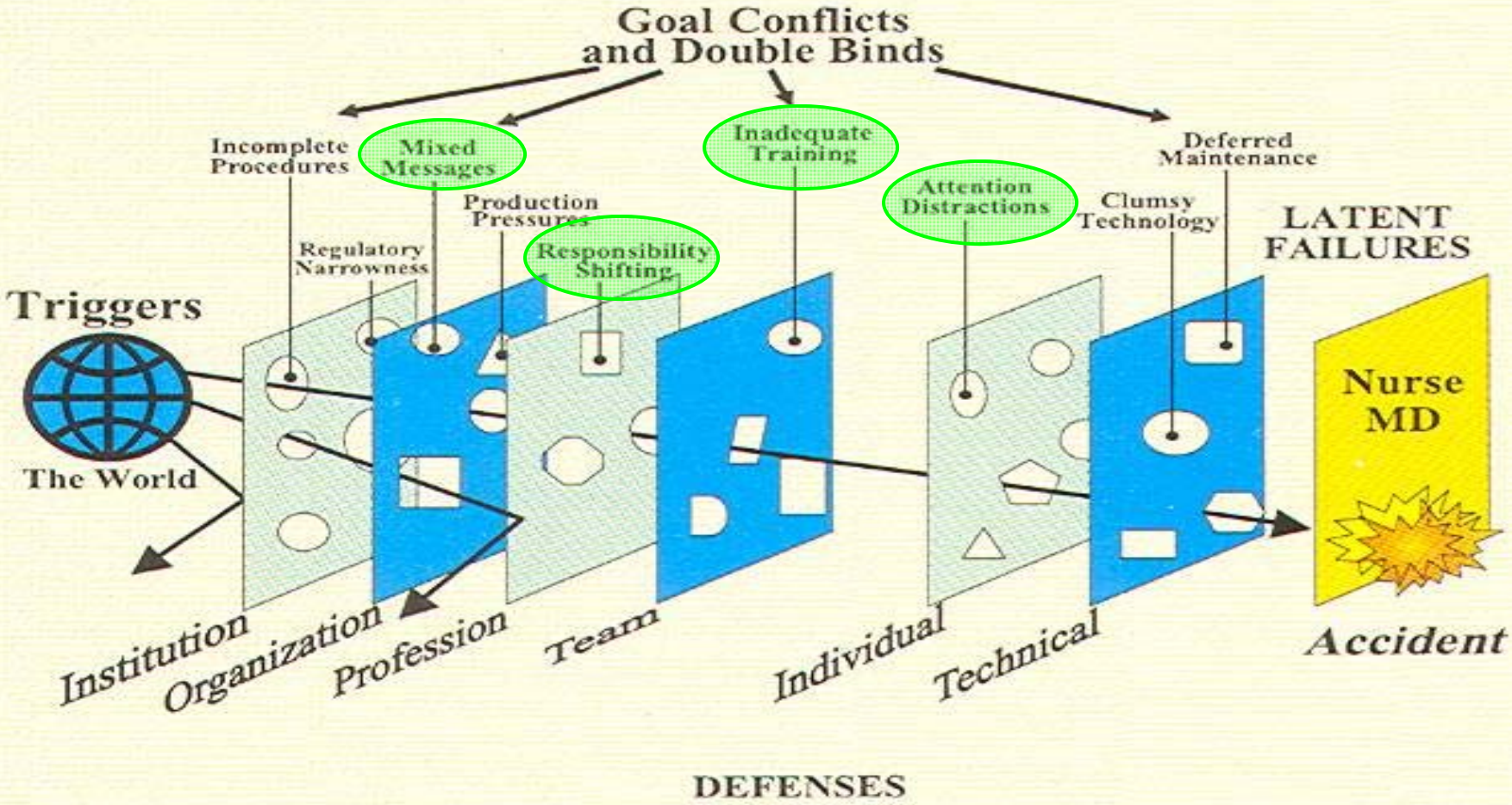
- Controlling
- Labeling
- Attacking

Human Factors Approach

- Looks at systems, versus individuals
- Avoids "blaming" and seeks prevention strategies to avoid future errors
- Differentiates between active failures (the sharp end) and latent failures (administration, design, training, etc.)
- Illustrated best by the "Swiss Cheese" model of organizational accidents described by Reason

Figure 2.

Swiss Cheese Model



Modified from Reason, 1991 © 1991, James Reason

Types of Errors

- Slips or Lapses
  - most medication errors
- Rule-based errors
  - protocols, standardization
- Knowledge-based errors
  - lack of knowledge vs. expert error

10 Good Reasons Why People Resist Change

- Surprise!
- Self-doubt
- Loss of control
- Debilitating uncertainty
- Disruption of routines
- Loss of face
- Increased workload
- Dangers are real
- Institutional memory
- Personal disruption

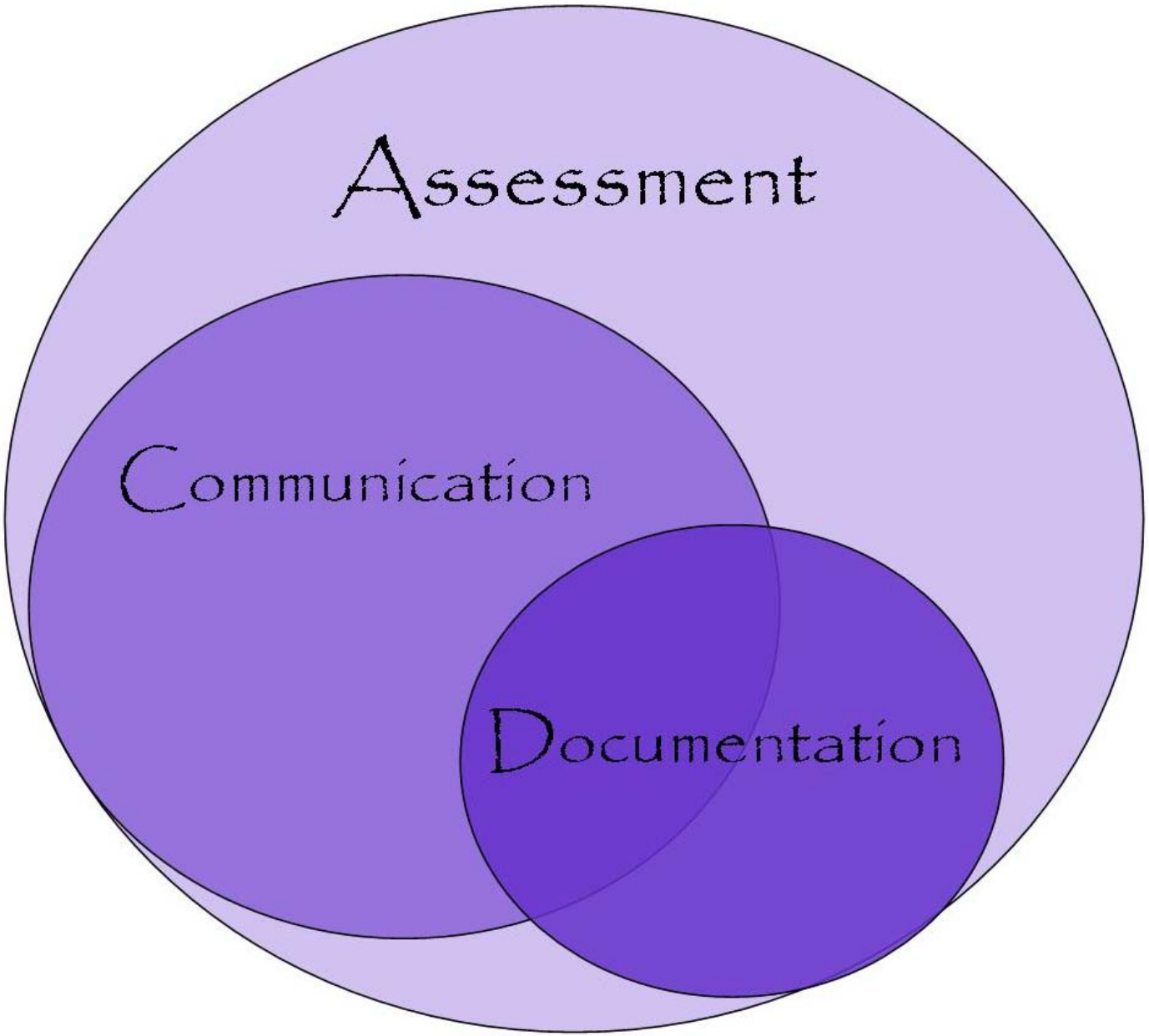
Documentation

Purpose

- Communicate with colleagues during the patient's hospitalization
- Create an accurate record of the course of care and specific interventions, responses, and follow-up
- Serve as a historical record of the patient's hospitalization

Legally speaking…

- We've all heard the old adage, "if it wasn't charted, it wasn't done".
- We all know this isn't true in everyday clinical practice, but what about legally speaking? What about the medical record in a lawsuit?
- How do I prove what I did?


Assessment
Communication
Documentation

Critical thinking reveals...

- Assessment
  - Encompasses everything
- Communication
  - What I tell others
- Documentation
  - What is recorded

Documentation in EFM

- NICHD nomenclature provides a standardized terminology
- Describes what should be included in tracing evaluation
- Discusses quantification of decelerations
- Does not use summary terms

FHR Tracing Evaluation

- Must include a description of:
  - Baseline rate
  - Baseline variability
  - Presence of accelerations
  - Periodic or episodic decelerations
  - Changes or trends over time

Documentation of decels

- NICHD states decelerations ***may*** be further quantified by the depth of the nadir in BPM and the duration in minutes/seconds from onset to offset
- But must we document this with every single deceleration? And how do we chart when we are dealing with documenting decelerations that vary over time?
- The answer lies in understanding standard of care

Documentation of decels

- Standard of care is based on reasonableness
- The NICHD nomenclature provides us with standard definitions that accurately describe the different types of decels
- Every institution will need to decide what is "reasonable" re: documentation
- This must be considered in light of the type of records the institution uses (computer, paper, flowsheet, etc.)

Developing a protocol

- Discuss differences between assessment, communication, and documentation.
- Identify and define any “summary” terms (Categories/tachysystole) ***if you must use them*** (what, there’s a gun to your head?)
- Seek out sample protocols & guidelines from other institutions
- Come to consensus on timing of assessments vs. documentation