What is L & D Really Like?

- Normal clinical care on L and D is dynamic:
  - Each physician and nurse must often juggle several tasks concurrently.
  - Linear operations are frequently interrupted.
  - External demands arrive at unpredictable moments.
  - Conditions sometimes force task elements to be performed out of normal sequence.
  - At times people are operating under conditions of fatigue.
  - There are often “distractions” that must be negotiated.
### Traditional Depiction of Task Management

- **Linear**: task A → task B → task C in a fixed sequence.
  - Abn EFM, nurse recognizes, calls doctor, doctor comes, does a c-section, Apgars 9-9.
- **Controllable**: tasks are initiated by caregivers at their discretion.
- **Predictable**:
  - Information is available when needed.
  - Individuals can communicate effectively as needed.
- **Overall picture**: operations are individually driven and under moment-to-moment control of team members...

Right?

### Getting The Job Done: The Four “A”s

#### The Linear Model

- **Assess**
- **Alert**
- **Align**
- **Act**

#### The Linear Model with 1:1 Feedback

- **Assess**
- **Alert**
- **Align**
- **Act**
Getting The Job Done: The Four “A”s
The Real Time, Dynamic Model

Assess
Alert
Align
Act

What Are The Components of A Safe Perinatal Team?
A Team That Can Manage The Real Time, Dynamic Model and Do It As Safely As Possible
A Team That Makes Up A High Reliability Prenatal Unit

T.R.U.S.T.
The Components of a Safe Perinatal Unit

• T
• R
• U
• S
• T

A Checklist for T.R.U.S.T.

- Team Training
- Respect
- Unambiguous conversations
- Skillful anticipation / Situational awareness
  - Succinct policies and procedures that follow practice
- Technical expertise, judgment, and performance
  - Tracking and trending (data/quality)

What Are The Components Of Team Training?

What Makes An Effective Perinatal Team?
Association Between Implementation of a Medical Team Training Program and Surgical Mortality

“The 74 facilities in the training program experienced an 18% reduction in annual mortality…compared with a 7% decrease amongst the 34 facilities that had yet undergone training…”


Outcomes of the Introduction of the MORE™ Continuing Education Program in Alberta

What are the Components of Respect?
- Flatten hierarchy
- Eliminate incivility, intimidation, disruptive behavior
- Eliminate horizontal hostility
- Conflict resolution with neutral language
- Trusting each other

What Is Necessary for Unambiguous Conversations?
- SBAR-R
- P.U.R.E. Conversations
- Speak up!

- If you see it, SAY it
  - “Silence Kills”
  - “The Silent Treatment”
  - “Speak up for Safety”
  - “From Silence to Voice”
  - “Stop the line”
- Be a safety net for others
Influences on “Speaking Up”

- Personal
  - Learned at home
  - Culture
  - Doing the right thing
  - Education
- Organizational
  - Peers
  - Managers
  - Administration/Executives
  - Organizational culture

Skillful Anticipation / Situational Awareness / Succinct Policies and Procedures

Components of Skillful Anticipation?

- TEM
- Being prepared
- Knowing the plan, the patient, colleagues
- Envisioning the whole picture, situational awareness
- Adequate staffing
- Taking initiative

Be Prepared! Be Unprepared.
Situational Awareness

“…continuously monitoring what is happening in the … environment in order to understand what is going on and what might happen in the next minutes or hours…”

- What's going on?
- So what?
- Now what?

Technical Expertise & Judgment Associated With Perinatal Safety

Technical
- OVD
- Ultrasound
- Twin delivery
- IUPC, FSE
- Cesarean delivery
- Perinatology and neonatology availability
- Resuscitation skills

Judgment
- When to initiate oxytocin
- When to call for a cesarean delivery
- When to terminate the second stage
- When to call the doctor
- When to work when fatigued
- When to “stop the line” for safety
- When to initiate the chain of command
Add an “H” To T.R.U.S.T.

T.H.R.U.S.T.

- Fatigue
- Alarm Fatigue
- Noise
- Distraction
- Stress
- Fear
- Inattention blindness

- Multitasking
- Rushing
- Complacency
- Bias
- Personal issues
- Others?

Human Performance Issues

Doctor Saturn to Earth:

“I’ve got bad news. I’m afraid you have humans”
Relationships Matter!

We must pay attention to “the everyday human contact and social formation of friendships and conflicts that occur when individuals work in groups.”


Human Performance Factors and Perinatal Safety

The Joint Commission

Root Cause Information for Maternal Events Reviewed by The Joint Commission

(Resulting in death or permanent loss of function)

<table>
<thead>
<tr>
<th>2004 through 1Q 2012 (n=99)</th>
<th>The majority of events have multiple root causes</th>
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<tbody>
<tr>
<td>Human Factors</td>
<td>52</td>
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<tr>
<td>Communication</td>
<td>51</td>
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<tr>
<td>Assessment</td>
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<td>Leadership</td>
<td>42</td>
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<td>Information Management</td>
<td>21</td>
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<tr>
<td>Physical Environment</td>
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<tr>
<td>Continuum of Care</td>
<td>14</td>
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<tr>
<td>Care Planning</td>
<td>12</td>
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<tr>
<td>Medication Use</td>
<td>12</td>
</tr>
</tbody>
</table>

The Joint Commission
Root Cause Information for Perinatal Events Reviewed by The Joint Commission
(Full-term infant 2500g or > and absence of obvious congenital abnormality; resulting in death or permanent loss of function)

<table>
<thead>
<tr>
<th>2004 through 1Q 2012 (N=209)</th>
<th>The majority of events have multiple root causes</th>
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<td>Assessment</td>
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<td>Medication Use</td>
<td>17</td>
</tr>
<tr>
<td>Operative Care</td>
<td>7</td>
</tr>
</tbody>
</table>


The Joint Commission
• Human Factors
  Staffing levels, staffing skill mix, staff orientation, in-service education, competency assessment, staff supervision, resident supervision, medical staff credentialing/privileging, medical staff peer review, other (e.g., rushing, fatigue, distraction, complacency, bias)


The Joint Commission
• Communication
  Oral, written, electronic, among staff, with/among physicians, with administration, with patient or family
• Assessment
  Adequacy, timing, or scope of assessment; pediatric, psychiatric, alcohol/drug, and/or abuse/neglect assessments; patient observation; clinical laboratory testing; care decisions

The Joint Commission

• Leadership
  Organizational planning, organizational culture, community relations, service availability, priority setting, resource allocation, complaint resolution, leadership collaboration, standardization (e.g., clinical practice guidelines), directing department/services, integration of services, inadequate policies and procedures, non-compliance with policies and procedures, performance improvement, medical staff organization, nursing leadership

Some Additional Definitions

• Human factors is an academic discipline that focuses on the interaction between humans and devices, processes or technology.
  • the term refers to the role of humans in the evolution of error.
  • the application of principles of human factors in the design of technology is called human factors engineering.
  • ergonomics, the design of devices to maximize safety and efficiency.
• Human performance, the study of cognition, attention, memory, perception, communication.

Because We Are Humans:

We have:
• Limitations in memory capacity
• Limited ability to deal with multiple competing demands
• Weakened mental abilities, including decision-making, by things such as fear and fatigue
• Influence from the effect of group dynamics and culture
When I’m Fatigued…

- Nurse anesthetists - 55%
- Anesthesia residents - 57%
- Anesthesiologists - 47%
- Surgical nurses - 60%
- Surgical residents – 56%

- Surgeons - 70%
- Intensive care nurses - 64%
- Intensivists - 64%
- Pilots - 28%

“Even when fatigued, I perform effectively during critical phases of operations/patient care”

Human Factors and Impaired Vigilance: “Taking Your Eye Off the Ball”

- Definition: The Ability to Sustain Attention
- Vigilance can be impaired with:
  - Fatigue (3 a.m.=0.05, 7 a.m.=0.1)*
  - Illness (in oneself or a family member)
  - Feeling rushed
  - Stress
  - Financial losses or worries
  - Anger
  - Drugs or gambling
  - Feelings of invulnerability (hubris)
  - Lack of motivation


The Effect of Sleep Deprivation: Laparoscopic Simulator and Surgical Residents

The Effect of Sleep Deprivation: Laparoscopic Simulator and Surgical Residents

Nurses, Fatigue, Vigilance and Errors

Exercise
Multitasking

Inattention Blindness: “I can’t believe they missed that!” “It was right in front of them!”
The brain refuses to see what is right in front of you.
“IV Epidural Mix Up Leads to Maternal Death”

Heparin vials in different strengths (left and center) and an example of new labeling for heparin (right).
Inattention Blindness
Low expectation of a bad outcome PLUS a high mental workload
For Example:
• Three patients arrive at once with preeclampsia
• Physician fails to come when called
• Holiday weekend with lot of "sick" calls
• Inconsistent interpretation of EFM tracing
• Lack of standard approach to using vacuum
• Someone pushing pit
• Particular nurse-physician relationship conflict
• Methergine shortage

Overcoming Human Error

Less Effective

More Effective

Questions
Thank You
It's Been A Pleasure Working
With You All For The Last
Three Years

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