Teamwork in the Operating Room

Mark E. Comunale, M.D.
Chief Medical Officer for Patient Safety
Chair, Department of Anesthesiology, ARMC
Professor of Anesthesiology, LLUMC

June 10, 2015
Teamwork is:
People + Policies + Procedures + COMMUNICATION
Collation of sentinel event-related data reported to The Joint Commission (1995-2005).

http://www.jointcommission.org/SentinelEvents/Statistics/
All High Reliability Organizations Have Mastered Communication
Mastering Communication in the OR
Procedural Time-Out

- Find the leaders
- Creating Buy-In
Who are the unofficial leaders?
- Surgeons
- Nursing
- Anesthesiology

All staff present for filming.
Have script and follow along.

Several groups participate in filming.

Accomplishes education and teamwork training at same time.
“Time-Out”

- Rolled out in OR first.
- Buy-in and education about the process initiated by use of video production using OR staff, anesthesiology and surgeons.
- “Time Out Sheet” created based on video.
- Check list on one side, scripted on reverse.
PRE-PROCEDURE TIME OUT CHECK LIST

1. Introductions (Surgeons, Circ., Scrub, Anesthesia, Others)
2. Correct Patient Identity, (Name, DOB, MR# and V#)
3. Correct Procedure, Correct Side and Site, Correct marking
4. Circulator will verify with team:
   • Pre Procedure note completed
   • H & P: less than 30 day old; procedure noted and matches consent
5. Display of essential imaging as appropriate
6. Correct Patient Position
7. Availability of correct implants
8. Any special equipment or requirements
9. Foley Catheter needed
10. Allergy status
11. Antibiotics given; confirm medication allergy status
12. Merits VTE prophylaxis
13. Beta Blockers needed
14. Warming Methods
15. Fire Precautions- (Alcohol Based-Prep Solutions)
16. Surgeon Issues
17. Anesthesia Issues
18. Nursing Issues
Standardized Script for Time-Out

Script for: Procedural/Surgical Time Out:

Circulator will initiate:

1. Is this a good time for a time out?
   a. If ans. is no respond by: Does the team need 5, 10 or 15 minutes before we commence?
2. We are going to start by introductions: (If everyone in room knows each other may skip this question, if not this part is mandatory) My name is __________ I am the __________.
   a. Example would be: Hi my name is Dede Schulte RN, I am circulating today or Hi my name is Steve Allen I am a 1st year resident for general surgery. I am here to assist Dr. Wong.
3. Circulator with team will verify correct patient identity using ID bands X2. (use 4 identifiers: Name, DOB, MR#, and V#).
4. Dr. __________ (Attending or Resident) please verify the correct procedure, the correct side and site, and the correct side and site marking, using the consent form.
5. Circulator will verify with team the following:
   a. Pre-procedure note confirm that it is time, dated and signed prior to procedure with correct information
   b. History and Physical is within 30 days of procedure and that proposed procedure is noted and matches consent
6. If applicable: Dr. __________ can you please verify the x-rays and confirm the side/site noted on the x-ray.
7. Team can we please verify:
   a. Correct position for procedure?
   b. Availability of implants?
   c. Special equipment or requirements for the procedure?
   d. Need for VTE prophylaxis?
   e. Foley insertion?
   f. Fire Precautions- Using Alcohol Based Prep Solutions?
8. Anesthesia team:
   a. Does patient have allergies?
   b. Antibiotics been given?
   c. Do we need Beta Blockers on this patient?
   d. Did we start warming measures?
   e. Are there any other anesthesia concerns?
9. Are there any Surgeon issues, or concerns at this time?
10. Are there any nursing concerns at this time?
11. Time out completed at __________ (time)
Procedural Time-Out

Who does it?

- The “Team” does it
- The team will perform a time-out
The circulating nurse initiates and runs the time-out process.

She/he has been given the responsibility and **AUTHORITY** to run the time-out.

What does “Authority” mean?
- Must be supported when they stop the train.
The phenomenon of *Protocol Drift*

- The use of memory
- The intentional or unintentional designee
- Skipping steps in process
The Joint Commission

2006 National Patient Safety Goal—2E
(Now a Joint Commission standard)

- Implement a standardized approach to “hand-off” communications including an opportunity to ask and respond to questions
Hand-off Concepts

- High Reliability Organizations
  - Nuclear Power
  - NASA and Mission Control
  - Aviation: Crew Resource Management
    - Air traffic control- LAX
    - Carrier flight deck
  - Dispatch services
Hand-off Concepts

- High Reliability Organizations
  - Have mastered communication BUT...
  - Look at their processes:
    - They do the same thing, the same way, every time, all the time.
    - They learn from their mistakes and change their processes/procedures. Think RCAs!
  - Virtually no variability.
I – Introduction
S - Situation (the current issue)
B - Background (brief, related to the point)
A - Assessment (what you found/think)
R – Recommendation/request (what you want next)
Q – Questions
**ISBARQ**

**I** - Introduction

**S** - Situation

**B** - Background

**A** - Assessment

**R** - Recommendation

**Q** - Questions

---

### ISBARQ Template

**I - Introduction**

- Identify yourself and your patient using 2 patient identifiers (name and DOB) to the person receiving this report.

**S - Situation**

- Ask the name of the person receiving this report
- Patient’s Mental Status/GCS:
- Patient’s Code Status/Do Not Resuscitate

**B - Background**

- Transfer of care is:
- History:
- Allergies:
- Cultural/Interpreter:
- Family Contact Info:
- Vital Signs:
- Skin:
- Neuro:
- Respiratory:
- Cardiovascular:
- Gastrointestinal:
- GI/IV/Drains:
- Dressings:
- Musculoskeletal:
- Pain:
- Regional Block:
- IV Sites/Fluids:
- Medications:
- Blood Given/Needed:
- Monitoring Lines:
- BET and FET:
- All Lab & Last BS:

**A - Assessment**

- Issues I am Concerned About:
- BetaBlocker Protocol:
- DVT Protocol:
- Fall Risk:
- Special Equipment:
- Other:

**R - Recommendation**

- Special or Department Specific Concerns:

**Q - Questions**

- Address any questions:
Identify yourself and your patient using 2 patient identifiers (name and DOB) to the person receiving this report.

Ask the name of the person receiving this report

Patient’s Mental Status/GCS:
Patient’s Code Status/DNR-Withholding/Withdrawing of care form

Transfer of care is for:

<table>
<thead>
<tr>
<th>Isolation</th>
<th>Contact</th>
<th>Airborne</th>
<th>Droplet</th>
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</thead>
</table>

History:
Neuro - Seizures - DM - Cardiac Dz - Dysthymia - HTN - Resp Dz - Asthma - Renal Dz - Liver Dz - Other:

Allergies:

Cultural/Interpreter:

Personal Belongings: __________________________ Given To:

Family Contact Info:
Location: Waiting Room | Unavailable | Contact #:

Vital Signs:
T= | HR= | BP= | RR= | SpO₂= | Ht= | Wt=

Skin:
Problem Areas:

Neuro:

Respiratory:
Vent Settings:

Cardiovascular:
Rhythm:

Last EKG shows:

Gastrointestinal:

GU/Cath/Drains:
Foley | Drains: JP | HmVac | Chest Tube | Other:

Dressings:

Musculoskeletal:

Pain:
Pain Rating= /10 | Location: | Pain Control Plan:

Regional Block:
Epidural | Spinal | Nerve Block | Other:

IV Site/Fluids (location):
Site/Fluid:

Meds:
Infusions/Drips:
<table>
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<tr>
<th><strong>Skin:</strong></th>
<th><strong>Problem Areas:</strong></th>
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<td><strong>Neuro:</strong></td>
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<td><strong>Meds:</strong></td>
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<td><strong>Blood Given/Needed:</strong></td>
<td><strong>Given:</strong></td>
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<td><strong>Monitoring Lines (location):</strong></td>
<td><strong>Central lines:</strong></td>
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<td><strong>BS=</strong></td>
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**Issues I am Concerned About:**

| **BetaBlocker Protocol:** | **Yes** | **No** | **N/A** | **Special or Department Specific Concerns:** |
| **DVT Protocol:** | **Yes** | **No** | **N/A** |
| **Fall Risk:** | **Yes** | **No** |
| **Special Equipment:** |                   |
| **Other:** |                   |
| **Meds needed:** |                   |
| **Antibiotics given:** |                   |

**Specific care required immediately or soon:**

| **Address any questions:** | |
|---------------------------| |
Pause for Transfer Of Care

- Who does it?
  - The “Team” does it

- The team will perform Pause for Transfer of Care
Physicians Role

- **Find the Holes**
  - Physicians should lead the process

- **Change the Culture**
  - Educate your colleagues
  - Ensure compliance with National Patient Safety Goals
Patient Safety Education

- New hire orientation, introduction to patient safety
- Patient Safety Grand Round lectures for all staff
- Charge Nurse classes with emphasis on patient safety
- Patient Safety computerized education for Nurses (patient safety basics)
- Patient Safety Rep training for Nurses
- Sim. Lab for Residents & Nurses, focused on high risk patient safety goals such as: 2 patient identifiers, Hand-hygiene, Medication Administration, High Risk Medication Administration
Patient Safety Grand Rounds

- Conducted quarterly
- Multidisciplinary
- In-depth coverage of topics such as:
  - RCA
  - FMEA
  - ISBARQ and other tools
- Always cover SAE dashboard and have informal discussion regarding the events.
Color coded stick figures identify the event, and how many events occurred during the month.
65 y/o male, thrombocytopenia, platelets ordered → fresh frozen plasma administered, no ill side effects

47 y/o male, ↓platelet count, followed up in clinic & platelet count reordered → critical lab value, lab result not communicated appropriately, Expired 2 days later

48 y/o male, s/p renal biopsy, Hemoglobin ↓4.0, blood ordered but never administered, Code Blue → Expired

50 y/o female, s/p thyroidectomy, c/o difficulty breathing & swelling to throat → no orders initiated, Code Blue → Anoxic brain injury

42 y/o male, bee sting → shortness of breath & difficulty swallowing, administered high dose of Epinephrine via incorrect route, patient experienced possible STEMI
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Training

- What is the institutions expectation?
- How (specifically) is it demonstrated to employees?
Focus on the process as well!
How do you do your work?
Train (and create your policies) based on how you do your work.
ARMC’s Expectation:

EVERY TIME YOU INTERACT WITH PATIENT!!

You will:

• Use minimum of Name and Date of Birth (DOB)

• Do not ask by “leading”

• Do not refer to patients as room numbers (“the patient in 5102”)
Specifically, we want you to say/do the following:

**Say:**
- Hello, my name is_________

**Do:**
- reach for and read the patient’s ID band

**Say:**
- Can you tell me your name and date of birth please?

**Do:**
- Verify patient’s verbal response against ID band
Basic Bedside Safety Skills Simulation

Process: (nursing)

1. Basic Skills Identified
   - Hand-Hygiene
   - Patient Identification
   - Medication Administration Process
   - High Risk Medication Administration Process

2. Simulation Session Construction
   - Each process mapped from policy/protocol
   - Observer check list created
   - Volunteers for patients
   - Pharmacy created test patient ID for pyxis access/scanning
2 patient Identifiers Data after Sims. Training

2 Patient Identifiers

Goal

Patient Safety Rounds

Patient Safety Rounds + Patient Safety Reps

Nursing SIM Training

98%
Hand-Hygiene Data after Sims Training

Hand Hygiene

Goal: 100%

Patient Safety Rounds: 95%

Patient Safety Rounds + Patient Safety Reps: 95%
The Heart of a Healthy Community
Communication

- There are some things that good communication will not fix.
- There are some things that good policies will not fix.
ABO Compatibility

- Trauma patient in OR.
  - ABO = AB
- Massive Transfusion Protocol initiated
- Blood bank tech removes type A FFP from fridge by mistake and sends
- Member of anesthesia team has prior experience from another institution.
- Does not check with BB before transfusing

What is our institutions knowledge regarding ABO compatibility?
## DONOR PRBC

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## DONOR FFP

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ABO Quiz Results

ABO Quiz Results- New Resident Orientation
June 2014

% RBC Correct Answers (residents)
% FFP Correct Answers (residents)

Type AB  Type A  Type B  Type O  Overall Test

Comunale, ME et al. J. Patient Safety. 6/15 (published ahead of print)
ABO Quiz Results

- Nursing
- Surgical Techs
- Physicians
# ABO Cognitive Aid

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<th>Recipient Group</th>
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# ABO Cognitive Aid

## ABO Group of Compatible FFP

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Form Number - 73100267
## ABO Cognitive Aid

1. Circle Patient & Donor ABO Blood Type
2. Draw lines across for patient and down for donor types. The box where the lines cross **must** have STAR to indicate ABO Group compatible.
3. If box where lines cross has no star, **STOP! Contact the Blood Bank and do not infuse** until discrepancy is resolved.
62 y.o. male in OR for ORIF R hip.

Uneventful induction/antibiotic admin.

During a-line placement, team notes red blotches.

Hypotension/tachycardia unresponsive to phenylephrine ensue.

Allergic reaction diagnosed.
### COGNITIVE AIDS FOR CRISIS MANAGEMENT

**TABLE OF CONTENTS**

- RESPIRATORY ACIDOSIS/METABOLIC ACIDOSIS 7
- AMNIOTIC FLUID EMBOLISM 8
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- BRONCHOSPASM 11
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- DELAYED EMERGENCE 13
- DENTAL INJURY CHECKLIST 14
- DIFFICULT AIRWAY UNANTICIPATED 15
- FIRE IN OPERATING ROOM CHECKLIST 16
- HEMORRHAGE/MTP 17
- HYPOTENSION 18
- HYPOXEMIA 19
- LATEX-INDUCED HYPERSENSITIVITY REACTIONS 20
- LOCAL ANESTHETIC TOXICITY 21
- MALIGNANT HYPERTHERMIA 22
- MYOCARDIAL ISCHEMIA 23
- OXYGEN FAILURE 24
- PNEUMOTHORAX 25
- POWER FAILURE 26

**ACLS**

- ASYSTOLE 1
- BRADYCARDIA-UNSTABLE 2
- PEA 3
- TACHYCARDIA-UNSTABLE SVT/STABLE 4
- VF/VT 5
- **PALS** 6
**Cognitive Aids**

**ANAPHYLAXIS**

By Stanford Anesthesia Cognitive Aid Group

**Signs**
- Some signs may be absent in an anesthetized patient:
  1. Hypoxemia, difficulty breathing, tachypnea
  2. Rash/ hives
  3. Hypotension (may be severe)
  4. Tachycardia
  5. Bronchospasm/wheezing
  6. Increase in peak inspiratory pressure (PIP)
  7. Angioedema (potential airway swelling)

**Call for Help**
- Inform Team
- Prepare Epinephrine 10 μg/mL or 100 μg/mL
- Consider Pausing Surgery

**If patient becomes pulseless, start CPR, continue Epinephrine 1 mg IV boluses and large volume IV fluid. Go to PEA**

**Rule Out**
- Pulmonary embolus
- Myocardial infarction
- Anesthetic overdose
- Pneumothorax
- Hemorrhage
- Aspiration

**TREATMENT**
1. Discontinue potential allergens: colloid solutions, blood products, latex products, antibiotics
2. Discontinue volatile anesthetic if hypotensive. Consider anesthetic agent
3. Increase to 100% O₂, high flow
4. Administer IV fluid bolus. May require many liters!
5. Administer epinephrine IV in escalating doses every two minutes. Start at 10-100 μg IV and increase dose every 2 minutes until clinical improvement is noted. May require large doses > 1 mg. Consider early epinephrine infusion
6. Consider vasopressin 2-4 units IV
7. Treat bronchospasm with albuterol and epinephrine (if severe)
8. Give H₁ antagonist (e.g., Diphenhydramine 25–50 mg IV)
9. Consider corticosteroids (e.g., Methylprednisolone 125 mg IV) to decrease biphasic response
10. Consider early intubation to secure airway prior to development of angioedema of airway
11. Consider additional IV access and invasive monitors (arterial line)

**POST EVENT**
- Consider the following interventions following the event:
  1. Send serum tryptase level (peaks ~ 90 min post-event)
  2. If the event was moderate to severe, consider keeping patient intubated and sedated
  3. Can recur with biphasic response: Consider monitoring patient for 24 hours post-recovery
  4. Refer the patient for postoperative allergy testing
Cognitive Aids

ARMC CODE BLUE COMMITTEE
ACLS Algorithms and Treatment Modalities
Cognitive Aids

PULSELESS ELECTRICAL ACTIVITY

By Stanford Anesthesia Cognitive Aid Group

PULSE

CPR:
1. ≥ 100 compressions/minute, ≥ 2” Deep
2. Allow complete chest recoil
3. Rotate Compressors q2 Min

Assess CPR Quality, Improve IF:
- ETCO₂ < 10 mmHg
- Arterial line Diastolic < 20 mmHg

CALL FOR HELP CODE CART INFORM TEAM

1. In OR: Turn OFF tape; increase to 100% O₂, high flow
2. Ventilate 10 breaths/minute, do not over ventilate
3. Ensure IV access (or consider intraosseous)
4. Epinephrine – 1 mg IV push q3-5 minutes
5. Consider Vasopressin – 40 units IV (1, could replace 1’st or 2’nd epinephrine dose)
6. If rhythm changes to VT/ VF (shockable rhythm) → Immediate Defibrillation. Go to VT/VF event.
7. Consider common perioperative Dcc: Hemorrhage, Anesthetic overdose, Septic or other shock states, Auto PEEP, Anaphylaxis, Medication error, high spinal, Pneumothorax, Local anesthetic toxicity. Vagal stimulus, Pulmonary Embolus
8. Go to next page H’s and T’s details

Find and Treat Cause – H’s and T’s: Expanded on next page

1. Hypokalemia
2. Hypocalcemia
3. Tension pneumothorax
4. Hyponatremia
5. Hyperkalemia
6. Hemorrhage
7. Tamponade - cardiac
8. Hypo- or Hyperthermia
9. ABC rule-out: Hyperkalemia
10. Hyperheparin

FIND AND TREAT CAUSE: H&T’s

FOR ASYSTOLE AND PULSELESS ELECTRICAL ACTIVITY

Continued from prior page

1. Hypovolemia: Administer rapid bolus of IV fluid and check hemoglobin/hematocrit. Give blood for anemia or massive hemorrhage. Consider relative hypovolemia. Auto-PEEP – disconnect circuit. High spine, or shock states (e.g. sepsis) – Go to relevant specific event.
3. Tension pneumothorax: Unilateral breath sounds, possibly displaced trachea and bilateral breath sounds (late sign). Perform emergent needle decompresion (2” intercostal space at mid clavicular line) followed by chest tube placement. Call for shaft x-ray, but do not delay treatment. Go to Pneumothorax event.
4. Thrombosis – Coronary: Consider using transesophageal TEE or transcranial TTE echocardiography to evaluate wall motion abnormalities of the ventricles. Consider emergent coronary revascularization. Go to Myocardial Ischemia event.
5. Thrombosis – Pulmonary: Consider TEE or TTE to evaluate right ventricle. Consider thrombolytics or pulmonary thrombectomy.
6. Toxins (e.g. Intox): Consider medication error. Confirm no infusions running and veriﬁe anesthetic off. Consider local anesthetic toxicity event.
7. Tamponade – Cardiac: Consider placing TEE or TTE to rule out. Treat with pericardiotomy.
8. Hypothermia: Active warming by forced air, increase in room temperature. Consider cardiopulmonary bypass.
9. Hyperthermia: Consider Malignant Hyperthermia. Call for Anh Cart. Treat with Captopril immediately, ice pack over 3-5 min. Go to Malignant Hyperthermia event.
10. Obtain ARB to rule-out:
   - Hypokalemia: Osmotic Diuretics (1 g IV, D50 1 Amp IV 25 g)
   - Hyperglycemia: 15% dextrose, insulin, volume, volume
   - Peptic Ulcer: Prostaglandins, Octreotide, H2 Blockers
   - Hyponatremia: 3% saline, 5%/10% dextrose
   - Hyperkalemia: 10% calcium gluconate 500 mg IV, 25 g
   - Hypocalcemia: 10% calcium gluconate 500 mg IV, 25 g
   - Hypophosphatemia: Calcium chloride 1 g IV
Questions?