

Tips & Tricks to Run the OR like a Machine

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- J&J Ethicon / Google / Verb - robotics consultant
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A Well-Oiled Machine



Parallel Processing



The ability to carry out multiple operations or tasks simultaneously

Defining RN Roles improves efficiency

<u>PRIMARY CIRCULATOR</u>	<u>ASSISTING CIRCULATOR</u>
*INTERVIEW	*OPEN SUPPLIES
*ASSIST ANESTHESIA	*COUNT
*ASSIST WITH POSITIONING	*REVIEW RESOURCE MAP WITH SCRUB
*HOOK UP EQUIPMENT	*HOOK UP EQUIPMENT
*COMPUTER/PAPERWORK	*RUNNER FOR THE ROOM
*TRY NEVER TO LEAVE THE ROOM	*PICK NEXT CASE WHEN APPROPRIATE
*INTERVIEW NEXT PATIENT	*RESTOCK OMNI CELL
*PATHOLOGY	*DELIVER FROZEN TO PATHOLOGY

Parallel Processing

- Some organizations are utilizing a parallel process to improve operating/procedure room turnover times. A parallel process is when two separate activities with two entirely separate groups of staff are performed simultaneously. A parallel process is not multitasking. For the count process, two different circulators will be needed: one dedicated to the count process and one dedicated to patient care” (AHRQ, 2010, Section 12).
- The baseline count will be performed before the patient is brought to the operating/procedure room unless parallel processing is used. When parallel processing is used, two different circulators will be needed: one dedicated to a focused count process and one dedicated to focused patient care (AHRQ, 2012, Section 17).
- There is evidence that distractions, multitasking and conflicting priorities, especially during critical cognitive steps, will, with high predictability, lead to an error (AHRQ, 2012, Section 17).



Preparation: Workflow Process to Improve Efficiency

Evening before case:

- OR evening crew picks the first scheduled case using the preference card.
- Evening crew member makes notes on the preference card of any needed supplies/instruments/equipment not available and signs their name to the map.
- Evening crew sets up the OR rooms for the next day including positioning supplies

Day of surgery:

- 6am- patient arrives for 7:30am case.
- (Following cases arrive 1.5 hours before scheduled OR time.)
- Patient is seen by Registration and then escorted into the Prep area where they are interviewed and assessed by the Prep RN.

6:30am:

- 2-4 OR staff members arrive to open the unit. (The unit is stocked with disposable supplies overnight and the instrument trays that were being cleaned and sterilized the evening prior are now available.)
- The early morning crew verifies room set up, connects cables, turns on equipment, and ensures that all needed supplies/instruments/equipment that the evening crew identified are available.

7am:

- Surgeon and Anesthesiologist arrive to see their patient and complete paperwork. OR staff arrive.

7:30am: On-time start

Who's in control here?



photo credit: <http://designawards.core77.com/Commercial-Equipment/30647/da-Vinci-Xi-Surgical-System>

Is there a hierarchy in the operating room?



photo credit: <https://katrinainjapan.files.wordpress.com/2013/06/pyramid1.jpg>



photo credit: https://atans1.files.wordpress.com/2011/07/pyramid_304.jpg

What's this a picture of?



Roles of the Team

- Its important to understand how to do everyone else's job to some extent
- Circulating Nurses
- Bedside Assist
- Surgical Technologist
- Exception: Anesthesia and Surgeon
 - ➔ but learn the steps of their roles, so you may support them
- Nurses and Allied health: We are the support staff holding up the base of the pyramid



https://s3.amazonaws.com/lowres.cartoonstock.com/medical-doctor-hospital-surgeon-surgery-nurse-bbon75_low.jpg

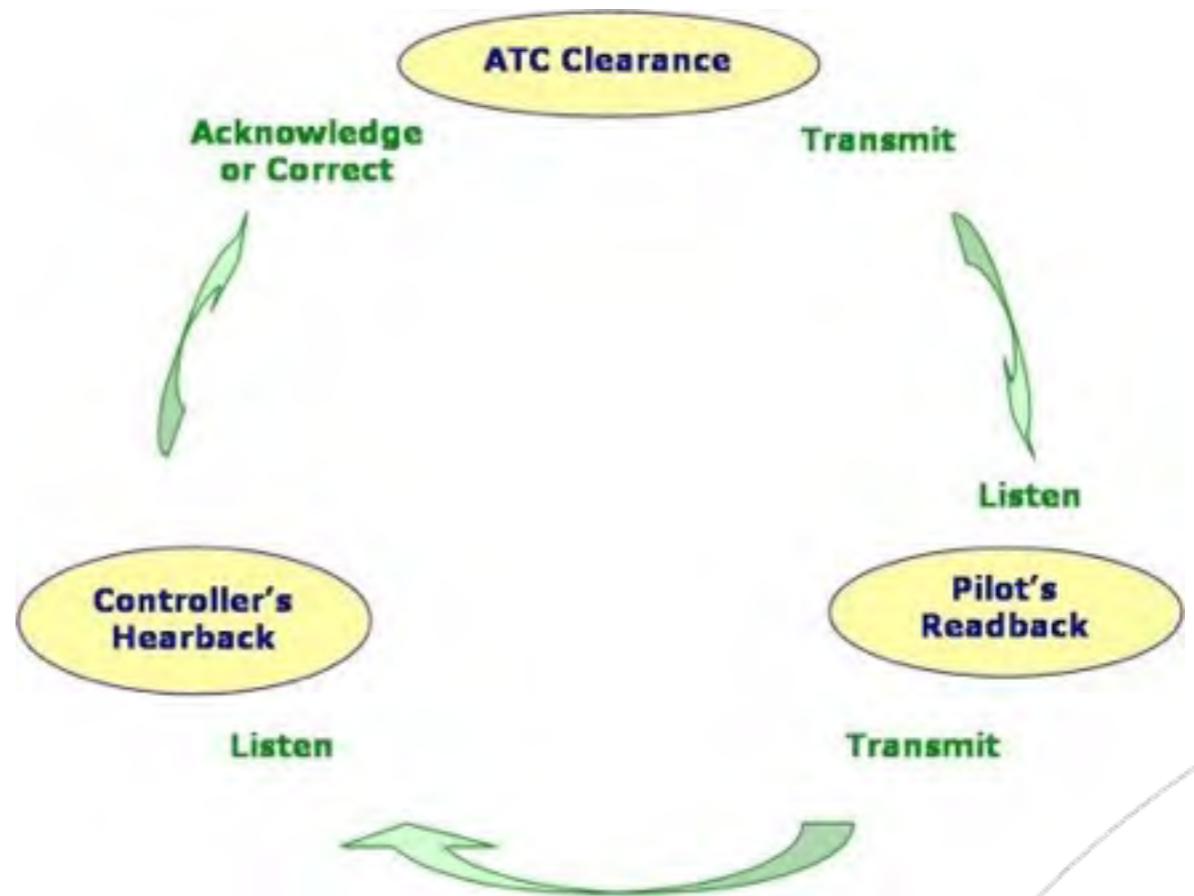
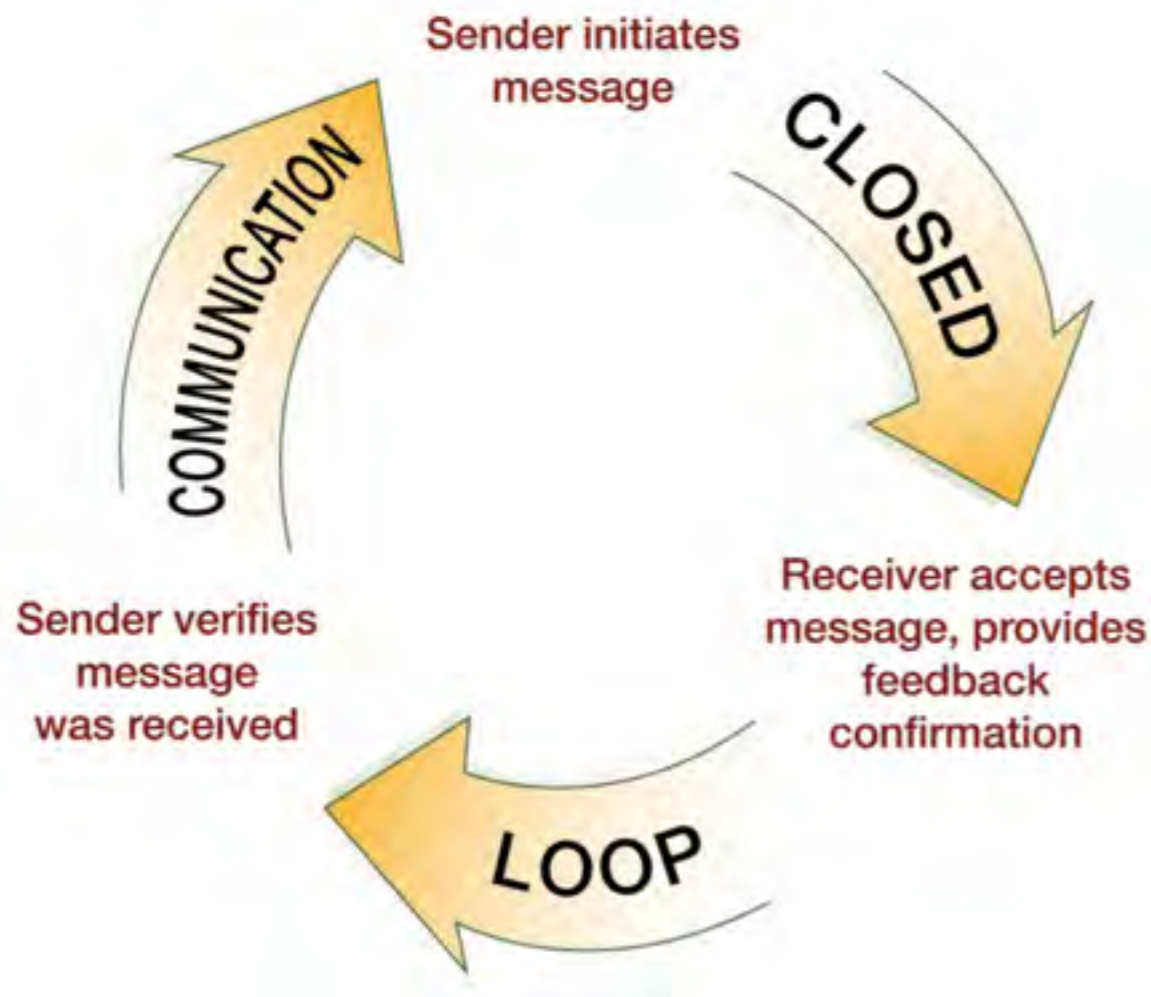
Communication



<http://designawards.core77.com/Commercial-Equipment/30647/da-Vinci-Xi-Surgical-System>

Closed-Loop Communication “Read Backs”

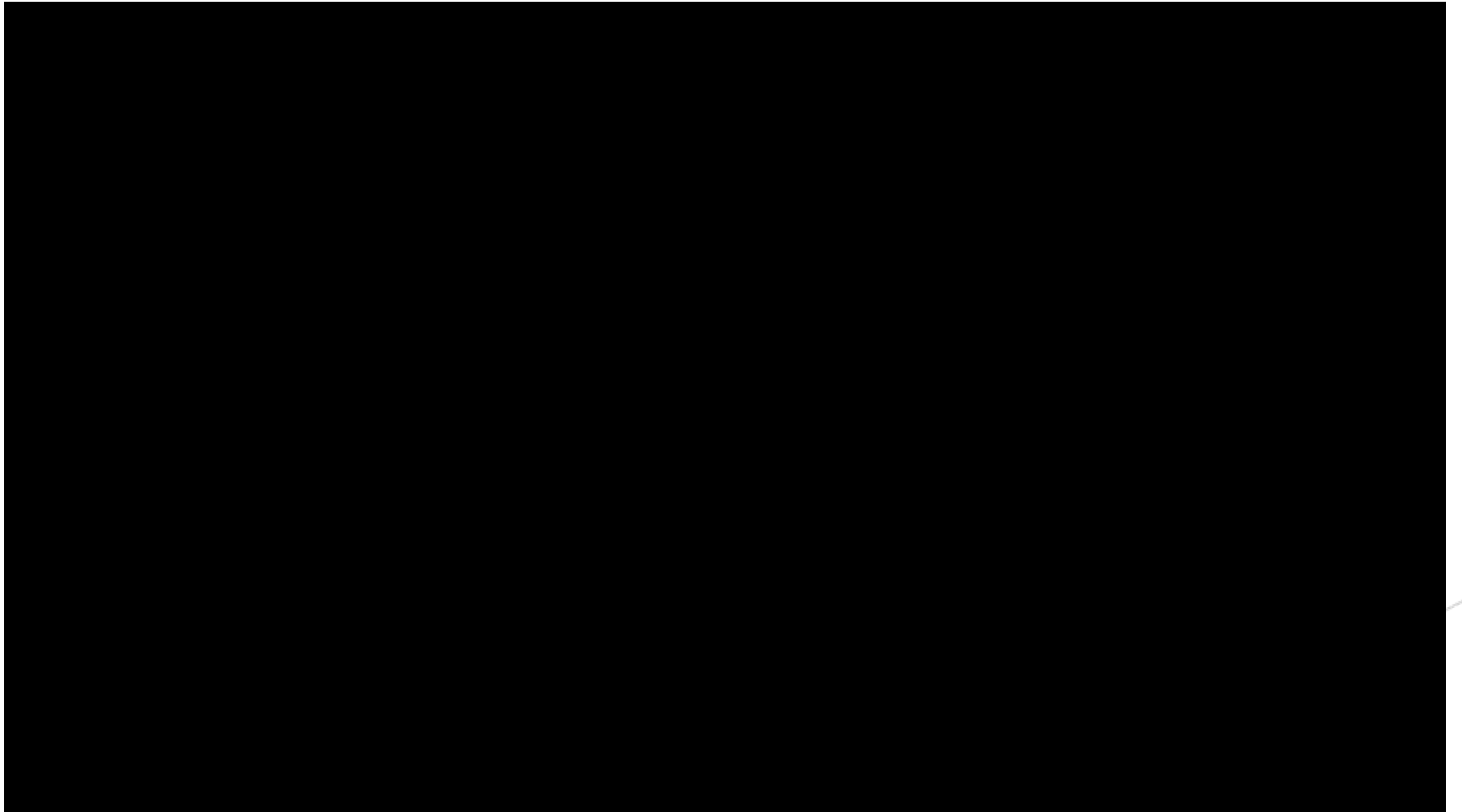
Do you know another field that uses closed loop communication?



<http://www.cdc.gov/yhf/ebola/hcp/ppe-training/img/observer/close-loop.png>

http://www.skybrary.aero/images/thumb/PCCom_Fig1.jpg/500px-PCCom_Fig1.jpg

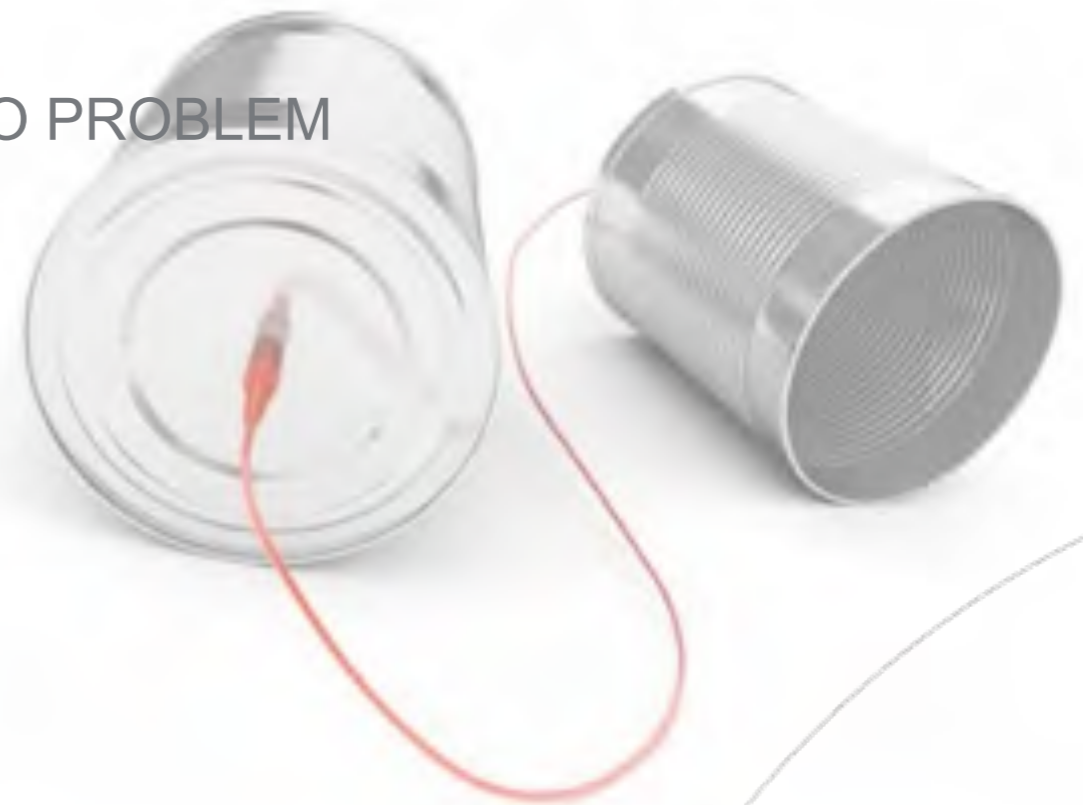
What's a Read-Back?



<https://youtu.be/VAyxElotT1s>

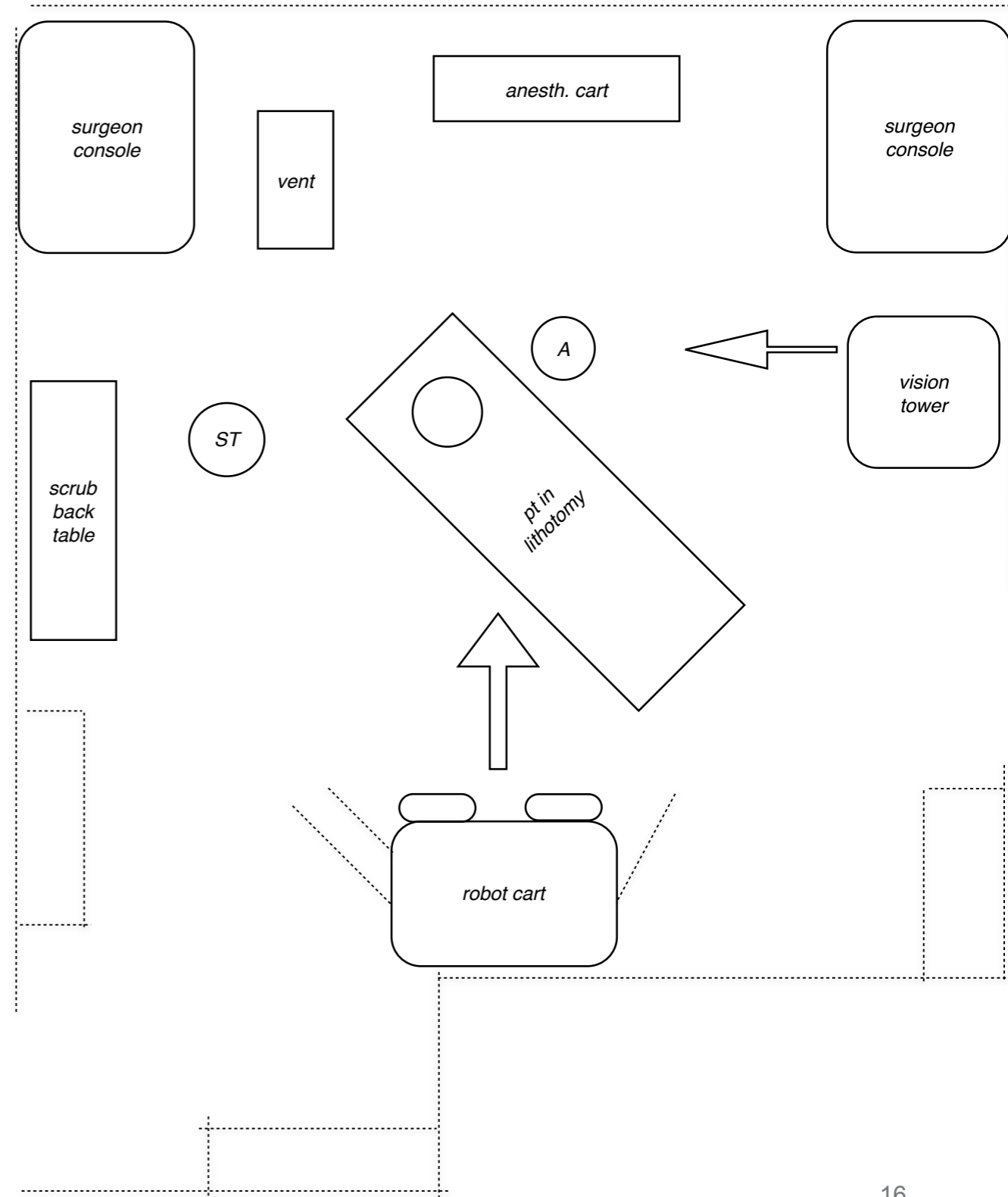
Read-Back

- Communication is key!
- Read-backs: A “read-back” is defined as the immediate repeating back of a request or a command. Its done to verify that a person has been heard, as well as to request clarification, show your understanding, and to confirm the resulting action being taken.
- Example:
 - Surgeon: “Can you please unlock the bed so we can turn it?”
 - Anesthesia: “I’m unlocking the bed”
- Unacceptable Read-Backs: YES, YEAH, OKAY, SURE, NO PROBLEM
- Ask questions if you need clarification on a request



Know the Room Layout for each case

- Set up the equipment components the night before
 - Prepare auxiliary equipment (cysto tower, ultrasound, etc) if surgeon will be using it
 - Prepare ahead!
 - Keep sterile areas together
 - Turn the Table rather than repositioning patient cart between cases
 - Make sure bedside assist can easily see monitors and hear the surgeon
 - Diagrams help staff know how to prepare
 - create a binder of layouts
 - Include positioning supplies table
 - ▶ Tape
 - ▶ Stirrups
 - ▶ Mattress pad
 - ▶ Gel rolls
 - ▶ Axillary roll
 - ▶ Eggcrates
- ★ Efficiency for room turnover



Staff Competency

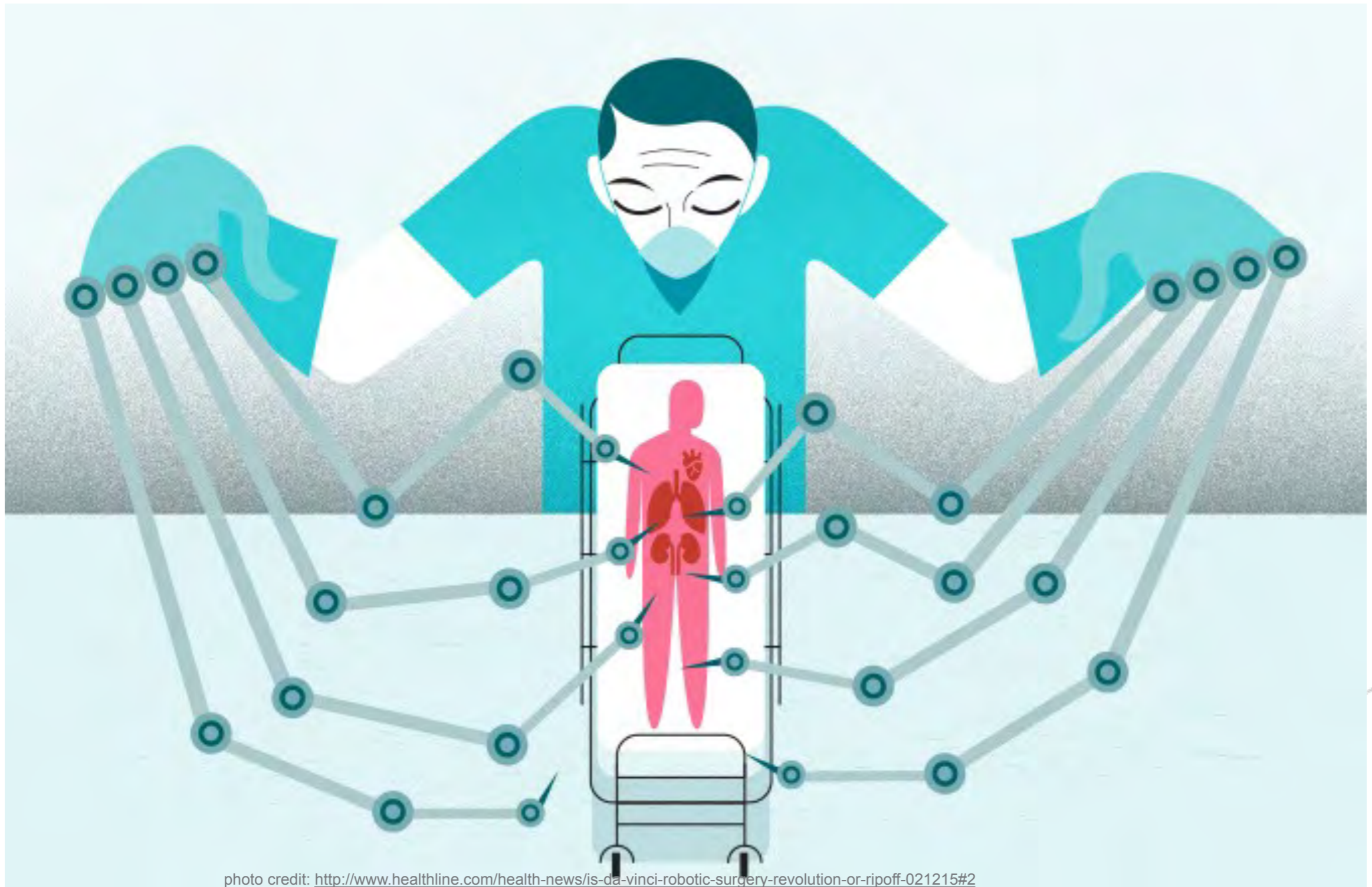


photo credit: <http://www.healthline.com/health-news/is-da-vinci-robotic-surgery-revolution-or-ripoff-021215#2>

Circulating RN Competency Checks and On-Going Training

- Train a Solid Team
- Regular in-service sessions and troubleshooting workshops

Da Vinci SI Critical Elements	check when completed	Date/Initial
Successfully completes the Intuitive Online Training Module for the da Vinci SI Surgical System (www.davincisurgerycommunity.com).	()	
Demonstrates plugging in all electrical parts of robotic system correctly and connecting the three components of the robotic system appropriately.	()	
Powers up system and demonstrates how to verify correct system settings.	()	
Verifies that Camera and Camera Cables are correctly attached.	()	
Can successfully complete White Balance and Calibration of both the 0 degree and 30 degree scopes.	()	
Can properly identify and demonstrate the use of the Patient Cart Arms, Port Clutch and Clutch buttons to position the cart for Draping, Docking and Loading of the instruments.	()	
Demonstrates proper draping of patient cart arms and camera system.	()	
Demonstrates and communicates OR room considerations necessary for successfully docking the system including overhead lights, patient positioning room traffic and vision cart location.	()	
Can identify, verbalize and demonstrate the importance of and the positioning for the Patient Cart "Sweet Spot"	()	
Demonstrates driving the patient cart for docking.	()	
Can verbalize proper pre insertion position for the Endowrist instruments. Demonstrates proper placement and removal of instruments on the robotic system including demonstration of the "Guided Tool Change".	()	
Can demonstrate usage of all vision cart monitor tabs. Ensure understanding of each.	()	
Can verbalize the location of robotic icons and their correct interpretation.	()	
Can locate and override fault alarm. Can locate event logs.	()	
Can locate da Vinci reference manual and da Vinci customer service phone number.	()	
Identifies: 1) Location of emergency wrench 2) Application of use of emergency wrench 3) Method of use in emergency	()	

Competency continued...

Da Vinci SI Critical Elements	check when completed	Date/Initial
Verbally identifies: 1) Emergency situations of power loss or non-recoverable fault 2) Corrective actions of stabilizing	()	
Verbalize and demonstrate steps to preparing system to power off including patient cart storage. Successfully power system off.	()	

Bedside Assist Competency Check

ROBOTIC PA COMPETENCY CHECKLIST				
	Not Preformed	Below Average	As Expected	Excellent
ROBOTIC SETUP				
Drape Camera, White Balance, Calibrate				
Directing Robot into Proper Position				
Position Arms for Optimal Use				
TABLE / ROOM SETUP				
Utilization of Proper Technique to Open Items for Scrub Nurse				
Knowledge of Instruments Required				
Position Monitors and Room Lights As Needed				
Position OR Table As Needed For Correct Robot Docking				
PATIENT SETUP				
Gather Items for Positioning (eggcrates, arm board, cavioln, etc)				
Direct / Participate Positioning				
INTRAOP SKILLS				
Understanding Port Placement				
Introduce Ports Using Safe Technique				
Dock Robotic Arms				
Introduce Camera and Robotic Instruments				
Safely Introduce Laparoscopic Instruments and Needles				
Utilization of Suction, Bowel Grasper to Provide Exposure				
Utilization of Endocatch Bags / Graspers to Capture Specimen				
Hand Off Specimens Correctly to Nurses with Correct Label				
Utilization of Endoclose Device to Close Fascia				
Introduce Drains and Secure with Drain Stich				
POST ROBOTIC PROCEDURE				
Undock Robotic Arms And Instruct Circulator To Drive Robot				
Assist in Closing Fascia and Skin				
Assist in Transferring of Patient to PACU				
COMMUNICATION				
Utilization of Clear and Loud Read-Backs Throughout Case				
Identify and Informs Surgeon of Collision with Robotic Arms				
Informs Surgeon of ALL Needle Entry and Removal				
Involved in Counting of Foreign Body Inserts Throughout Case				
Informs Surgeon of Internal Collisions with Assistant Instruments				
Communications Effectively During Troubleshooting				

Bedside Assist Competency Check - another version

ROBOTIC COMPETENCY SKILLS EVALUATED:

- 1. Robot Setup-** Drape the robotic arms. Identify scope to be used for specific case (0 vs 30) degree. Drive the robot to proper position, or be able to offer directions to the driver. Position arms of robot for optimal use (fan arms appropriately and use patient clearance as needed. Hold laparoscopic camera following surgeon appropriately for port placement, adhesiolysis, and other laparoscopic portions
- 2. Table Setup-** Understand proper trays for each case. Use proper technique to open items for scrub nurse/tech
- 3. Patient Setup-** Gather items for positioning (eggcrates, pink pad, tape, cavioln, arm board, pillow, etc) be able to recognize if an item is missing and get it, ask for it. Direct/participate in correct positioning. Safely chloraprep skin (announce time of completion of prep for OR team - allow 3 min drying time)
- 4. Intra-op Skills –**Understand port placement for all services. Know how to introduce ports using safe technique and minimal positional resistance to robot arms. Dock robotic arms. Make sure no "tenting" of skin, keep all ports with no resistance/tension. Introduce camera and robotic instruments – know which instruments are mounted on which arms. Safely introduce and present laparoscopic instruments and needles to console surgeon. Use suction, bowel grasper, needle drivers and other instruments to provide optimal exposure, as directed by attending. Know how to use endocatch bags, and laparoscopic grasper to capture specimens. Hand off specimens correctly and to guide nurses/techs to label them. Use Endoclose/Carter-Thompson/suture-ease device for closing fascia laparoscopically. Introduce drains and secure with drain stitches as directed. Can safely assist and perform morcellation using Storz and BlueEndo mechanical morcellators. Can safely bag a large specimen into Alexis containment system bag for hand morcellation.
- 5. Room Setup-** Remind circulators to enter times as needed. Know which instruments (Endocatch bags, robotic instruments, needles, Floseal etc.) will be needed for the case and ensure circulators have the instruments available. Position monitors and room lights as needed for case. Check OR table for proper position, setup problems
- 6. Post robotic procedure-**Undock robotic arms and safely instruct circulator to drive robot away. Assist in closing wound, fascia and skin. Ask nurses for clear count if a sponge/needle was introduced into abdomen. Help with moving patient to bed and transport to PACU
- 7. Communication-** Uses clear and loud read-backs to the surgeon throughout the entire case, informs surgeon of collisions with robotic arms, informs surgeon of positioning concerns related to robotic arms, informs surgeon of ALL needle entry and removal, understands size and shape of needle for various ports, keeps involved in counting of foreign bodies inserted through trocar, informs surgeon of internal collisions with the assistant instruments, informs surgeon of trocar displacement, communicates effectively and step-wise during troubleshooting

Robotic Case 1:

Procedure(s): _____

Date: _____

Attending Surgeon: _____

Manager or Surgeon evaluating: _____

ROBOTIC COMPETENCY SKILLS see page 1 for details on each skill	PA MANAGER or ATTENDING INITIALS sign only if performed to safe and acceptable level	COMMENTS / FEEDBACK
<u>Robot Setup</u>		
<u>Table Setup-</u>		
<u>Patient Setup</u>		
<u>Intra-op Skills</u>		
<u>Room Setup-</u>		
<u>Post robotic procedure</u>		
<u>Communication</u>		
Final Sign off: -PA understands indications, contraindications, and complications -Interprets procedural studies and steps appropriately -Procedure/Task performed under my direct visual supervision (capable of performing autonomously under general supervision) -PA has met the requirements to perform this procedure under general supervision		

Consistency

- “Do it the same way every time”

- ✓ Room layout
- ✓ Positioning
- ✓ Prep and Draping
- ✓ Cord Management
- ✓ Port placement
 - ▶ entry and port configurations
- ✓ Docking
- ✓ Instrument choices
- ✓ Sutures and hemostatic agents
- ✓ Specimen extraction method



- Team can anticipate the next step and be ready —> efficiency
- When it's not the “same way”, explain to the team why this time it's different or ask surgeon why

When the case gets tense...

- We have a tendency to want to shut down, be quiet, not make waves
- That is when it is MOST important to communicate!
- The console can be a physical barrier, and an emotional detachment
- Talk to the surgeon, so they feel connected to the room and to the patient

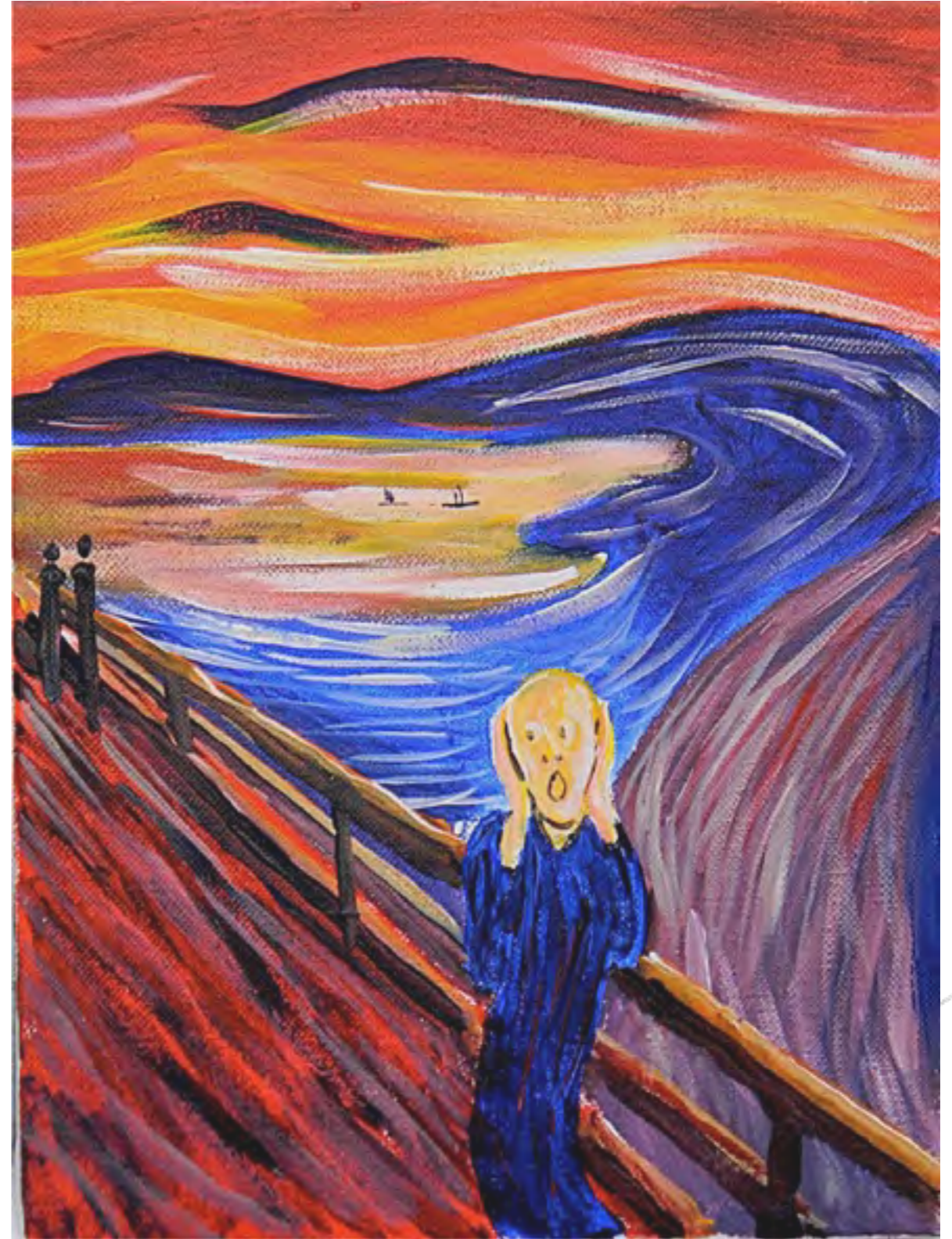
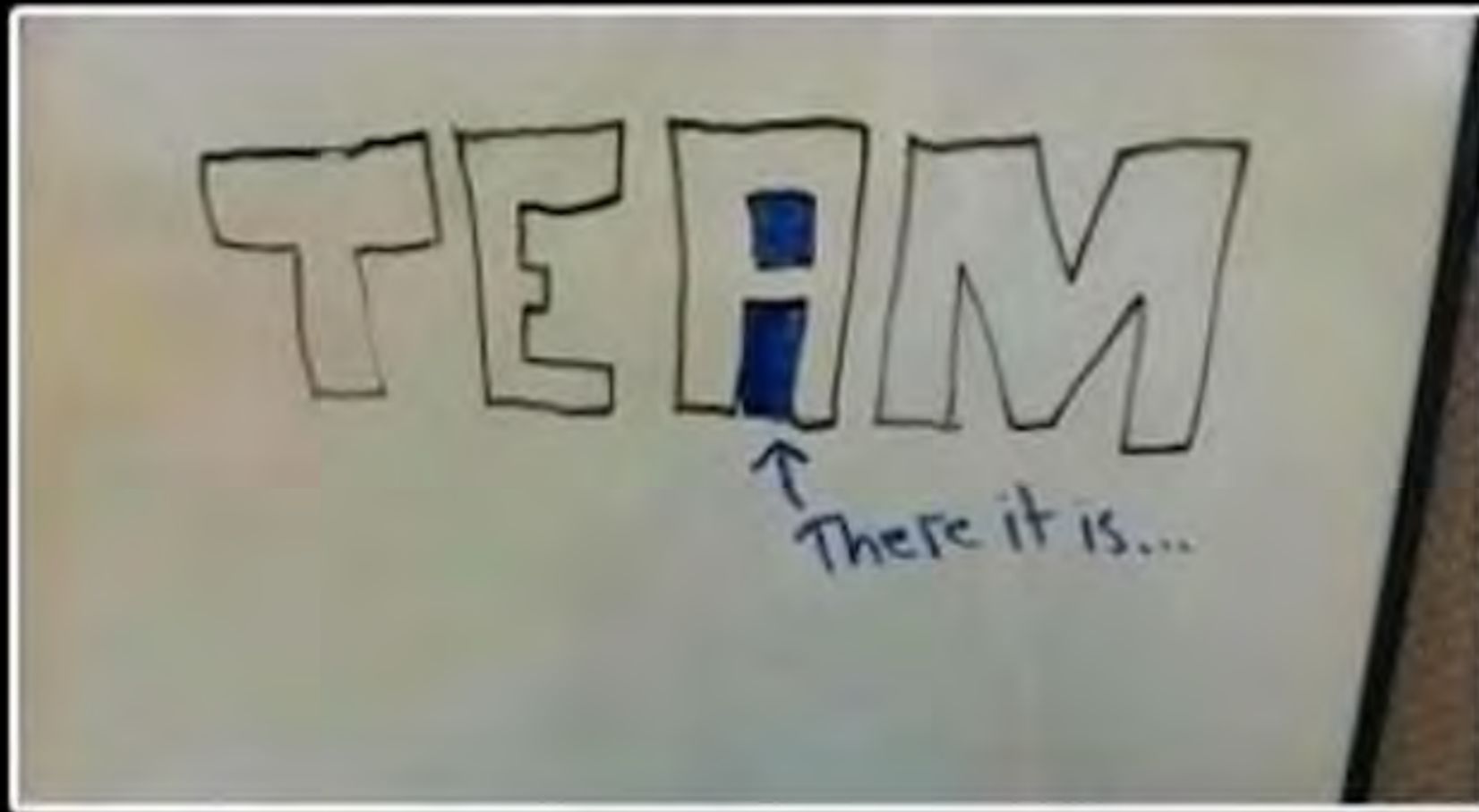


photo credit: <http://www.bearhandsart.com/wp-content/uploads/2012/05/the-scream.jpg> Edvard Munch

Cord Management

- Keep your sterile field clean and organized to find your cords and instruments in a pinch
- Use pockets of various sizes and staplers
- Consistent method
- Take surgeon's instrument usage into account in your design
- Keep sterile drapes free of tension





THE "I" IN TEAM

NOT A COINCIDENCE IT HIDES IN THE "A" HOLE

photo credit: <http://ifunnyweb.com/wp-content/uploads/funny-no-i-in-team.jpg>

Thank you for listening!



References

Agency for Healthcare Research and Quality. (2010). *Perioperative protocol*. Retrieved from National Guideline Clearinghouse: <http://www.guideline.gov>

Agency for Healthcare Research and Quality. (2012). *Perioperative protocol*. Health care protocol. Retrieved from <http://www.guideline.gov/content.aspx?id=39387#Section442>