Mental Anticipation:  
A Novel Approach to 
Laparoscopic and Robotic Simulation 
Addressing Quality Improvement 
and Patient Safety

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Disclosures

• Intuitive Surgical, Inc.

Learning Objectives

Following this presentation you will be able to:
– Define the concept of Mental Anticipation
– Breakdown a surgical procedure into discrete patient-centered steps
– Identify the critical patient quality and safety elements in laparoscopic and robotic surgery
– Lead a patient-centered laparoscopic/robotic simulation
Why Simulation?

- Avoid “practicing” on patients
- Steep Learning Curves
- Structured, Measurable, Stepwise learning

Apprenticeship Model ➔ Preparation Model

- Patient Safety

Uses in OB/GYN

- Trauma/Emergency Drills
- Surgical skills
  - Suturing labs
  - Laparoscopic/Robotic trainers

  Focus is on TECHNICAL skills

Standard Surgical Teaching Model

Knowledge Development ➔ Dry Lab/Case Observation

Skill Development ➔ Second assist

Skill Acquisition/Honing ➔ First Assist/Surgeon
Thought Exercise

How do we PREPARE our learners?

See one, do one, teach one?

Mental Anticipation: PRACTICE THINKING

Mental Anticipation
• FMRI studies
• The robotic surgery conundrum: how do we teach this?
  – Traditional surgical teaching not applicable
  – “Console Vision”
Skill Development

Mental Anticipation Simulation

- Residents grouped by year; Limit 5 per group
- OR/Simulation Space
  - OR table
  - Yellowfins/stirrups +/- Bean Bag, etc
  - Laparoscopic tower
  - Willing participants
- *How it works…*

Your Turn!

- Goal: Outline a stepwise checklist of all actions AND the ACCOMPANYING THOUGHT PROCESS you take to complete the procedure
  - Think about steps ensuring patients safety
  - Consider your Dictation steps as a guide

No step is too small!
... How do you THINK a procedure?!
And discuss!

Our List

Steps on entering OR

a. Patient positioning on table, safety strap
b. Removal of bed
c. SCIDs on and working
d. Open gloves, Antrak Yellowfins
e. Confirm correct equipment available
f. Patient positioning
   i. Place patient on table, position feet in stirrups
g. EUA
h. Prepping

Surgical Set Up

a. Draping
b. Foley
c. Manipulator placement
   i. V-Care, Haney, Ram-Rho
d. Gloves change
e. Set up above
   i. Light cord, camera, scope
   ii. Bipolar and Monopolar units
   iii. Suction/Irrigation
   iv. Instrument pocket
   v. Plane-Away

Our List

Surgical Steps

a. Planning of camera port
b. Patient position: supine
c. Marcaine
d. Vessus
   i. Suction, OG tube
   ii. Double click
   iii. Saline drop test
   iv. Ineffective Opening pressures
f. Patient position: Trendelenburg
f. Trocar placement
   i. Direct visualization, perpendicular
g. Secondary ports placement
   i. ASIS – 4up, 4over
   ii. Round ligaments
   iii. Marking
   iv. Perpendicular placement, direct visualization
h. Procedure
   i. Choice of instruments
   ii. Traumatic vs atraumatic
   iii. Review of anatomy
i. Closure
   i. Deafflation
   ii. Watch for bleeding
   iii. Removal of incises under direct visualization
Future Goals

• Systematically incorporate Mental Anticipation Simulation
• Wide possible applications
• Paradigm shift in medical teaching

Selected References