The Fundamentals of Robotic Surgery Validation Trial
Team Training and Communication Skills

Part I: Task-specific Proficiency-based Training and Assessment

INTRODUCTION

Team training (coordination) and communication skills are especially critical in robotic surgery for two principle reasons: 1) The surgical robot is an extraordinarily complicated and very large (and potentially dangerous) system and 2) once the surgeon sits down at the console and places his/her head to the eye pieces, the surgeon is literally 'blind' as to what is happening in the entire operating room (OR) – the only view the surgeon has is the surgical field ***inside*** of the patient. For this reason, it is essential that very precise (unambiguous) language must be used, and repeated checking must occur, in order to provide the highest quality of safety - not only for the patient, but also for the assistant, nurses and anesthesiologist. This is due to the large size of the robotic arms, the need for the staff to crowd around the robot, and the limited space in the OR.

There are two portions to the team training and communication skills:

1. Task-specific training to proficiency - each task must be completed without error before starting the next task, regardless of the number of trials that are required to reach the value for the 'proficiency' benchmark.
2. Full-scenario evaluation – full clinical scenarios, which include some or all of the specific tasks. Each scenario will be conducted to insure the surgeon understands the tasks in the context of a simulated clinically relevant situation.

Note that each task is comprised of one or more basic skills (for example, suturing requires the skills of ambidexterity, precision, wristed motion, etc.).

Beginning with the Task-specific training, which occurs prior to the full scenario assessment, each surgeon must be trained (and assessed using formative feedback by the rater) on each of the principal tasks related to teamwork and communication. Each task should be repeated by the surgeon until the surgeon reaches the benchmark criterion of 'proficiency' such that the surgeon has completed the task correctly and without error. Each task must be completed to proficiency before going on to next task. This training and assessment should occur just preceding and in the same place as the full scenarios. The Part 1 'task specific training/assessment' only requires one person, called the Rater. Only Part 2 'full scenario' will require the confederates (we will use the term "actors") who represent the other members of the team - the anesthesiologist or certified registered nurse anesthetist (CRNA), first assistant, scrub nurse, and circulating nurse. The rater will conduct the individual task assessments without the use of actors. The rater will play the role of the actors as needed for each task during the task-specific training. There are suggested 'scripts' for conducting the task training/assessment.

The tasks are based upon the TeamSTEPPS tasks which were commissioned and approved by the Agency for Healthcare Research and Quality (AHRQ) (http://teamstepps.ahrq.gov) and adopted by the Association of American Medical Colleges (AAMC).

SET-UP

Start by setting up the 'abdominal shell' with the dome and the towers in place (Appendix G). There will be no dissecting or suturing in order to conserve consumable supplies. The trocars are placed in the indicated holes, with a scissors in Arm 1 and a needle holder in Arm 2. Place the surgeon at the robotic console, have the surgeon turn it on and adjust it properly, instruct the surgeon that (s)he will need to perform the 'ring tower task' (APPENDIX H) on the dome as the 'surgical task' while practicing for team training and communication skills.

INSTRUCTIONS FOR THE TASKS

The tasks below are numbered and named (APPENDIX C) with the corresponding TeamSTEPPS activity in (parentheses). The objective of each task is included. There is an assessment form (checklist) for each of the tasks (APPENDIX D) which the rater must complete.

During this Part 1 (Task Specific Training and Assessment), the Rater will be responsible for giving the Objective(s), playing the role of the rater and actor (1st Assistant, scrub, circulator or CRNA) during the scripted task, completing the Checklist and reporting to the surgeon whether (s)he passes or must repeat.

The tasks should be performed in the numerical order, since some of the tasks will follow upon changes from the previous task set-up (e.g. Instrument Exchange must be performed before Material Insertion/retrieval). The format for each of the tasks for the Rater includes: Reading the objective(s) and the Rater's instructions to the surgeon; then acting the appropriate team member parts on the scripted task while completing the checklist; and the final Rater's review (either PASS and go to next task, or REPEAT because of omissions or errors, which are read back to the surgeon from the checklist)

Task 1: Instrument Exchange: (REQUEST AND CALL BACK)

OBJECTIVE: The objective of this task is to insure that the surgeon knows how to communicate specifically and unambiguously with the first assistant such that, when an instrument is changed, there will be no errors.

TASK DESCRIPTION: The surgeon initiates the request for an instrument exchange, the assistant confirms the request, the surgeon double checks (call back) to confirm that the assistant has heard the message correctly, the assistant removes the current instrument and inserts the requested instrument and finally the surgeon confirms that the correct instrument was inserted safely. The surgeon must watch the instrument when it is being removed to be sure it is not caught on the bowel or causing an injury AND as it is re-inserted into the trocar, to be sure the instrument is not causing an injury such as perforating a vessel, bowel or organ.

RATER INSTRUCTIONS: Now we will complete an "instrument change request". I will play the role of the robotic first assistant, and you will ask me to replace the instruments. The task is started with a scissors in arm 1 and a needle holder in arm 2. We will need to exchange them for a grasper in each arm in order to perform the ring tower task and the material Insertion/retrieval task. . You will be expected to do the following:

(a) Address the Assistant by their name, and receive an acknowledgement from the assistant.
(b)identify (name) both arm number and instrument to be exchanged.
(b) acknowledge or correct the assist's check back using both the arm number and instrument names
(c) Confirm to the assistant when instrument is visible at the tip of the trocar.

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT

Surgeon: [Rater's Name], please remove the scissors from arm 1 and replace it with the Maryland grasper.
Rater: You want to replace the scissors in arm 1 with the Maryland grasper.
Surgeon: That is correct, replace the scissors in Arm 1 with a Maryland grasper.
Rater: (Removing the scissors from arm 1.) *I am removing the scissors from Arm 1*
Rater: (Inserting the Maryland into arm 1) *I am inserting the Maryland through Arm 1 – do you see it coming in the port?*
Surgeon: Yes, I can see the instrument tip now (or an equivalent positive response)
Rater: The grasper is now locked into position. Thank you - This section is complete

SCORING: The surgeon must
(a) Address the Assistant by his/her name, and receive an acknowledgement from the assistant.
(b) Identify (name) both arm number and instrument.
(b) Acknowledge or correct the assistant's check back using both the arm number and instrument names

(c) Confirm to the assistant when instrument is visible at the tip of the trocar .

All must be completed in the correct order and no errors are committed to PASS, otherwise, REPEAT.

Task 2: Material insertion/retrieval (REQUEST AND CALL BACK)

OBJECTIVE: The objective of this task is to insure that the surgeon knows how to communicate and coordinate specifically and unambiguously to insure that, when (s)he needs a material, supply, etc., there will be no errors.

TASK DESCRIPTION: The surgeon initiates the request for a supply (sponge, suture, etc.), the assistant confirms the request, the surgeon double checks (call back) to confirm that the assistant has heard the message correctly, the assistant removes the current instrument (naming the instrument and arm number) and inserts the requested supply, and the surgeon confirms that the correct supply was inserted safely. The surgeon then grasps the supply and confirms to the assistant the(s)he has the supply so the assistant may let go. When the supply is used and must be returned (bloody sponge, needle from a suture, etc.), the sequence is reversed. For the retrieval, the surgeon requests the assistant to grasp the used supply, the assistant confirms (s)he has control and the surgeon lets go so the assistant can remove it. Finally the surgeon requests from the assistant to confirm that the supply is intact.

RATER INSTRUCTIONS: Now we will complete another task that involves directing the Assistant. I will play the role of the robotic assistant, and you will ask me to insert a 'peanut' sponge, and then to remove it. We will use a 'peanut' sponge [Note: a 'peanut' sponge is approximately ¼ portion of a standard sponge; it is rolled up and tied around the middle; on one end is has string approximately 3 inches long]. You will be expected to do the following:

(a) Address the Assistant by name
(b) ask for sponge to be inserted through the assistant's port into Arm 1,
(c) acknowledge or correct rater's choice of sponge and port,
(d) acknowledge that (s)he sees the sponge,
(e) Instruct the assistant to let go of the sponge
For the retrieval
(f) Request the assistant to use his/her grasper to remove the sponge
(d) When the Assistant grabs the sponge, confirm that the assistant has the sponge,
(e) direct the assistant to remove the sponge
(f) ask whether the sponge is intact after removal.

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT *Surgeon: [Name Assistant], please insert a sponge through the port for Arm 1*
Rate : I will get you a peanut sponge
Surgeon: Yes, a peanut sponge. thank you
Rater: [while removing the instrument] I am removing the instrument, from Arm 1 and now I am Inserting sponge through the port for Arm Inserts sponge; do you see the sponge?
Surgeon: I see the sponge and now I have it; you may let go.
Rater: I am letting go of the sponge.
Rater: INSTRUCTION TO THE SURGEON "Simulate that you are done with the sponge" or "Are you finished with the sponge"?.

Surgeon: I am finished with the sponge, please remove it…
Rater: I am ready. I am inserting the grasper in through the port for Arm 1; do you see it
[Enter with grasper, coordinate with the surgeon to grasp the sponge.]
Surgeon*: Do you have it?*
Rater: Yes, I have the sponge.
Surgeon: Please take it out and check that it is intact (sponge and string).
Rater: [remove sponge] *I have the sponge and it is intact*
Surgeon: Thank you
Rater: Thank you - This section is complete

SCORING: The Surgeon must

(a) Address the Assistant by name
(b) ask for sponge to be inserted,
(c) acknowledge or correct rater's choice of sponge,
(d) acknowledge that (s)he sees the sponge and asks if Assistant has control of the sponge,
(e) Instruct the assistant to let go of the sponge
For the retrieval
(f) Request the assistant to use to grasp the sponge
(g) direct the assist to remove the sponge,
(h) acknowledge that the rater has it,
(i) ask whether the sponge is intact .

All must be completed in the correct order and no errors are committed. Otherwise, repeat.

Task 3: Two-challenge Rule for a safety issue (CUS)

OBJECTIVE: The objective of this task is for a non-surgeon team member who sees a safety issue, to immediately notify the surgeon that there is a potential safety issue that must be addressed.

TASK DESCRIPTION: The person raising the concern will interrupt the surgeon, and the surgeon must respond immediately (within a few seconds); if not the person must 'challenge' the surgeon. This is the Two-Challenge Rule in which the person brings a safety issue to the attention of the surgeon, incrementally increasing the urgency until the surgeon provides a response. The levels are **C**oncern (Doctor, "I am concerned. . ."), **U**ncomfortable (Doctor, I am uncomfortable with . . .") and **S**afety Issue (Doctor, this is a Safety Issue . . .) – hence the abbreviation of **CUS**

RATER INSTRUCTIONS: Now we will practice a task in which one of your team members brings a problem to your attention. First the CUS must be completed, and then you must insure that your response uses SBAR. You will be expected to do the following:

(a) acknowledge the concern (the issue) of the person (by name) who is raising the concern
(b) must take action to identify the problem of blood in the urine by the third (safety) call. You will be expected to answer before the second 'challenge' (i.e., Safety issue). Each of these steps must be performed completely and you must repeat this task until you have responded to the person raising the concern.
[I suppose we will have to talk about this. The surgeon must acknowledge the problem and take some corrective action. There is no need for a formatted SBAR response in this situation. SBAR is not a process. I do not recall any training in which TeamSTEPPS says that the proper response to CUS is SBAR. SBAR is a specific form of communication. What you seem to want to assess is situation monitoring – really decision making and leadership. In my opinion, the sort of process you want to assess cannot be done realistically with the setup that we have. It would need a scenario where the surgeon must gather information from his/her team in order to make a good decision. We cannot do that without introducing a high degree of make-believe. The imaginary quality is fine for checking procedures, but not so much for decisions, unless it is done in a clearly hypothetical manner. "Suppose this…What would you do if…?" And the person responds with hypotheticals. A simulation is supposed to provide enough details and stimulus that the person can respond in a natural way – by doing - rather than describing what they would do. We really need a VR simulator to do this kind of assessment. I recommend that this kind of skill be assessed in the next level up where it can be embedded in the kinds of scenarios that the surgeons are likely to encounter.]

SCRIPT

Rater: Doctor, I am concerned because there appears to be blood in the urine.
Surgeon: If no response (3 seconds), or don't bother me

Rater: Doctor, I am uncomfortable continuing without knowing the source of the blood.

Surgeon: no response (3 seconds) or don't bother me. or similar negative response, the staff member must again challenge the doctor

Rater: Doctor, there is even more blood and now this is a safety issue, we could lose the patient if we don't control the bleeding.

Surgeon: (possible correct answer) How long has this been going on ? Anesthesia do you know what the problem may be? Or other acknowledgment.

Rater: If there is no response by the third notification, the Rater will say that they must call their superior, but first the rater must tell the surgeon that it is safety issue and the rater is ***obligated*** *to notify their superior. This section is NOT complete and must be repeated.*

Thank you - This section is complete.

SCORING for the **CUS**: the surgeon must

(a) acknowledge the concern of the person (by name) who is raising the concern

(b) must take action to identify the problem of blood in the urine by the third (safety) call.

Otherwise, fail.

Task 4: Personnel change (Handoff)

OBJECTIVE: The objective of this task is to insure there is safe transition of information and responsibility (for the patient care) during a change of personnel.

TASK DESCRIPTION: The rater will interrupt the surgeon and let the surgeon know that a replacement (by name) is joining the operation because there is a shift change, or a break, or the assistant (resident) must leave the case to attend to another emergency, etc. The surgeon must acknowledge the change and greet the replacement by name. It would be preferable if the surgeon asks if the replacement is familiar with this specific patient.

RATER INSTRUCTIONS: Now we will complete another task that involves notifying the surgeon about a change that is occurring: changing personnel during an operation. I will play the role of the CRNA and I will leave and be replaced by another CRNA (Pat) while you are operating. You will be expected to do the following:

(a) acknowledge the initial communication from the departing CRNA, and
(b) acknowledge the initial communication from the new CRNA.
(c) insure that the replacement person has been informed about the case in general and updated on the status of the procedure at the moment they are taking over.

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT

Rater: Doctor, it's time for my break. Pat is here to replace me.
Surgeon: Thanks for letting me know. Is your replacement ready?
Rater: Yes, Doctor, I am Pat, your new CRNA.
Surgeon: Welcome, Pat. Are you familiar with the case?
Rater: Yes, doctor.

This section is complete
Or
Surgeon: Please do not leave just now. This is a crucial step.
Rater: Thank you –

This section is complete

SCORING: The Surgeon must

(a) acknowledge the initial communication from the departing CRNA
(b) acknowledge the communication from the new CRNA.
(c) insure that the replacement person has been informed about the case in general and

updated on the status of the procedure at the moment they are taking over.
All must be completed in the correct order and no errors are committed, otherwise, repeat.

Task 5: Check back (Check back)

The objective of this task is to insure that vital information is accurately communicated. This is accomplished through 'closed loop communication (Check back) to be sure the person receiving the information has understood the request, and then that the activity has been completed and the surgeon is aware of the results.
TASK DESCRIPTION: The circulating nurse (rater) will interrupt the surgeon and let him/her know of a non-urgent situation (call from the family member). The surgeon must acknowledge the situation and provide an answer to the 'circulating nurse' rater.

RATER INSTRUCTIONS: Now we will complete another task that involves responding to requests from other team members while you are operating. I will play the role of the circulating nurse, and relay a telephone message from a family member. You will be expected to do the following:

(a) acknowledge the interruption by the circulating nurse about the phone message
(b) provide a response to the circulating nurse
(c) ask the circulating nurse to repeat your message
(d) either confirm or correct the circulating nurse's response.

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT

Rater: Doctor, I have Mrs. Jones on the phone. She wants to know how her husband is doing with his surgery.
Surgeon: Tell the family …[anything – example "everything is fine, we will be finished in about ½ hour, etc.]; the surgeon must respond with a reasonable answer.
Rater: Read back the response…Yes, doctor, I will tell them that everything is fine..[repeat the surgeon's response back].
Surgeon: That is correct (or points out the error.)
Rater: Thank you - This section is complete

SCORING: The surgeon must

(a) acknowledge the interruption by the nurse
(b) respond by instructing the circulator to do something (e.g., inform the family) (c)
(c) ask the circulating nurse to repeat your message
(d) either confirm or correct the circulator's response (this is the "check back").

All must be completed in the correct order and no errors are committed, otherwise, repeat.

Task 6: Emergency Undocking Procedure

OBJECTIVE: The objective of this task is go through an emergency undock procedure safely using leadership & situation monitoring in response to a critical situation.

TASK DESCRIPTION: The rater (CRNA) will interrupt the surgeon with a crisis situation (dropping blood pressure) and ask the surgeon if there is bleeding. The surgeon will confirm hemorrhage (tear in the vena cava) that is not able to be controlled. The decision must be to undock the robot. The first assistant and surgeon must urgently undock, and even in many emergencies, it is important to watch the removal of the instruments to be certain no further damage (e.g. bowel, etc) occurs.

RATER INSTRUCTIONS: Now we will complete a task where you must decide to undock the robot. I will play the role of the CRNA and then the first assistant, and begin by giving you information. You will confirm that there is a hemorrhage (tear in the vena cava) that cannot be controlled. When you decide to undock we will go through the steps of emergency undocking. You will be expected to do the following:

(a) Confirm (or notify) the CRNA that there is critical situation (hemorrhage)
(b) Respond to the CRNA that (s)he is aware of the situation
(c) Notify the 1st assistant that you must undock
(d) Ask and acknowledge that 1st assistant is ready
(e) Under direct vision, instruct the 1st assistant to remove the instrument from Arm 1, and insert a suction. Then begin suctioning
(f) Remove instruments from Arm 2, Arm3 and finally the camera
(g) Remove the trocars from the abdomen
(h) Instruct 1st Assistant to undock robot [may undock before removing trocars]

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT

Rater [CRNA]: Doctor, the patient's blood pressure is 60 over 40 and I cannot feel a pulse. Do you see any bleeding?
Surgeon: Yes I see lots of bleeding, It's from the vena cava and I don't think I can control this. I need to undock
Rater [CRNA]: I am getting blood up from the blood bank, is there anything else?
Surgeon: No. Let's start undocking and convert to an open procedure
Rater[1st Assistant]: I am ready to undock
Surgeon: (to scrub nurse) Pat, are you ready to convert to open
Rater [CRNA]: Yes doctor, I am opening the "convert to open procedure" instruments now.
Surgeon: (to 1st Assistant) Remove the instrument from Arm 1 and insert suction
Rater [1st assistant]: I am removing the instrument from Arm 1
Surgeon: OK, it is safe to remove the instrument from arm 1
Rater: I am inserting the suction into Arm 1
Surgeon: Yes, insert the suction into Arm 1 – all clear, suction the blood.
Surgeon: Now remove the instrument from Arm 2 – safe to remove instrument
Rater: removing instrument from Arm 2

Surgeon Remove instrument from Arm 3 – it is safe to remove the instrument
Rater: Removing instrument from Arm 3
Surgeon: Remove camera from camera port
Rater: Removing camera from camera port
Surgeon: Remove trocars from the abdomen.
Rater: Trocars are all out of abdomen
Surgeon: please undock the robot and prepare for open conversion
Rater: Thank you - This section is complete

SCORING: The Surgeon must

(a) confirm the hemorrhage to the CRNA and decide to undock.
(b) Notifies CRNA of need for emergency undocking
(c) Notifies 1st Assistant of need for emergency undocking
(d) Instruct assistant to remove instrument from Arm 1 and insert suction
(e) Instruct assist to sequentially remove instruments from Arm 2 & 3 under direct vision, confirming that it is safe to remove each instrument
(f) Instruct assist to remove Camera from camera port
(g) Instruct assist to remove suction and trocars from abdomen
(h) Instruct circulator to undock the robot from the patient/operating table. [moving the robot is non-sterile]

All must be completed in the correct order and no errors are committed, otherwise, repeat.
RATER: "Dr. ?, you may leave the console now for the final 2 tasks"

[The SBAR stuff should be deleted]
If the surgeon responds promptly, (s)he needs to move on to use the **SBAR** routine – here is an example, though it is not expected that the surgeon will use these words

SCRIPT

Surgeon: **(S)** *[name of staff person] What is exactly the situation*
Rater: There is blood in the urine and it is getting worse
Surgeon: **(B)** *how long has this been happening? Does the patient have a history of kidney disease,*
Rater: It has been increasing over the past 15 minutes, no previous history of kidney disease
Surgeon: **(A)** *I will look for bleeding near the kidney or ureter. Anesthesia, what is the patient's blood pressure*
Rater: (as CRNA) the blood pressure is beginning to fall and the pulse is weak and fast. Are you sure there is not source for bleeding?
Surgeon: **(R)** *Since the patient is not on blood thinners, please check to be sure we have blood on hold (type and crossmatch) and ask for 2 units of whole blood.*
Rater: Thank you. This section is complete

SCORING for the **SBAR**: The surgeon must

NOTE: It does not really matter what the actual responses are (there is no wrong answer), however the surgeon must ask the above categories using the SBAR.

_____**(S)** Identify/confirm the critical situation by repeating the rater's statement or asking for a clarification

_____**(B)** Ask for or repeat past information about the patient or current condition

_____**(A)** Give an assessment of what might be wrong,

_____**(R)** Provide a recommendation (or ask for further information, like labs) on what to do

All four of SBAR must be performed or it is a fail (the main cause for failure is because the correct steps were not ALL performed. There really is no 'wrong' answer from a clinical standpoint .All must be completed in the correct order and no errors are committed. Otherwise, repeat.

Task 7: Brief (Pre-brief Checklist)

The surgeon will NOT be at the console]

OBJECTIVE: The objective of this task is to introduce the team members to each other and confirm roles and responsibilities. In addition there is a need to be aware of the following specific items, most of which are in the World Health Organization (WHO) checklist:

1. a very concise overview of the procedure so all members 'share a single mental model' about the procedure.
2. emphasis on the expected outcomes
3. any unique features of the patient (e.g. patient concurrent disease or medications, etc.)
4. emphasize and anticipate any possible unusual events that might occur (both unrelated to the surgery or a common complication with this type of surgery),
5. any specific needs or unique instruments

TASK DESCRIPTION: The Pre-op briefing will be led by the surgeon. After introductions and a review of the procedure, the surgeon should call for the WHO Surgical Safety Checklist, which is led by the circulating nurse.[This is going to be terribly unrealistic, requiring lots of imagination. I think we should either drop this from the tasks and just assess in the full scenario, or else we need to bring in a case and use the actors to play roles.]

RATER INSTRUCTIONS: Now we will simulate the beginning of an operation with an unfamiliar team. I'll play the roles of the team members – First assistant, scrub nurse, circulator, and CRNA, You should make introductions, review the plan, and call for the WHO checklist (APPENDIX E & F) . You will be expected to do the following:

(a) introduce yourself to the team members
(b) ask for names of team members and insure team members know their roles and responsibilities [the surgeon will not know how many people there are unless we tell them]
(c) present a very brief overview of the procedure and request from each member if they understand the procedure ("shared mental model") the and expected outcomes
(d) Mention any unique features of the procedure, or special instruments required
(e) Inform if there will be a specimen
(f) Inform if any blood is typed and crossmatched, and anticipate if any blood administration might be necessary
(g) Review if the patient has any medical conditions, allergies, medications, etc. that are relevant to this case
(h) Identify the correct patient and correct surgical site (Confirm on the Consent form)
(i) Confirm with CRNA whether antibiotics, or other necessary medications were given
(j) Prevent retention of instruments, sponges or other supplies [how?] Through the checklist of the instruments, sponges, supplies, etc BEFORE the procedure begins – then the post procedure checklist must match the pre-ob briefing instruments, sponges, etc exactly

Each of these steps must be performed completely, you must repeat this task until there are no missed steps and there are no errors. Are there any questions?

SCRIPT

Surgeon: Hello, I'm Dr. ? With whom do I have the pleasure of working?
Rater: Hi, I'm Micky the assistant, I'm Joe the circulator, and I'mPat , the CRNA.
Surgeon: "Here is what we are doing today…. " . "Are there any questions?"
Rater: None
Surgeon: Here are some unique features (name medications, co-morbid diseases, contingencies) that need to be anticipated and planned for: the patient is only on statins, has a history of coronary artery disease, and no known allergies" Are there any questions?_"" Are there any questions?_"
Rater: No specific questions
Surgeon: Joe (circulating nurse), may I have the WHO checklist?
Rater: [Circulating nurse] Here are the WHO safety checklist points [Reads the check list points and appropriate team member responds]
Patient's name: Mr. Jones - confirm with arm band and Consent From
Procedure: Right Nephrectomey - confirm with Consent form, check surgical site)
Specimen: Right kidney
Blood requirements: Type and crossmatch 2 units whole blood – on hold since no blood administration is anticipated
Pre-op Instrument, sponge and needle count: Scrub nurse (rater) Correct
Special instrument needs: None
Have pre-op antibiotics been given: CRNA (rater) Yes 30 min ago
Anticipated complications or difficulty: None

Surgeon (upon completion of the checklist) Any final questions?
Rater: No. Thank you - This section is complete

SCORING: [if we expect them to do this, we will have to create props. We will need a case with background and all, so that the surgeon can brief the team and answer the questions about need for blood, possible complications, etc.]

(a) The Surgeon must introduce him/herself to the team members
(b) ask for names of team members and insure team members know their roles and responsibilities
(c) present a very brief overview of the procedure and request from each member if they understand the procedure ("shared mental model") the and expected outcomes
(d) Mention any unique features of the procedure, or special instruments required
(e) Inform if there will be a specimen (Confirm correct patient on label for specimen)
(f) Inform if any blood is typed and crossmatched, and anticipate if any blood administration might be necessary
(g) Review if the patient has any medical conditions, allergies, medications, etic that are relevant to this case
(h) Confirm with CRNA whether antibiotics, or other necessary medications were given
(i) Identify the correct patient and correct surgical site (Confirm on Consent Form)
(j) Verify the pre-op instrument, sponge and needle count.[how?] with the checklist

All must be completed and no errors are committed, otherwise, repeat.

Task 8: Post-procedure Debrief (Debrief Checklist)

[The surgeon is NOT at the console]

OBJECTIVE: The objective of this task is to briefly review the entire procedure for the following issues:

(a) Confirm the name of the procedure and final diagnosis
(b) Did the operation proceed as expected (?Any variations?)
(c) Were there any equipment issues?
(d) Was the instrument, sponge and needle count correct?
(e) Was the specimen labeled correctly (especially patient's name)
(f) Were all of our communications clear?
(g) Were your responsibilities understood
(h) Was the workload properly divided (were you doing the job you expected?)
(i) Were there any errors
(j) What could we have done better
(k) Are there any special instructions for the recovery room team?

TASK DESCRIPTION: The Post-op debriefing will be led by the surgeon. After very brief review of the procedure, the surgeon should call for the WHO Surgical Safety Checklist. The post-op briefing contains the items listed below and each must be addressed, usually by the circulating nurse calling out the item and the appropriate team member answering.

RATER INSTRUCTIONS: Now we will simulate the end of an operation after the robot system is undocked and the patient is returned to supine position on the OR table, but before transfer to gurney. . Once again I will play the roles of all the team members – Assistant circulator, scrub nurse and CRNA. You should ask the crew if they have any comments about what went well or what might be improved for next time, andcall for the postop WHO checklist. You will be expected to address the following:

(a) Confirm the name of the procedure and final diagnosis
(b) Did the operation proceed as expected (?Any variations?)
(c) Were there any equipment issues?
(d) Was the instrument, sponge and needle count correct?
(e) Was the specimen labeled correctly (especially patient's name)
(f) What was the estimated blood loss? Any blood given?
(g) Were all of our communications clear?
(h) Were your responsibilities understood
(i) Was the workload properly divided (were you doing the job you expected?)
(j) Were there any errors
(k) What could we have done better

SCRIPT

Surgeon: Thanks everyone, for your good work.
Do you have any comments about what went well
Were there any errors that could have been avoided
Were there any specific problems with your job
What might be improved for next time?

Rater: No. the operation went very well
Surgeon. OK, can we have the postop WHO checklist, please?
Rater: [Circulator] We will go over the checklist, and I will call out the items and ask the appropriate team member to respond.
Surgeon: [After completion of the checklist listed above are completed] Are there any final comments or questions?
Rater: No. Thank you - This section is complete

SCORING: The surgeon must
(a) ask opinions of the team, especially what could have been done better
(b) call for the WHO post-op checklist (called 'sign-out')
(c) Confirm the name of the procedure and final diagnosis
(d) Ask if the operation proceeded as expected (?Any variations?)
(e) Ask if there were any equipment issues?
(f) Ask if the instrument, sponge and needle count was correct?
(g) Ask if the specimen was labeled correctly (especially patient's name)
(h) Ask if all of our communications were clear?
(i) Ask if your responsibilities were understood
(j) Ask if the workload was properly divided (were they doing the job they expected?)
(k) Ask if there were there any errors
(l) What could we have done better
(m) Ask if there are any special notifications for the recovery room personnel
All must be completed and no errors are committed, otherwise, repeat.

Upon successful completion of all of the Part I 'task-specific' tasks, the learner will then go to the Part II, 'Full-scenario' portion of the team training and communication skills. The actors will perform their parts during the full-scenarios, and the rater will continue to moderate and score performance of the surgeon using the task-specific checklist.

The first scenario is a training (practice) scenario, to familiarize the surgeon with th use of the tasks within the context of a full scenario. It is also an opportunity for the Rater to score a full scenario. The second Full-scenario is for assessing performance of the tasks within the scenario, and must be completed without any critical errors. The third scenario is available if the second scenario contains mistakes and needs to be repeated. At the completion of the third scenario, the surgeon must complete this without error (a PASS grade) , or will need to repeat this scenario before a certificate can be issued.

APPENDIX A: Definitions (**Derived from the Oxford English Dictionary - OED*)

Actor	A person who acts on behalf of another*
Assessment	The measurement of a learner's potential for attainment, (or their actual attainment) . . . of performance*
Benchmark	A point of reference against which things may be compared* [*Note: This is NOT the 'score', which is a numerical value including NO errors; the benchmark = 100%, meaning benchmark MUST be achieved*]
Competent	Having the necessary ability, knowledge or skill to do something successfully*
Confederate	A person in league with another or others for mutual support or joint action*
Error	the state or condition of being wrong in conduct or judgment*; a deviation from accuracy or correctness (does not imply "fault")
Expert	Being very knowledgeable and skillful in a particular area*
Formative	To mould by discipline or education; to train, instruct. Also. To shape one's conduct upon a model*. *[Note: an ongoing process . . . which takes place throughout the learner's course of study and provides them with the [**immediate**] feedback and guidance necessary to enable them to improve their performance]*
Proficient	A high degree of expertise*
Rater:	A person who measures the amount or sum of something*
Score	Number of points, goals, etc. achieved . . . during performance*.
Skill	Capability of accomplishing something with precision and certainty; practical knowledge in combination with ability*
Summative	The addition of measurable quantities*. *[Note: takes place at the end of a course of study, and measures the **culmination** of a learner's attainment against the specified learning objectives]*
Task	A piece of work or an exercise given to a subject in a psychological test or experiment*. [Note: a task is comprised of a number of specific basic skills]
Test:	a procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into widespread use*.
Training	The action of teaching a person a particular skill or type of behavior.*

APPENDIX B: Abbreviations

AAMC	Association of American Medical Colleges
AHRQ	Agency for Healthcare Research and Quality
CRNA	Certified registered nurse anesthetist
CUS	in the TeamSTEPPS, this is the task process for notifying the surgeon about a potential problem
FRS	Fundamentals of Robotic Surgery
OR	operating room
SBAR	In the TeamSTEPPS, this is the task process for emergencies **S**ituation, **B**ackground, **A**ssessment, **R**ecommendation
WHO	World Health Organization

APPENDIX C: List of tasks

Task 1: Instrument Exchange : (REQUEST AND CALL BACK)

Task 2: Material insertion/retrieval (REQUEST AND CALL BACK)

Task 3: Two-challenge Rule for a safety issue (CUS and SBAR)

Task 4: Personnel change (Handoff)

Task 5: Check back (Check back)

Task 6: Emergency Undocking Procedure

Task 7: Brief (Pre-brief Checklist or Sign-in)

Task 8: Post-procedure Debrief (Debrief Checklist or Sign-out)

APPENDIX D: Checklist for each of the tasks

APPENDIX E: World Health Organization (WHO) Guidelines for Safe Surgery
(Reference http://whqlibdoc.who.int/publications/2009/9789241598552_eng.pdf)

The 10 Essential Objectives for Safe Surgery (by title of objective) on :

The Team will:

Objective 1: Operate on the correct patient at the correct site
Objective 2: Use methods known to prevent harm from administration of anesthetics, while protecting the patient from pain
Objective 3: Recognize and effectively prepare for life-threatening loss of airway or respiratory function
Objective 4: Recognize and effectively prepare for risk of high blood loss
Objective 5: Avoid inducing an allergic or adverse drug reaction for which the patient is known to be at significant risk
Objective 6: Consistently use methods known to minimize the risk for surgical site infection
Objective 7: Prevent inadvertent retention of instruments and sponges in surgical wounds
Objective 8: Secure and accurately identify all surgical specimens
Objective 9: Effectively communicate and exchange critical information for the safe conduct of the operation

The Hospital and Public Health Systems will:

Objective 10: Establish routine surveillance of surgical capacity, volume and results

APPENDIX F: World Health Organization (WHO) Surgical Checklist

Surgical Safety Checklist

World Health Organization | Patient Safety
A World Alliance for Safer Health Care

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
- ☐ Yes

Is the site marked?
- ☐ Yes
- ☐ Not applicable

Is the anaesthesia machine and medication check complete?
- ☐ Yes

Is the pulse oximeter on the patient and functioning?
- ☐ Yes

Does the patient have a:

Known allergy?
- ☐ No
- ☐ Yes

Difficult airway or aspiration risk?
- ☐ No
- ☐ Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
- ☐ No
- ☐ Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

- ☐ **Confirm all team members have introduced themselves by name and role.**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made.**

Has antibiotic prophylaxis been given within the last 60 minutes?
- ☐ Yes
- ☐ Not applicable

Anticipated Critical Events

To Surgeon:
- ☐ What are the critical or non-routine steps?
- ☐ How long will the case take?
- ☐ What is the anticipated blood loss?

To Anaesthetist:
- ☐ Are there any patient-specific concerns?

To Nursing Team:
- ☐ Has sterility (including indicator results) been confirmed?
- ☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
- ☐ Yes
- ☐ Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

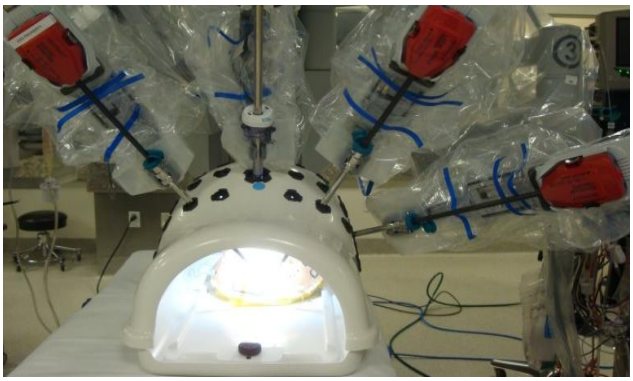
Nurse Verbally Confirms:
- ☐ The name of the procedure
- ☐ Completion of instrument, sponge and needle counts
- ☐ Specimen labelling (read specimen labels aloud, including patient name)
- ☐ Whether there are any equipment problems to be addressed

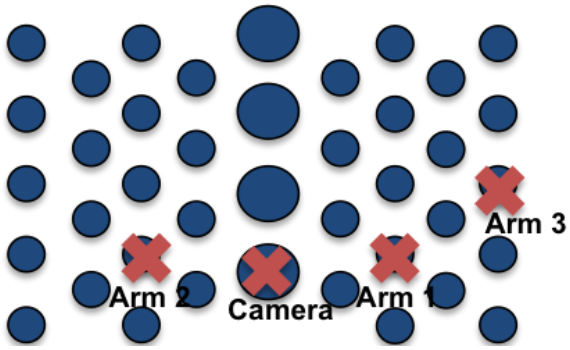
To Surgeon, Anaesthetist and Nurse:
- ☐ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1 / 2009

APPENDIX G: Template for the abdominal shell and dome set up





APPENDIX H: Ring tower task