Robotic Training Curriculum for Residents

The robotic system we are familiar with today was first introduced in 2000. Initially used in cardiac surgery, robotic surgery gained widespread acceptance and popularity in the field of urology, as robotic prostatectomy quickly became the standard of care over open prostatectomy. This led to increased demand for robotic systems, and the number of systems in the United States quickly multiplied, as it continues to do today. As of December 31, 2021, there were more than 4,100 robotic surgical systems in over 2,000 hospitals. As more surgeons had access to robotic operating systems, the applications for robotics expanded. Robotic surgery is performed in many disciplines today, including cardiac surgery, otolaryngology, urology, gynecology, thoracic surgery, general surgery, and colorectal surgery. To date it is estimated that 1,594,000 robotic surgeries have been performed. Gynecology and Gynecologic subspecialties were early to adopt robotic surgery, and now use robotic systems as standard of care for many types of surgical procedures. By 2022 64,200 gynecologic robotic surgeries were performed making gynecology the second largest subspeciality to adopt robotics after urology.

With the growth of robotic surgery, it is becoming increasingly important that today's gynecology residents complete their training with a fundamental working knowledge of robotic surgery. With the current rotation schedule, you can expect to be exposed to robotic surgery during your benign gynecology, urogynecology, gynecologic oncology, and possibly reproductive endocrinology rotations. This robotic surgery curriculum has been developed to guide your robotic training throughout your residency.

Course Overview and Program Goals

We have created a structured curriculum for robotic training which features a clearly documented pathway for surgical residents to gain robotic competency. Attaining robotic surgery proficiency has significant implications for the future credentialing of surgeons while ensuring the best possible patient outcomes. Our robotics program gives every resident the opportunity to receive the DaVinci Residency Training Equivalency Certificate, however certificate obtainment is not required for residency graduation. After completion of this curriculum residents will have the skills necessary to operate safely and independently on the robot. Residents who opt out of the robotics curriculum will still be required to complete basic training allowing for safe participation in robotic surgery during surgical rotations. Training will start with the assigned online modules and surgical video review. The resident will then be eligible to participate in the Dry Dock Lab with our Intuitive representatives. After the online modules, video review, and Dry Dock Lab are completed, the resident will begin simulation exercises on our robotic simulators and may function as a Bedside Assistant during robotic cases. The resident may perform as a Console Surgeon after she/he has performed 5 Bedside Assistant cases and has scored a minimum of 80% on the designated Simulator exercises.

Program Objectives

1. Describe the potential advantages and disadvantages unique to robotic surgery
2. Recognize patient safety issues unique to robotic surgery
3. Understand the basic components of a robotic operating system and how they interact with each other
4. Become familiar with the common GYN procedures performed with robotic surgery and the instruments used to complete these procedures.
5. Demonstrate how to properly place robotic ports and manipulate the robotic arms before and after docking
6. Learn how to dock the robot on to the patient and insert and exchange robotic instruments.
7. Become comfortable with basic manipulation of robotic instruments, to include camera control and clutching.
8. Demonstrate proficiency in basic robotic surgical skills on the DaVinci simulator
9. Demonstrate proficiency in the Bedside Assistant role during live procedures including port placement, robot docking, instrument placement/exchange, and procedural assisting
10. Demonstrate proficiency as a Console Surgeon for common GYN operations

Accessing Intuitive Digital Platforms

Our Intuitive team will be sending you instructions on how to create your personal Intuitive Learning account. Once created, you can access your account via computer at my.intuitive.com or on your mobile device through the **My Intuitive App**. As you complete your registration you will create a personal 4-digit pin for your simulation exercises and a personal 6-digit pin for your surgeon console cases.

We strongly recommend downloading the app, as it allows you to conveniently track your surgical progress—including case volumes, case types, and case durations for your portions of the procedure. The app also provides detailed technical metrics to help you monitor and refine your surgical skill set over time.

Course Content

Online Modules

Please refer to your personal email from Intuitive Learning Enrollments which outlines the steps to create your personal online account with Intuitive. Go to my.intuitive.com or your my Intuitive App (log in with personal password) and complete your online modules noted below.

A. XI Multiport System Fundamentals and Technical Skills for Residents and Fellows – V11

Requirements:

A. The resident must send an awarded certificate for completed modules to Megan Tickner-Young at tickneryoung@wisc.edu (needs to be completed prior to Dry Dock Lab participation).

You may want to spend some time exploring the website. You will find links to papers about robotic surgery as well as videos of common robotic operations.

Online Surgical Videos

Watch online videos for “Myomectomy using the da Vinci Xi Surgical System” and Da Vinci Xi System Hysterectomy and Vaginal Extraction”. Please keep in mind that this may not represent how you will perform these procedures with your attendings here at UW and Meriter Hospital. You may access these videos from you intuitive learning account.

Dry Dock Lab

This lab can be completed by attending our yearly robotics simulation event which is held for all of our residents each year. Please make every effort to complete this simulation event in your PGY-1 year. It is required that you have completed this event by your PGY-2 year. It is recommended that you continue to attend this event in your PGY-3 and PGY-4 years for refresher training. Our Dry Dock Lab will include the following learning objectives:

A. Docking process
B. Trocar spacing
C. Instrument insertion and removal
D. Intra-Operative Trouble shooting including emergent undocking

Additional dry dock labs will be arranged at Meriter Hospital on Wednesday mornings for the benign gynecology service to review the above skills. The date and times for these labs will be announced in advance to prepare for participation. These labs will help reinforce what was learned during our yearly UW robotic simulation event which will aid in solidifying the skills used during bedside assisting and as console surgeon.

Bedside Assistant Cases

Residents may perform as a Bedside Robotic Assistant once they have completed their online modules, video review, and Dry Dock Lab as outlined above. As a Bedside Assistant, the resident will be expected to insert trocars, dock the robot, insert/exchange instruments, and manipulate the robotic arms before and after docking. Furthermore, the resident must be able to trouble shoot when technical difficulties arise and respond appropriately during emergent situations. The resident will need to perform in this role for 5 cases prior to sitting as a Console Surgeon.

Curriculum Requirements

A. Record 10 Bedside Assistant cases in your case logs
B. Obtain one evaluation for your bedside assisting.

Resident Opt Out

Although some residents may choose to opt out of the robotics curriculum due to professional career goals it is still necessary to ensure safe participation in robotic surgery during surgical rotations. Residents who have chosen to opt out will still be required to complete the online modules, attend the Dry Dock Lab and act as a bedside assistant. If you request to sit at the surgeon console to perform part of a surgical procedure you will be required to complete the simulation exercises on the robotic simulator.

Simulated Skills

The Xi SimNow simulators are located at the Meriter Hospital, OR Room 19, and the UW hospital simulation lab, located at H6-1. Below are the simulation exercises that are required to complete the robotic curriculum. These exercises will provide the resident with the opportunity to practice and master their basic robotic surgical skills. Additionally, the robotic simulator offers simulation of specialty specific procedures that can be very helpful to practice prior to sitting at the surgeon console.

All simulation exercises must be completed with a score of 80% or higher.

a. Energy Pedals 1
b. Camera 0
c. 3 Arm Relay 1
d. Anterior Needle Driving

Our institutional Intuitive representatives can provide initial training on simulator set up and use. These assigned simulation courses will be listed in your intuitive learning account. You should log into your individual account with your four-digit pin prior to completing your simulation exercises. All your exercises and scores will be stored into your account. If you have questions or need assistance with either on-line training or simulator training, please contact:

Emily Reichenberger
(920)410-7295
Emily.reichenberger@intusurg.com

Console Surgeon Cases

The surgeon console is the hardest aspect of robotic surgery to master. It takes a great deal of practice in simulation and in the operating room. The resident will begin by learning each step of the operation using the dual console while working with the attending surgeon. Through practice and achieving competency, the attending will allow the resident to perform more of the operation independently. The resident's level of participation will vary based on surgical skill,

interest, and experience at the discretion of the attending physician. The goal is to be a fully independent surgeon with global awareness of the room, where the instruments are at all times within the patient, and how to complete the operation in a safe and timely manner. Residents may perform as a Console Surgeon once they have completed their online modules, reviewed the surgical videos, attended the Dry Dock Lab, completed 5 Bedside Assistant cases, and completed their simulation skills exercises with a score of ≥ 80% as outlined above. You must perform ≥50% of the surgical procedure for the case to be considered one of your console cases. You should log into your individual account with your six-digit pin each time you operate as this will store your surgical data for you to track through the Intuitive App as referenced above.

Robotic Curriculum

A. The resident must perform as the primary Console Surgeon for at least 20 cases
B. Residents must request assessment on at least 10 cases in which they were the primary Console Surgeon (10 of the 20 required surgeon cases)
C. The resident must be deemed competent to operate independently by at least two attending physicians.

The resident should request evaluations early and often. Residents will not be competent in the beginning however each evaluation gives the attending physician specific data to help the resident improve and reach competency. If a resident performs ≥ 50% of the case as the console surgeon they may log this case as one of the 20 required cases. Residents will be asked to send their case logs with bedside assistant and console case numbers at the end of each academic year to Megan Tickner-Young at tickneryoung@wisc.edu. Surgical cases may include cystectomy, oophorectomy, myomectomy, and hysterectomy. An attending can evaluate more than one case, but all cases should not be performed with the same attending. The resident must obtain 10 evaluations which demonstrate competency which will likely not occur until the PGY-3 year. The resident must be deemed competent on the console for these cases by at least 2 attending surgeons.

If, during a case in which you are assisting, you are asked to sit at the console to operate, you may log as both assistant and console surgeon if you assisted 50% of the case including placing trocars and docking arms and then subsequently operated at the console for 50% of the case; please note this on your case log. You may only log as assistant **OR** surgeon for your ACGME logs (not both).

At the discretion of the Residency Program Director, after completing the online modules, residents may be allowed to assist in robotic surgery when requested by an attending physician on core or away rotations prior to completing a certain section of this curriculum. All exceptions must be authorized by verbal or written request initiated by the resident to the Program Director in a timely fashion. The use of these cases to satisfy elements of this curriculum will also be to the purview of the Director.

Lapses in Resident Participation

Residents who have qualified to operate as the console surgeon but who have not had any live-patient console experience for a continuous 9-month period need to perform refresher training prior to any additional live-patient console operating. Refresher training consists of acting as the bedside assistant for one case and repeating the Ring Rollercoaster 2 exercise with a proficiency score of ≥ 80%.

Resident Review and Course Director Attestation of Competency

Residents who have completed all elements of the curriculum as described above and are deemed competent on the console by at least two robotic surgeons will obtain the DaVinci Residency Training Equivalency Certificate. A copy of all documents and certifications including the DaVinci Residency Training Equivalency Certificate will be maintained in the residents' permanent file under the care of the program manager.

UW ROBOTIC TRAINING CHECKLIST

- □ **Intuitive Online Training Module**
- □ **Online Surgical Videos**
- □ **Dry Dock Lab / Robotics Basic Orientation Workshop**
- □ **Intuitive Simulation Exercises (80% passing score)**
- □ **Bedside Assistant 10 cases**
- □ **Console Surgeon 20 cases**
- □ **Evaluation of 1 Bedside assistant case**
- □ **Evaluations of 10 console surgeon cases**
- □ **Robotic competency confirmed by two attending physicians**

CONTACT INFORMATION

Questions regarding curriculum or requirements

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