

# How to Maintain Robotic Surgery Skills During COVID-19

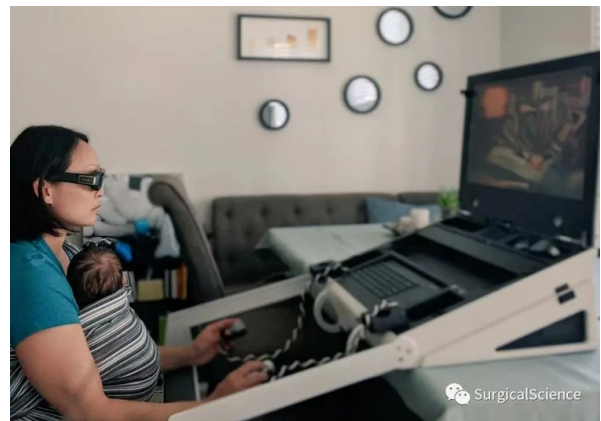


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Surgeons took many years to develop the skills and judgement that makes them good and safe in the operating room. Many studies have shown that these skills can degrade during periods of prolonged inactivity. Robot surgery skills in particular seem more prone to rapid degradation than other types of surgery. Early studies by Jenison showed that in new surgeons, skills can erode significantly in as little as two weeks.<sup>1</sup> Recent experience with military surgeons deployed to a combat theater has shown that these skills still degrade at a rapid rate, but that experienced surgeons can get back up to normal skill levels in less time than it takes less experienced surgeons.<sup>2,3</sup> This skills degradation is one of the reason that most robotic surgery credentialing and privileging requirements include surgeons maintaining a minimum case volume of procedures. So now that COVID-19 has shut down almost all elective procedures across the country, how can we maintain these skills?

The obvious answer is to practice. There are many ways to do this. The simplest method is to get on the robot when it is not being used and perform dry lab exercises or work on hydrogel anatomic models. If the robot has a VR simulator attached, surgeons can perform refresher curriculums on a biweekly basis. But most of our ORs are closed and getting there from home (if you are sheltering in place) is challenging. Sim Labs may or may not be open either. Surgeons can review video libraries available on sites such as the AAGL, SAGES, or even the daVinci® Community; but that doesn't help to maintain your psycho-motor skills. The best solution is to practice on VR simulator that is not located in the OR. Ideally, this simulator should be portable so that it can be shared or moved to convenient locations. The Mimic FlexVR™ is such a simulator.<sup>4</sup> It is small, portable, and comes fully loaded with hundreds of training exercises and custom curriculums. It can be connected to the cloud (MScore Portal) so that scores can be followed on the surgeon's individual dashboard and be available to hospital administrators who are in charge of recertifying surgeons when the operating rooms open up again.



Mimic simulation is able, on a limited basis, to offer simulators for monthly rental at below cost to partner surgeons and institutions to help maintain critical skills during this unprecedented health care crisis. A recommended sample curriculum for “refresher training” is listed below.

**BASIC REFRESHER CURRICULUM (Pass Each Exercise Twice Consecutively)**

1. Peg Board 2
2. Ring Walk 2
3. Energy Switching 2
4. Suture Sponge 1
5. Optional procedure specific exercise per specialty: e.g., Cuff Closure, UV Anastomosis, Vertical Wound Closure, etc. (Pass once)

#### *References*

1. Jenison EL, Gil KM, Lendvay TS, Guy MS. Robotic Surgical Skills: Acquisition, Maintenance, and Degradation. *JLS. 2012 Apr-Jun; 16(2): 218-228.*
2. Guseila L, Saranathan A, Jenison E, Gil K, Elias J. Using Virtual Reality to Maintain Surgical Skills During Periods of Robotic Surgery Inactivity. *J Rob Surg. Sep 2014, 8 (3): 261-268.*
3. Unpublished Communications with US Army Surgeons returning from Afghanistan War Deployment
4. [mimicsimulation.com/flexvr/](http://mimicsimulation.com/flexvr/)