Defense Health Agency (DHA) Clinical Communities Speaker Series

Resource List – September 2020

Military Health Care- Select Promising Practices

S08- Department of Defense Robotic Surgery Overview: Enhancing Operational Readiness

The use of robotic surgery has experienced exponential growth across numerous specialties. Training the next generations of surgeons in robotic surgery examines the current available surgical skills training models, assessments and curricula in an effort to promote surgical skill proficiency and mastery and to minimize the risk of patient harm. The basic surgical skills (both technical and non-technical) are reviewed. Details of the role of current robotic training techniques including dry lab and virtual simulators are discussed. This article notes there is a great need for a standardized curriculum to be developed and employed for the use of training and credentialing future and current robotic surgeons.

The National Institute of Biomedical Imaging and Bioengineering (NIBIB) has created a fact-sheet for Image-Guided Robotic Interventions. Robotic interventions are used to primarily to perform minimally invasive surgery with advantages for both patients and physicians. Examples of robotic interventions such as robotic prostatectomy, ablation techniques for early cancers and orthopedic procedures are discussed. NIBIB-funded researchers are currently developing robotic interventions in uses for 3D imaging to guide need insertion, needle guidance for removal of liver tumors and swallowable capsules to identify and biopsy abnormal tissue in the esophagus.

The U.S. Food and Drug Administration (FDA) provides a webpage with information on Computer-Assisted Surgical Systems. The benefits of using robotically-assisted surgical (RAS) devices are discussed. The FDA has cleared RAS devices for laparoscopic surgery in general surgery, cardiac, colorectal, gynecologic, head and neck, thoracic and urologic surgical procedures. Recommendations for health care providers and patients are listed. The FDA issued a Safety Communication brief on 28 February 2019 to inform health care providers and patients that the FDA has not granted marketing authorization to an RAS device system specifically for the prevention or treatment of cancer. The FDA will continue to collect and analyze all information regarding RAS devices to better understand the risks and benefits and will keep the public informed of new information as it becomes available.

The World Health Organization supports the SAFROS Project which aims to understand patient safety in robotic surgery through the development of technologies and procedures to assist surgeons. The main goal of the SAFROS project is to explore whether robotic surgery carried out in accordance with safety criteria can improve the level of patient safety currently achievable by traditional surgery. The project was developed by several partners including multiple hospitals, European research groups in surgical robotics, companies that develop surgical simulators and the WHO Patient Safety program.

Defense Health Agency (DHA) Clinical Communities Speaker Series

References

Carpenter, B.T., Sundarum, C.P., (2017). Training the next generations of surgeons in robotic surgery. *Robotic Surgery: Research and Reviews, 4,* 39-44. https://doi.org/10.2147/rsrr.s70552

National Institute of Biomedical Imaging and Bioengineering. (2019). Image-Guided Robotic Interventions. https://www.Nibib.nih.gov/sites/default/files/2020-06/Image-Guided%20Robotic%20Interventions%20Fact%20Sheet_0.pdf

U.S. Food and Drug Administration. (2019). Computer-Assisted Surgical Systems. https://www.fda.gov/medical-devices/surgery-devices/computer-assisted-surgical-systems#2

World Health Organization. (2015) SAFROS Project: Patient safety in robotic surgery. https://www.who.int/patientsafety/safesurgery/safros/en/