



THE EXPLORERS CLUB, NORTHERN CALIFORNIA CHAPTER

Field Trip to: **Intuitive Surgical, Inc. (ISI)** **"Robotic Surgery"**

Date: Sunday February 21, 2016

Time: 9:00am – 1:00pm

Participants: Limited to 20

Cost: \$10

Location: 1020 Kifer Road Sunnyvale, CA 94086 (parking available)

Participants will hear about advances in robotic surgery presented by chapter member Dr. Sherry Wren, FN'14", and operate both the laparoscopic and robotic surgical systems.

Background: Minimally invasive surgery revolutionized the field of surgery starting first with the laparoscopic cholecystectomy (gallbladder removal) in 1989. The new surgical approach allowed patients to have surgery through much smaller incisions that involved less pain and quicker recovery but this was done at a cost to the surgical approach by loss of instrument degrees of freedom, non intuitive hand movements, and ergonomic challenges. At the same time researchers at NASA Ames who were working on virtual reality became interested in telepresence surgery as a possible solution to challenges such as prolonged space missions. Some of the NASA-Ames team joined Stanford Research Institute (SRI) and developed a dexterous telemanipulator for surgery. This work was noticed by the US Army which was interested in the possibility of decreasing wartime mortality by "bringing the surgeon to the wounded soldier"—through telepresence. Eventually private companies spun out and commercial applications of robotics and surgery were now available. These new robotic approaches directly addressed many of the problems and limitations seen with traditional laparoscopic surgery.

Sherry M. Wren MD, FACS, FCS (ECSA)

Professor Sherry Wren has been on the faculty at Stanford University since 1997. She serves as the Director of Global Surgery at the Center for Innovation and Global Health, Director of Clinical Surgery at the Palo Alto Veterans Health Care System, and is the former Associate Dean of Academic Affairs for the university. Dr. Wren is also a Honorary Professor in the Centre for Neurosciences and Trauma at the Blizard Institute within Barts Cancer Institute at Barts and the London School of Medicine and Dentistry, Queen Mary University of London. Dr. Wren has served in the leadership of key surgical organizations in the US, including as a member of the executive committee of the American College of Surgeons Board of Governors and Advisory Council for General Surgery as well as the Board of Governors of the Society of Gastrointestinal and Endoscopic Surgery. She is currently on the editorial boards of JAMA Surgery, Surgical Endoscopy, and the Journal of Laparoendoscopic Surgery and Advanced Techniques. She is a fellow of the College of Surgeons of East, Central, and Southern Africa, a consortium of 10 sub Saharan African countries. Her clinical practice is in gastrointestinal malignancy and robotics. Her research interests are in surgical outcomes, robotics, cancer, and global surgery.

Intuitive Surgical was founded in 1995 and by 1999 had developed the Da Vinci System. In 2000, this robotic system received FDA clearance for use in human surgery. Over the next 16 years, robotic surgery for general, gynecologic, urologic, and cardiothoracic procedures have become common place and over 2.5 million patients world wide have had a robotic assisted surgical procedure. Robotic surgery involves the use of surgeons controlled telemanipulated arms to perform complex procedures. The surgeon operates the manipulators seated at a console using a 3D-HD immersive interface. The instruments have a wrist that allow for 7 degrees of freedom for manipulation, which is in distinct contrast to laparoscopic instruments with only 4 degrees of freedom.

<http://www.intuitivesurgical.com>



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