

## Researcher Profile: Dr. Richard Satava



Richard Satava, MD  
Professor of Surgery  
University Medical Center  
UW School of Medicine

For the past decade as Professor in the division of General Surgery at the University of Washington, **Dr. Richard Satava** has pushed the boundaries of the possibilities of technology's role in surgical practice and instruction. His work in many ways exemplifies the ways in which Department of Surgery researchers are pioneers in developing innovations that will improve the lives of patients.

As the Senior Executive Advisor at the Institute for Simulation

and Interprofessional Studies (ISIS), Dr. Satava has been a major advocate for advancing the work and establishing the center's reputation across the country as one of the premier simulation centers in the nation. Dr. Satava was instrumental in helping to secure nearly \$8 million of congressional funding from the Department of Defense—funds that have been critical to allow ISIS to achieve its mission to improve health regionally, nationally and globally through its programs in simulation and modeling.

Dr. Satava's research interests span widely diverse areas of advanced surgical technology, including Surgery in the Space Environment, Video and 3-D imaging, Telepresence Surgery, Virtual Reality Surgical Simulation, and Objective Assessment of Surgical Competence and Training. His groundbreaking work in these areas has been highly influential. For over 15 years, the Medicine Meets Virtual Reality conference gives out the Satava Award, recognizing unique vision and commitment to the improvement of medicine through advanced technology.

Among his many roles prior to joining the University of Washington, Dr. Satava had a military appointment as Professor of Surgery (USUHS) in the Army Medical Corps assigned to General Surgery at Walter Reed Army Medical Center and Program Manager of Advanced Biomedical Technology at the Defense Advanced Research Projects Agency (DARPA).

Dr. Satava has played a unique role in the Department of Surgery's research community. His work offers a perfect example of a researcher unafraid to look beyond the realm of what was once considered possible—and makes discoveries that are actually very much in our reach.

## Development of the Surgical Capacity Index



Steve Kwon, MD  
Surgery Resident  
University Medical Center  
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A significant proportion of the overall global burden of premature death and disability is from conditions whose treatment involves surgery, including (among others) trauma, obstetrical complications, cancer, vascular disease, and congenital anomalies. Thus, surgery is increasingly recognized as an important component of public and global health. Significant gaps exist in the provision of surgical care in low- and middle-income countries, with many patients dying or suffering prolonged disability due to lack of access to surgical care. There is a need to objectively characterize conditions at the health facilities where surgical care is provided to allow clinicians, policy makers and donors to more easily identify gaps and evaluate interventions.

Collaborating with surgeons in Sierra Leone, Liberia, and the Solomon Islands, UW Surgery Resident **Dr. Steve Kwon** and co-workers developed a method for standardizing assessment of surgical capacity in multiple hospitals (10 hospitals in Sierra Leone, 16 hospitals in Liberia, and 9 hospitals in Solomon Islands) in the form of the Surgical Capacity Index. They used the World Health Organization's Tool for Situational Analysis to Assess Emergency and Essential Surgical Care to assess the status of surgical care in these three countries with very different health care systems. Using this survey, they developed an objective scoring methodology to rate surgical capacity on an easy-to-use 100 point scale for overall capacity and for four specific categories (infrastructure, personnel, interventions, and equipment).

This index provides an objective measure of surgical capacity that will be globally useful in identifying problematic areas of surgical care and to monitor changes over time, both at individual institutions and across all hospitals in a given country.

As an indication of the importance of this work, Dr. Kwon's article was published as the lead article in this month's issue of the *World Journal of Surgery*, the official journal of the International Society of Surgery. His paper is entitled: "Development of a Surgical Capacity Index: Opportunities for Assessment and Improvement" (*World J Surgery* (2102) 36: 232-239). Dr. Kwon did this work during his research years, past part of the Academic Surgery in Global Health Track, a unique feature of the UW Surgery Residency.