Dr. Michael Hutchens is an Associate Professor in the Department of Anesthesiology & Perioperative Medicine at Oregon Health & Science University (OHSU). He also serves as an Attending Intensivist in the Knight Cardiovascular Intensive Care Unit (KCVICU).

Dr. Hutchens originally planned a career as a professor of English, receiving the baccalaureate degree at Oberlin College. While completing a Master of Arts in literature at Binghamton University, however, he became focused on medicine. He subsequently completed premedical studies at Goucher College and entered the University of Maryland where he earned his medical degree. After finishing a residency in Anesthesiology at OHSU, Dr. Hutchens trained as a fellow in Critical Care Medicine at Brigham and Women’s Hospital in Boston, before returning to OHSU in July 2005.

Dr. Hutchens is the recipient of a NIDDK-funded K08 mentored scientist grant entitled “Sex Difference in Renal Injury After Cardiac Arrest: Mechanisms of Estrogen Action.” His research centers on early inciting events in acute kidney injury, a complication which occurs in 1% of all surgeries, but confers a 10-30% mortality. There is currently no preventive or therapeutic intervention for this disease.

Of the nine (9) Invention Disclosures Dr. Hutchens has submitted to the Technology Transfer & Business Development office since 2007, two of the most recent submissions are of interest.

The “Disinfection device for medical access sites” is a catheter hub closure port device providing targeted application of ultraviolet light ensuring central venous catheters, and other medical access site catheters, are disinfected and clean. The OHSU device aims to reduce central line associated bloodstream infections (CLABSI). With a reported mortality of 12-25%, and U.S. health care costs of approximately $2.3 billion yearly, CLABSI reduction is a priority of the World Health Organization, Centers for disease Control, the Joint Commission, and OHSU. Declared a “never event” by Centers for Medicare Services, this complication is not reimbursed; when it occurs, the cost of care is borne by the organization providing care. This technology is exclusively optioned to a company for evaluation. A U.S. Provisional patent application has been filed.

The second technology of interest is “Anesthetic vapor delivery device” which is an anesthetic vaporizing system which digitally controls agent temperature to accurately deliver clinical anesthetic vapor concentrations. The OHSU device works by cooling an anesthetic gas to very low temperatures at which clinical concentrations of vapor are created. The concentration of anesthetic delivered to the patient is controlled by controlling the temperature of the anesthetic liquid rather than flow of the fresh gas as in variable-bypass vaporizers. Currently available variable-bypass anesthetic vaporizers are single-agent specific, require frequent calibration and maintenance, and are heavy and slow to change concentration. This can be challenging in non-operating room circumstances such as animal research laboratories, intensive care units, medical transport, and military field environments. The OHSU device comprises an insulated vessel for the liquid anesthetic, a thermoelectric refrigeration system to cool the vessel, and an electronic controlling device with custom software to set the desired agent concentration and temperature using proportional-integral-derivative algorithms. Advantages include decreased size and weight; can be used as a universal system for a wide variety of liquid anesthetics; and no need for calibration. A U.S. Provisional patent application has been filed.