Studies Currently Enrolling:

If you would like to volunteer or receive more information about a particular study listed below, please send a request to volunteer@anest.wustl.edu, note which study or studies you may be interested in and how you can be contacted, and one of our research coordinators will contact you with more information.

Title: Implantable Systems Performance Registry (ISPR)

PI: Dr. Davè

Purpose: Medtronic (an implantable device manufacturer) is creating a research registry database using information from participants who have received Medtronic products. A research registry database is a file kept on a computer that contains specific information. The database being created by Medtronic will include information about Medtronic Implantable device systems and the patients that receive them. All devices in the ISPR have received approval from the Food and Drug Administration (FDA). Information collected in the database will include data related to the patient's medical condition and the data related to the implant procedure and device. The purpose of this registry is to monitor the use the information from this registry to improve its products or develop possible new products and therapies. Medtronic will also use the information to follow government regulations about product monitoring and safety.

Patient Selection: Patients who have received or are scheduled to receive Medtronic products including: neuromodulation implantable pump, spinal cord stimulator, deep brain stimulator, and/or sacral nerve stimulator.

Title: Influence of CYP3A Modulation on Buprenorphine Disposition and Clinical Effects

PI: Dr. Kharasch

Purpose: Buprenorphine is an FDA-approved drug used in treating pain and substance abuse. In the lab, buprenorphine is broken down by liver samples by the enzyme called CYP3A. The purpose of this study is to determine how people absorb and breakdown (metabolize) and eliminate buprenorphine and if CYP3A is involved. We will study intravenous and sublingual (a tablet under the tongue) buprenorphine. We determine the involvement of CYP3A by increasing or decreasing its activity with the FDA-approved antibiotic drugs, rifampin and ketoconazole, or with grapefruit juice, and then measuring how the body metabolizes
buprenorphine. We can also learn more about buprenorphine by measuring pupil diameter (because buprenorphine causes the pupil of the eye to constrict) and by measuring how buprenorphine relieves pain.

Patient Selection: Male or non-pregnant female volunteers, 18-50 years old, in good general health with no known major medical conditions with a BMI between 20-33.

**Title: Validation of an OSA Screening Tool in Pregnant Patients**

**PI:** Dr. Lockhart

**Purpose:** We are studying breathing and sleep difficulties in obstetric patients. We are looking at the relationship between these difficulties and how patients breathe and sleep in the hospital.

Patient Selection: Patients presenting for either pregnancy or non-pregnancy related concerns who are over the age of 16 and in their third trimester may participate in this study.

**Title: Urine Proteome of Patients Undergoing Surgery**

**PI:** Dr. Morrissey

**Purpose:** Our goal is to develop better ways of detecting kidney disease, including kidney cancer. One purpose of this study is to develop better ways to detect kidney cancer in the future. Another purpose is to learn more about the effects of anesthesia and surgery on the kidney. For this study, we are looking to see if any biomarkers (an indicator of a particular disease) from the kidneys are found in urine. We might then be able to better find kidney cancer by examining urine, and to better understand the effects of surgery and anesthesia on the kidney.

Patient Selection: All patients undergoing surgery are welcome to participate in this study including patients undergoing non-kidney cancer related surgery and patients undergoing surgery with a diagnosis of kidney cancer.

**Title: Hidradenitis suppurativa - a Mendelian trait? Genetic pedigree and linkage analysis**

**PI:** Dr. Nagele

**Purpose:** Hidradenitis suppurativa seems to run in families but no cause has ever been found. The purpose of this study is to try to find the genetic cause for this disease and also to determine if the disease truly runs in families.

Patient Selection: Adult patients diagnosed with hidradenitis suppurativa and their affected and unaffected adult and minor family members.

**Title: Pharmacogenetics of Adverse Outcomes After Nitrous Oxide Anesthesia**

**PI:** Dr. Nagele

**Purpose:** We want to find out if some high-risk patients with a certain genetic profile in a gene, called Methylene-Tetra-Hydro-Folate-Reductase (MTHFR) (1 out of 5 patients have this profile on average) might be at a higher risk for major complications after surgery when they receive a standard anesthetic that includes laughing gas (nitrous oxide). MTHFR is an enzyme, which we all have in the cells of our body. Patients may
receive vitamin B12 and folic acid before and after surgery if they participate in this study as our goal is to see if these vitamins prevent some of the possible complications after surgery. Laughing gas is the most widely used general anesthetic in the US and worldwide and is a common component of general anesthesia for most patients at Barnes-Jewish Hospital.

**Patient Selection:** Patients scheduled for major surgery undergoing general anesthesia.

**Title:** Vascular events In noncardiac Surgery patients cOhort evaluatioN study

**PI:** Dr. Nagele

**Purpose:** The purpose of this study is to determine how many major vascular (vessels that carry or circulate fluids, such as blood, through the body) complications occur around the time of surgery and to determine the best method to estimate a patient's risk of such events. Knowing how best to estimate the risk of a major vascular complication around the time of surgery will allow doctors to tell their patients about their individual risk, and this will help patients to make informed decisions about whether surgery is appropriate for them. This study will also determine whether measuring a simple blood test after surgery will help physicians to avoid missing heart attacks and whether this blood test can identify patients at high risk of a serious outcome over the following year.

**Patient Selection:** Patients over 45 years of age undergoing non-cardiac surgery.

**Title:** Coronary Ct Angiography To Predict Vascular Events In Noncardiac Surgery Patients Cohort Evaluation Study

**PI:** Dr. Nagele

**Purpose:** Every year, 100 million adults worldwide undergo surgery on their hips, knees, blood vessels, or other major organs. For a small portion of these patients (potentially 4%), the surgery is complicated by heart attack or other heart-related problems. These patients usually have blockages present in their heart arteries that increase the chance that such complications will occur. However, these blockages often go unrecognized because people with mobility problems usually do not move around enough to stress the heart and produce heart-related symptoms. This study is assessing a new way of imaging the heart arteries and detecting possible artery blockages performed on a computed tomography or CT scanner. This study will evaluate how well blockages seen on the CT scan predict the likelihood of developing heart-related complications after surgery and help us understand how best to use this new imaging technique in patients undergoing major surgery.

**Patient Selection:** Patients undergoing elective noncardiac surgery with a planned general or regional anaesthetic are eligible if they: 1. are undergoing orthopedic or vascular surgery, or the patient has limited mobility; 2. have enough time prior to noncardiac surgery to obtain a coronary CTA study; 3. have one of the following additional criteria: (i) history of coronary artery disease, (ii) peripheral vascular disease, (iii) history of stroke, (iv) history of a physician diagnosis of congestive heart failure; OR (v) any 3 of the following 6 risk factors: (a) diabetes and currently on an oral diabetic drug or insulin therapy, (b) age > 70 years, (c) history of smoking within 2 years of surgery, (d) history of treatment for hypercholesterolemia, (e) history of a transient ischemic attack (TIA), or (f) a history of hypertension.
**Title: Neural Correlates of Anesthetic-Induced Unconsciousness in MRI and EEG Signals**

**PI: Dr. Palanca**

Purpose: The overall purpose of this research is: to identify changes in brain activity associated with loss of consciousness during the delivery of general anesthesia. Functional magnetic resonance imaging (MRI) is a technique that uses moving magnets to study the alterations of blood flow in the brain caused by changes in the activity among networks of brain cells. Electroencephalography (EEG) is another noninvasive technique that uses scalp electrodes to amplify the small electrical signals generated by changes in brain cell networks. Neither of these tools use radioactivity or radiation but their measurement of changes in brain activity will allow assessment of conscious behavior during loss and return of consciousness. Studying brain activity using these two techniques may aid in understanding how anesthetics work, understanding what constitutes consciousness, and in developing new machines that may be used for preventing awareness during surgeries requiring general anesthesia.

Patient Selection: Male or non-pregnant female volunteers, 18-40 years old, in good general health with no known major medical conditions with a BMI between 18-30.

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**Title: New non-invasive methods for real-time monitoring of organ function.**

**PI: Dr. Morrissey**

Purpose: The overall purpose of this research is: to define early urinary biomarkers for diagnosis and prognosis of changes in organ function of hospitalized SICU patients. Changes in organ function may occur in patients during and after their hospitalization. Closely monitoring organ function by means of the conventional serum biomarkers, requires frequent blood sampling which is impractical and thus may not be quick enough (because there may be a delay of 2-3 days between blood samples used to detect changes in function via changes in these markers). Adverse changes in organ function have their own independent burden of morbidity and mortality as well as increased cost of care. Moreover, delays in diagnosis resulting from infrequent blood sampling that result in delays of corrective action or treatment add to this burden and cost. This study seeks to find urinary and plasma biomarkers that may help to identify organ injury non-invasively with simple urine and/or plasma tests. This would represent a major advance that would allow risk stratification and timely intervention or therapy in real-time (hours) rather than in days.

Patient Selection: Patients 18 years of age and older admitted to the SICU or CCU.