



SCHOOL OF MEDICINE

Department of Neurosurgery

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

For Immediate Release

Contact: Tami Lack, tami.lack@cuanschutz.edu

November is Epilepsy Awareness Month!! University of Colorado Neurosurgeon, Allyson Alexander, MD, PhD is a superstar with kids!!

AURORA, CO (November 18, 2020). Allyson Alexander, the newest neurosurgeon at Children's Hospital of Colorado and a member of the University of Colorado Neurosurgery faculty, is a powerhouse when it comes to epilepsy treatment and cutting edge research. Approximately 0.6% of children experience epilepsy, but more than 1 in 5 of these children continue to have seizures despite taking medications. For these children with difficult-to-treat epilepsy, many can benefit from specialized neurosurgery performed by Dr. Alexander and her colleagues.

Children's Hospital does about 120 epilepsy surgeries per year, taking referrals from a five state region. Not all children are eligible for epilepsy surgery, but those who are ultimately selected must go through extensive testing, seizure monitoring and a robust team decision making process. This multi-disciplinary team consists of neurosurgeons, neurologists, neuropsychologists, and neuroradiologists. They review all the imaging and data collected and then they vote on next steps. "This is not a traditional decision making model, and sometimes there is conflict and disagreement among the team. But, once we vote, the neurologists are better equipped to talk comprehensively with parents about the best steps forward for their child," says Dr. Alexander.

A mother herself, Dr. Alexander thrives in the fast paced environment at Anschutz Medical Campus. She did her residency at Stanford University Medical School and her fellowship at Phoenix Children's Hospital. She has a basic science lab in the School of Pharmacy at Anschutz, and is currently studying Focal Cortical Dysplasia (FCD). FCD is a disorder that leads to seizures in children with epilepsy, and can often be treated with surgery. In children with FCD, a small (i.e. focal) area of the brain developed abnormally, causing disruption of the normal layers of brain cells (neurons). In her lab, mouse models and human tissue (discarded from epilepsy surgeries) are used. Slice electrophysiology is used to observe the activity of single living neurons in these tissue. Living neurons can be preserved for study for up to 18 hours after the brain tissue is removed during surgery. She also uses calcium imaging to study the activity of many neurons at one time. By studying how neurons from patients or mice with FCD are different from typical neurons, Dr. Alexander plans to develop new targeted therapies to help treat epilepsy in children with FCD.

Obviously children aren't the only ones who experience epilepsy. According to the CDC, it's estimated that about [1.2 percent](#) of the U.S. population have active epilepsy. This comes out to about

3.4 million people nationwide — and more than 65 million globally. Additionally, about [1 in 26 people](#) will develop epilepsy at some point during their lifetime.

Roughly 36% of adults with epilepsy still experience uncontrolled seizures, even after trying up to three different kinds of anti-seizure medications. This is called pharmaco-resistant epilepsy and is terribly debilitating. On the adult side, at the University of Colorado Hospital on the Anschutz campus, neurosurgeons, Steve Ojemann and Dan Kramer are both working on surgical cases. Dr. Kramer is a brand new addition to the neurosurgery faculty at CU. “We will be looking at the activity of single neurons in areas known to start and spread seizures, including areas of new interest, such as those involved in our sense of smell and ability to recognize faces. We are trying to find out what is special about these neurons that cause seizures to spread, and how they are supposed to function normally,” says Dr. Kramer. “We are involved in many clinical trials and lots of basic science research in our department. We are currently participating in a trial to find out if using a minimally invasive laser to destroy brain tissue causing seizures can replace a traditional open surgery.” In addition, Dr. Ojemann and researcher, John Thompson, PhD, are involved in several epilepsy research studies related to sleep dysfunction, memory, and surgical planning.

For more information about the various surgical options for epilepsy children and adults, visit the neurosurgery department webpage at: <https://medschool.cuanschutz.edu/neurosurgery>.

Media Inquiries:

Tami Lack, Department of Neurosurgery
(303) 907 8977
Tami.lack@cuanschutz.edu