Six months of every year, Dr. Gretchen Birbeck lives in Africa fighting to help the 80-90 percent of people there with epilepsy and other debilitating neurological disorders who are not receiving proper treatment. Issues such as poor prenatal care, scarce vaccinations, meningitis, and even lack of helmet laws or safe transportation all contribute to extremely high rates of neurological damage in the region.

To combat the problem, Birbeck is studying the opportunities where the current health system could intervene and prevent neurological damage that occurs as a result of conditions like cerebral malaria which affects more than a million children in Africa alone.

Cerebral malaria—malaria that attacks the brain—often shows no symptoms in children until the child suddenly feels ill and drops into a coma in a matter of mere hours. If the child survives the next 48 hours, he or she will likely live, but 30 percent of those children will have significant neurological damage.

“What’s so sad is that it doesn’t have to be this way,” says Birbeck. “We have treatments that work, but they shut down breathing. In the U.S., we can put children on respirators, but in Africa, I can’t give these drugs to a child in adequate doses because I have no way to keep them breathing.”

Birbeck is testing known drugs and drug combinations that may help reduce the seizures and the damage they cause while also being simple to administer and inexpensive enough to be of practical use in the region.

“I’m lucky because Rochester is the center of the universe for neurological clinical trials,” says Birbeck. “There’s an amazing group of people here who do these neurological trials extremely well. I’m feeding at the fountain of their knowledge and bringing it to bear on the ground in Africa.”