Title: Prevalence of Acute Critical Neurological Disease in Children: A Global Epidemiological Assessment (PANGEA)

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Synopsis:
Acute critical neurologic injury in children due to traumatic brain injury (TBI), cardiac arrest, stroke, seizures, central nervous system (CNS) infection, and spinal cord injury is associated with significant morbidity and mortality and enormous economic burden worldwide. Disparities in the prevalence and outcome of these diseases occur by etiology, age, sex, and economic developmental status of the country. Unintentional injury, most commonly due to TBI, is the leading cause of death for children aged 10-19 years, and affects males more than females. Most often, studies examining prevalence of acute brain injury in children sample and extrapolate from small populations and do not report on the severity of disease, interventions provided, rehabilitation strategies, or long-term outcome.

Although neurologic disease is responsible for the majority of deaths and disability in children, little progress has been made in terms of new treatments and improvements in outcome. Treatment for acute brain injury in children is largely supportive as reflected in evidence-based guidelines for TBI, stroke, and cardiac arrest, and new therapies are critically needed. Point prevalence studies such as the EPIC study of adult sepsis provide epidemiological data that can assist in the planning of prospective studies, proper allocation of resources, and a basis to develop hypotheses to explain geographical differences in medical systems, treatment strategies, and outcomes.

The short term objective of this study is to describe the epidemiology and gross outcomes of acute critical neurologic disease in children. The long term objectives of this study are four-fold:

1) To improve outcomes in children with acute critical neurologic disease;
2) To assist in the design of prospective clinical research;
3) To address the allocation of healthcare resources for treatment and rehabilitation; and
4) To develop a network for communication and collaborations across the globe.