

# Looking at the Effect of Treatment Duration for Newborn Infants Who Have Seizures

## Principal investigators

Renée A. Shellhaas, MD, MS  
Hannah C. Glass, MDCM, MAS

## Organization

University of Michigan

## What was the research about?

Every year, about 16,000 newborns in the United States have seizures. A seizure is abnormal electrical activity in the brain. At least half of newborns who have seizures will have long-term health problems, such as epilepsy or an intellectual disability.

Medicines can treat seizures. But these medicines can have serious side effects and may harm children's brain development. Questions remain about how long newborns can safely take these medicines.

In this study, the research team wanted to learn if stopping seizure medicines before newborns went home from the hospital would affect their health and their parents' well-being. The team compared newborns who took medicines only in the hospital versus those who continued the medicines after they went home.

## What were the results?

Of newborns in the study, 36 percent took medicines only in the hospital, and 64 percent took medicines in the hospital and at home. Among newborns who took medicines at home,

- 68 percent took phenobarbital
- 13 percent took levetiracetam
- 20 percent took more than one medicine

After two years, the two groups didn't differ in

- Functional development, which included physical abilities, communication, skills like feeding and dressing, and social awareness
- Motor disability, or how well children could walk without stumbling or falling
- The risk of developing epilepsy
- Time newborns spent in the hospital

Further analyses by the research team found differences in parents' well-being between the two groups. Parents of newborns who took medicines only in the hospital reported a lower impact of illness on the family. But they reported worse anxiety, depression, and resilience.

## Who was in the study?

The study included 270 children who received care at nine hospitals across the United States. Of these, 63 percent were White, 12 percent were Black, 7 percent were Asian, 3 percent were more than one race, and 15 percent didn't report a race; 54 percent were boys.

## What did the research team do?

The research team enrolled children who were treated for seizures in the hospital as newborns and their parents. Doctors had worked with parents to choose if

---

newborns took seizure medicines only in the hospital or also at home.

Parents completed surveys when children were 12, 18, and 24 months old. The research team reviewed health records to collect data about the newborns' health and hospital stays.

Parents of newborns who had seizures and people from advocacy groups helped design and carry out the study.

### **What were the limits of the study?**

The study looked at children's health for two years; health differences could appear when children are

older. Fewer infants developed epilepsy than expected, which made it hard to find differences in the risk of developing the illness.

Future research could follow children who had treatment for seizures as newborns for a longer time.

### **How can people use the results?**

Doctors and parents can use these results when considering how to treat newborns with seizures.

*To learn more about this project, visit [www.pcori.org/ShellhaasGlass374](http://www.pcori.org/ShellhaasGlass374).*