

Study: Children with severe form of epilepsy should receive flu vaccine due to high risk after influenza infection

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Children with a severe form of epilepsy should be vaccinated against the flu due to the high risk of seizures being triggered by an influenza

infection, according to a new study.

The research, led by the Murdoch Children's Research Institute and the University of Melbourne, found the safe administration of the seasonal [influenza](#) vaccine should be a priority in those with SCN1A-positive Dravet syndrome given the likelihood of severe neurological symptoms and complications such as worsening [seizures](#), deteriorating language and [motor skills](#) and even death after catching the flu.

Pediatric neurologist, Dr. Katherine Howell from the Murdoch Children's said the decision for parents to vaccinate children with this syndrome was complex because seizures could be triggered by both [infection](#) and vaccination. Dr. Howell said despite the syndrome being associated with high rates of prolonged seizures during infections, the impact of influenza had not been previously studied.

The research, published in *Neurology*, involved children with SCN1A-positive Dravet syndrome who had a confirmed [influenza infection](#) at The Royal Children's and Austin Hospital. Researchers found 21 children caught influenza 24 times, with brain complications reported in 88 percent of cases. All presented to hospital with 75 percent recovering quickly but death or long-term brain complications occurred in one in five infections. Between them they received 60 influenza vaccinations with most tolerating the vaccine well.

"Concerns about giving the [flu vaccine](#) and incomplete routine immunisations are common in this patient group due to the risk of seizures after vaccination," Dr. Howell said. "However, because this syndrome is also associated with a high risk of seizures during infections, it highlights the critical need to protect patients from the complications of vaccine-preventable infections like the flu. Our research highlights that the benefits of flu vaccines for these children far outweighs the risks of seizures being triggered following vaccination."

SCN1A-positive Dravet syndrome, the most common severe form of genetic epilepsy, occurs in one in 15,000 children.

Renaë Caddy's son Fraser, 4, was diagnosed with SCN1A-Dravet syndrome after experiencing seizures as a baby.

Renaë said her son now received a flu shot every year to prevent prolonged seizures, which are largely triggered by an infection. At 11 months old a case of the flu caused Fraser to have a two-hour seizure and required four days of hospital treatment.

"The seizures have gone from monthly to weekly, but they are much shorter now, resolving after a few minutes rather than a couple of hours," she said. But if he has a viral infection he will seize for as long as his temperature is high and may need a lot of medication and even intubation to get his seizures under control.

"It can take Fraser up to four days to get back to normal after he experiences a severe seizure so anything we can do to avoid him getting sick we will do."

Renaë said all his influenza vaccines had been well-tolerated with no seizures.

"The research is reassuring for parents that it's beneficial for children with this condition to have the flu shot to try and avoid an onset of seizures caused by an infection, which are damaging and terrifying to watch," she said.

University of Melbourne Professor Ingrid Scheffer said the findings would change clinical practice.

"Identifying safe strategies and strongly encouraging influenza

vaccination in [children](#) and adults with SCN1A-Dravet [syndrome](#) is critical," she said.

"Prior to influenza vaccination, vaccine providers should review the child's regular anti-seizure medications and ensure a seizure management plan is in place. The use of additional anti-seizure medications in the post vaccination period, such as benzodiazepines, is now recommended to reduce the risk of seizures following a [vaccine](#) and is becoming routine practice."

More information: Katherine B Howell et al, Complications of Influenza A or B Virus Infection in Individuals With SCN1A-Positive Dravet Syndrome, *Neurology* (2022). [DOI: 10.1212/WNL.0000000000201438](#)

Provided by Murdoch Children's Research Institute

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