



**NATIONWIDE CHILDREN'S**  
*When your child needs a hospital, everything matters.*

## Helping Hand™

*Health Education for Patients and Families*

# Transcranial Doppler (TCD) Ultrasound

Children with sickle cell disease are at risk for stroke. Transcranial (trans-CRANE-ee-ul) Doppler (TCD) ultrasounds help predict that risk. A TCD measures how fast blood is flowing to the brain (Picture 1).

- When blood flows faster than it should, there is a higher risk for a stroke.
- Children with certain types of sickle cell disease, like Hgb SS or Hgb S Beta Thalassemia Zero, should have TCDs done once a year from ages 2 to 16. Some children may need TCDs more often to watch their risk more closely.
- TCDs help doctors and health care providers know if your child needs stroke monitoring more often or treatment to avoid stroke.



**Picture 1** The test is done on the outside of your child's head. It is done on the area around their ear called the temple.

## Preparing for a TCD

- Before your child's appointment:
  - Tell them what a TCD is.
  - They can eat and drink normally.
  - Do not give them any medicines that could make them sleepy. They must be awake.
- You can stay with your child at their appointment. While you're there:
  - Keep your child awake and help them relax. This will help get the most correct TCD results.
  - Bring something for your child to read or watch (without headphones).

## How a TCD is Done

The TCD machine stays on the outside of your child's body during the test. The test takes around 30 to 60 minutes.

- Someone that does ultrasounds, called a sonographer, will put gel on your child's head. This gel will not stain clothes. It can be wiped off easily.
- They will move a small device, called a probe, over the sides of your child's head and forehead (Picture 2).
- Your child needs to stay still as much as possible (Picture 3).



**Picture 2** TCD measuring the speed of a child's blood flow.

## After the Test

- Your child can return to their normal activities and diet.
- They should not need any pain medicine after the test.
- The sickle cell team will contact you with TCD results after the test.
- Your child is still at risk for having a stroke, even if they have TCDs done regularly.



**Picture 3** Child lying still while being tested.

## When to Call 911

**Call 911 for emergency help right away if your child has any symptoms of a stroke.**

Common stroke symptoms are:

- Seizures
- Vision changes
- Cannot be woken up
- Vomiting
- Trouble speaking
- Any weakness or numbness
- Sudden and severe headache

## Follow-up

- Your child's follow up appointment is on (date) \_\_\_\_\_ at (time) \_\_\_\_\_ in the (place) \_\_\_\_\_.
- Expect to have regular follow up appointments with your child's doctor or health care provider. Call your doctor if you can't keep any appointments or have any questions.