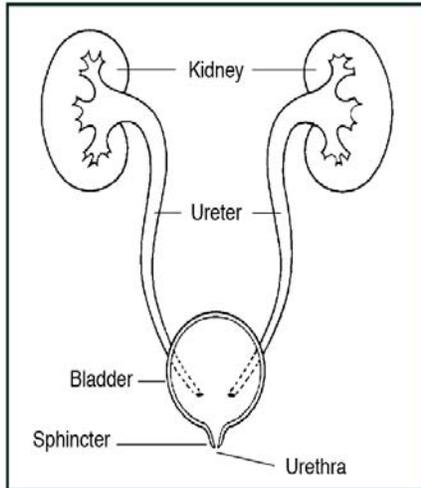


RIVUR (Randomized Intervention for children with VUR) Study Introduction

Your child had a urinary tract infection or UTI and also has *vesicoureteral reflux*, “VUR or reflux.”



- Urine flows from the kidneys down the ureters into the bladder. VUR occurs when urine from the bladder flows back into the ureters (reflux) and often backs into the kidneys.
- This occurs if the valves at the end of the ureters don't function properly; they are designed to allow urine to flow only in one direction (downward, not upward).
- One third of children with a UTI have VUR, which is graded on a scale from 1 to 5. Urine can backup only a short distance (Grade 1) or all the way up and dilate (stretch) the collecting systems in the kidney (Grade 5). This allows bacteria from the bladder to get to kidneys causing kidney infections with back pain, fever or chills.
- Repeated or severe kidney infections may cause scarring to the kidneys, and can rarely lead to high blood pressure, or later in life complications during pregnancy or kidney failure.

Current management of VUR

- All children with VUR in the United States are treated with a daily low dose of an antibiotic to prevent UTIs (prophylaxis).
- This is done to keep the urine sterile and decrease the possibility of infected urine reaching the kidneys.
- Treatment may go on for years until children outgrow their reflux. In most instances, VUR goes away with time as valves in the bladder mature. Some children with grades IV or V VUR may require surgery to correct the valves.

Differences of opinion exist whether all children with VUR need to be treated with antibiotic prophylaxis?

- Our current approach is based on old data from an international study from the 1980s conducted in children with severe VUR, which compared daily antibiotic prophylaxis with surgical correction. That study did not include a non-treatment group or children with VUR of lower grades.
- In Sweden, for example, only children with high grades of VUR are treated with antibiotic prophylaxis.
- Eventually VUR gets better as children get older.
- Renal scarring can occur in children with VUR and in children without VUR.
- Children with VUR receiving daily antibiotic prophylaxis can still have re-infections, and when they do, they have a greater risk to having resistant bacteria.
- In general, bacteria are becoming more resistant to antibiotics, and giving a small daily dose of an antibiotic may increase this problem.
- Antibiotics may also kill “healthy bacteria” that normally live at the entrance of the urinary tract, allowing more invasive bacteria to grow.
- We believe that if we promptly check the urine when your child has a fever, we will diagnose and treat UTIs, which may be all that is needed to prevent kidney scarring.
- Antibiotics have risks and side effects, such as allergic reactions, stomach upset, diarrhea, or yeast infections, in addition to the nuisance of giving a daily medication to your child for a long period of time.

RIVUR Study

- **Our Children's Hospital research team, which includes Drs. Hoberman and Shaikh from General Academic Pediatrics; Dr. Hickey from the Emergency Department; Drs. Docimo, Bellinger, Schneck and Wu from Pediatric Urology; along with many other nephrologists, urologists, infectious disease specialists and pediatricians from 15 major hospitals across the United States and Canada are working with the National Institutes of Health to improve the care of children with VUR.**
- The purpose of this study is to learn whether all children with VUR need to be treated with daily antibiotic prophylaxis.
- A total of 600 children, ages 2 months to 6 years, will be enrolled nationwide; here at Children's we will enroll 120 children during the next two years.
- Five visits, today and four more, in six months, 12 months, 18 months and 24 months.
- 50 percent of children will receive daily antibiotic prophylaxis, 50 percent will receive placebo (no active medication). Your child will have an equal chance of receiving either one.
- We will not know which treatment your child is receiving.
- Careful follow-up and safety guards are built into the study.
 - Your child will have close follow-up; we will call you every two months.
 - We will keep in close contact with your child's doctor.
 - You will have our phone number to call at any time.
 - Your doctor will see your child every time he/she has a fever, if he/she is not available we would be happy to see your child; a urine specimen will be checked.
 - In case of an emergency, such as an allergic reaction, we will be able to find out the medication your child is receiving.
 - The antibiotic we use is trimethoprim-sulfamethoxazole, a medication which is approved by the Food and Drug Administration for use in children for treatment of UTIs.
 - Your child had a DMSA kidney scan when she/he was diagnosed with VUR. We will repeat a DMSA kidney scan at 12 months to monitor for kidney scarring.
- At the first visit, we will collect a small sample of blood (one teaspoon), a urine sample and a stool sample. Your child will have a physical exam, and we will provide study medication that he/she will take daily.
- At the six months, 12 months, and 18 months visits your child will have a physical exam, and we will collect a small sample of blood.
- At the 24 months visit your child will have a physical exam, and we will collect a small stool sample and a urine sample. The VCUG and DMSA kidney scan will be repeated at this time.

For further information about this study, please call Dr. Hoberman at 412-999-3277 (EARS).