

Children's Hospital of Illinois
PSEUDOMONAS AERUGINOSA
INFORMATION SHEET

WHAT IS PSEUDOMONAS AERUGINOSA?

Bacteria and viruses are the most important types of germs that cause infection in people with cystic fibrosis (CF). Bacteria are probably the major cause of lung infection and lung damage in people with CF. Usually the number of bacteria in the lung of a person with CF is low because the body's immune system can keep these bacteria under control. This is referred to as bacterial colonization. There are several bacteria that most often colonize the lungs of people with CF. They are, *Haemophilus influenzae* (sometimes known as H. flu, which is different than the influenzae virus), *Staphylococcus aureus*, and *Pseudomonas aeruginosa*. Other bacteria include, *Escherichia coli*, *Stenotrophomonas maltophilia*, *Alcaligenes xyloxydans*, methicillin resistant *Staphylococcus aureus* (MRSA) and *Burkholderia cepacia*.

WHY IS PSEUDOMONAS AERUGINOSA IMPORTANT?

At some point most people with CF will test positive for *Pseudomonas aeruginosa*. The average age of detection of *Pseudomonas aeruginosa* is around 10 years old. By 20 years old, over 80% of people with CF have *Pseudomonas aeruginosa* organisms in their throat and sputum cultures.

Like most bacteria and viruses, *Pseudomonas aeruginosa* can cause infection that can lead to scarring of the lungs. Although it is true that a *Pseudomonas aeruginosa* infection that is not treated can cause lung damage, it is also true that *Pseudomonas aeruginosa* can be aggressively treated in a variety of ways to help shrink and manage it. Many people with CF have *Pseudomonas aeruginosa* colonization of the breathing tubes for many years and experience little or no trouble.

HOW DO YOU GET PSEUDOMONAS AERUGINOSA?

With CF there are problems with salt and water balance in the lining of the breathing tubes. This imbalance causes thick, sticky mucus. This mucus then traps bacteria, like *Pseudomonas aeruginosa*, in the lungs making it hard to clear. This leads to infection and damage to the lung lining. This leads to more mucus production and further trapping of *Pseudomonas aeruginosa*. *Pseudomonas aeruginosa* is fairly common in the environment. It can be found in things like bath water and common household items like utensils.

HOW DO YOU AVOID GETTING PSEUDOMONAS AERUGINOSA?

There is really no way to prevent exposure to *Pseudomonas aeruginosa*, the best you can do is **minimize** your exposure to it. Bacteria enter the lungs through your mouth and nose. You should, therefore, avoid direct (kissing, physical intimacy) and indirect (standing next to someone who is coughing or sneezing, sharing food, utensils or respiratory therapy equipment) contact with others with who have CF. You should also avoid hot tubs since *Pseudomonas aeruginosa* can survive in hot tubs if the pH and chlorine content are not strictly controlled. As always, it is important to make sure you wash your hands frequently, take your medications and do your therapies as prescribed.

WHAT ARE THE SYMPTOMS OF PSEUDOMONAS AERUGINOSA INFECTION?

Symptoms of *Pseudomonas aeruginosa* infection include increased cough, congestion, and possibly fever.

HOW DO YOU TREAT A PSEUDOMONAS AERUGINOSA INFECTION?

Antibiotics are the most effective way to fight bacteria. Aminoglycosides are the antibiotics of choice to treat *Pseudomonas aeruginosa*. Aminoglycosides include amikacin, tobramycin, and gentamicin. These antibiotics can be given either intravenously (IV) or through a nebulizer, depending on the severity of the infection. Quinolones can also be used to treat *Pseudomonas aeruginosa*. An example of a quinolone is ciprofloxacin. The advantage of ciprofloxacin is that it can be given by mouth.

