

# Ciliary function testing

This information sheet explains what these tests involve and why the tests will help you and your child.

## About cilia

Cilia are microscopic hair-like structures that line the surface of the airways, sinuses, ears and some organs of the body.

When functioning, cilia beat together in a wave-like motion to sweep mucus, germs and other foreign particles out of the airways acting as the primary defence barrier.

Cilia can function abnormally from either a genetic error from birth (primary damage) or damage from infections or poisons (secondary damage).

## Primary Ciliary Dyskinesia (PCD)

PCD describes the signs and symptoms that result from impaired ciliary function. The condition affects both males and females equally with an incidence of 1 in 20,000 people.

As a result of PCD, mucus and inhaled particles build up in the airways, sinuses, and ears, causing inflammation and recurrent infections which begin from birth.

There are other clinical features that make a diagnosis of PCD more likely. These features are used to help decide on the priority of sending you for testing.

A referral for ciliary function testing is recommended if there is more than two of the following symptoms in a person with a chronic cough:

- Breathing difficulty soon after birth in a baby born at full term
- Situs abnormality - abnormal position of organs
- Congenital heart disease - one or more problems with the heart's structure
- Persistent perennial rhinitis - chronic sneezing and/or congestion in the nose/sinuses
- Chronic ear or hearing symptoms.

The diagnosis of PCD is made by confirming that the cilia are not beating properly and look abnormal. To support this diagnosis genetic blood tests can also be performed.

## Ciliary function testing

The appointment will be approximately one hour long and involves:

- Verbal consultation - to clarify the history and explain the procedures
- Nasal nitric oxide measurement - a breathing test for those >4 years of age
- Nasal brushings - assessment of ciliary function and structure
- Final review - review the cilia together under the microscope.

It is important that your child is well on the day of the appointment to get accurate results. If your child has been unwell with cold/flu symptoms or has tested positive to any virus in the last 10 days, please contact the clinic to reschedule your appointment.

## About nasal brushing

The cilia line the airways in a continuous microscopic "shag pile carpet" all the way from the nose to the tiny airways.

We can sample the cilia from the nose and get a very good idea about how well they are working deeper in the lungs.

A small brush (much like a COVID swab) is inserted into each nostril to sweep cells from the nose. The process feels like a COVID-19 test but is quick (about two seconds per brush).

A total of four brushes are used to get enough cells to examine. Young children can sit in a parent or carer's lap and distraction tactics can be used to help.

Immediately after the nasal brushing, the doctor will look at the cilia under a microscope live on screen. Looking at the cilia tells us whether they look normal or not. We can measure how fast the cilia are beating and sweeping. The samples are then processed further so we can see inside the cilia.

Before you leave the consultation, we can tell you if we think the cilia are working well or not. A written report is sent to your doctor once all the tests are completed. This can take up to eight weeks.

## Information about your appointment

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Please note: This information sheet is for educational purposes only. For further information regarding this topic, please contact the care team.