

Bronchoscopies for monitoring young children with cystic fibrosis

This fact sheet explains why the cystic fibrosis (CF) team recommend bronchoscopy for monitoring young children who have cystic fibrosis.

CF causes lung disease that progresses or gets worse over time, but **this can be slowed down with treatment**. Bronchoscopy is a procedure done under a general anaesthetic that allows a doctor to look inside the lungs using a thin tube (or bronchoscope) containing a light and a camera. This procedure allows a doctor to see the material or mucus that is deep within a patient's lungs.

Structure of the lungs

Bronchoscopy also provides information on the lower parts of the lung. For instance, some children with CF have malacic (floppy) airways that narrow when they cough. If we know that a child has malacic airways, we can change the physiotherapy methods to help with clearing the airways.

Assessing infection in the airways

During a bronchoscopy, samples of the material in the lungs can be taken in a procedure called a bronchoalveolar lavage (BAL). This is where a small amount of saline (salty water) is injected into the airway and it is sucked back through the bronchoscope into a collection bottle. The fluid can then be sent for testing for infection with microbes (bacteria or fungus) that can be harmful to the lungs. If infection is found, it can then be treated to slow down the progression of CF. Treatments may include a change to your child's oral antibiotics, inhaled (nebulised) antibiotics or sometimes intravenous antibiotics.

Other common methods to monitor for infection used in young children are sputum sampling, induced sputum sampling (a mixture of saliva and mucus coughed up from the lungs after nebulisation with hypertonic saline solution) and throat swabs (where the back of the throat is swabbed to collect mucus for microbial cultures). We have evidence to show that bronchoscopies are more effective at monitoring infection because:

- Young children (under six years of age) are sometimes unable to cough up enough sputum to be sampled.
- We have shown that microbial cultures from both throat swabs and induced sputum do not reflect what is found in the lungs with bronchoscopy.



- The best available evidence also suggests that induced sputum cultures do not accurately reflect lung disease in children who are too young to cough up sputum. This might be because throat swabs/suctioning must be used to collect the samples after sputum has been induced.

Bronchoscopies are not performed routinely by all children's hospitals in Australia. Three of the seven children's CF centres perform routine bronchoscopies in children under six, and two commence these in the first year of life.

While the CF team believes that bronchoscopies are the best way to investigate infection in children under six years, participation in the bronchoscopy programme is voluntary. Please discuss management options with your CF team. If you choose to not participate in the bronchoscopy program your choice will be respected and will not affect other aspects of your child's care.

Combined data from Perth Children's Hospital and the Royal Children's Hospital in Melbourne from the early 2000's to 2018 showed that bronchoscopy have the following yields:

Using flexible bronchoscopy for microbial surveillance

Organism detected on bronchoscopy	Age
19%	3 months
19%	1 year
28%	2 years
40%	3 years
43%	4 years
45%	5 years
44%	6 years

Further information

Bronchoscopy Health Fact sheet

More information about the flexible bronchoscopy procedure and the risks is available on the PCH website.

- <https://pch.health.wa.gov.au/-/media/Files/Hospitals/PCH/General-documents/Patients-and-Families/Health-facts/Flexible-Bronchoscopy.pdf>

We also have information for our patients and families on our website:

- <https://pch.health.wa.gov.au/Our-services/Respiratory-and-Sleep/Cystic-Fibrosis/For-patients-and-families>

Each child's situation is unique, and the information provided here is generic. We encourage you to discuss any questions relating to the use of bronchoscopy in with our CF nurses and/or your child's doctor.



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