# Cystic Fibrosis: Prevalence, Risk Factors And Treatment

## Introduction

The aim of this report is to cover the prevalence, risk factors, current treatment options and prevention strategies of Cystic Fibrosis in Australia. Cystic Fibrosis is the most common life threatening, genetically inherited condition in children. It is caused by a mutation in the cystic fibrosis transmembrane conductance regulator (CFTR) gene, which causes the CFTR protein to not function properly. In Australia, 1 in 25 people carry this gene. For a child to be born with CF, both parents must carry the gene. It primarily affects the lungs and digestive system because of a malfunction in the exocrine system that's responsible for producing saliva, sweat, tears and mucus. Lung infections can occur often as the mucus traps the bacteria in. People with CF may also find it hard to gain weight as nutrients cannot be properly absorbed. There is no cure for CF but symptoms can be managed with different treatments such as medications and physiotherapy. Limitations to this report are that majority of information was sourced online due to books on the topic not being readily available and statistics only updated from 2017.

## Prevalence

Cystic Fibrosis is a common life-threatening genetic disorder affecting Australians. 1 in 2500 babies are born with CF in Australia, equivalent to 1 birth every 4 days. It is reported that in 2017, there were around 3000 people living with Cystic Fibrosis in Australia, with over half being adults. Around 1 in 25 Australians carry the CF gene, and 1 in 20 people in Tasmania, which is the second highest rate in the world. If 2 people carry the gene, the outcomes of the pregnancy will be: a 1 in 4 chance the baby will be born with CF, a 2 in 4 chance the baby will be a carrier of the gene, and a 1 in 4 chance the baby will not have CF or be a carrier of the gene.

Cystic Fibrosis (CF) retrieved from
https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/cystic-fibrosis-cf

## Risk Factors

There is only 1 risk factor for a child being born with Cystic Fibrosis, and that is having 2 parents that carry the gene. You cannot develop Cystic Fibrosis, you are born with it. There are risk factors that determine how severe the case of Cystic Fibrosis can be, these include genes, lifestyle and age. The CF gene mutation are divided into classes that show how damaged the CFTR protein function is. Milder versions of CF are defined as class IV and V. more severe cases of CF are known as class I, II and III. Modifier genes can affect how severe the case of Cystic Fibrosis is by altering symptoms and outcomes. Lifestyle habits such as smoking and drinking can make CF symptoms worse. Drinking is bad for people with CF because the liver has to work harder to get rid of the alcohol, and causes a greater risk of liver damage compared to the population who do not have CF. Exposure to second-hand smoke can worsen Cystic Fibrosis by weakening lung function and possibly shortening lifespan. People with CF must have a high calorie diet to maintain a healthy weight and also exercise to ensure healthy lungs. Cystic fibrosis gets worse with age, this is because lung function decreases every year. The average life expectancy for a person with CF is above 35 years, a significant improvement from

the 1960’s when life expectancy was around 10 years.

## Treatment

There is no cure for Cystic Fibrosis, however symptoms can be managed with different treatment methods, such as physiotherapy, medications and lung transplant. Medications can be used to reduce the severity of symptoms. Antibiotics can be taken to prevent lung infections, as well as mucus thinners which makes it easier to cough up mucus. Salt supplements are important for people with CF as they lose large amounts of sodium and chloride in their sweat, which is important for regulating the amount of water in blood. Other supplements are taken to prevent malnutrition as people with CF find it hard to maintain a healthy weight, pancreatic enzymes can help the digestive tract absorb nutrients. If the lungs become damaged enough, then lung transplant can be considered for the patient. This is done if the individual has severe breathing problems or if they develop a resistance to antibiotics, which can lead to life threatening lung complications. Chest physical therapy is done by clapping with cupped hands on either side of the chest, this helps to loosen mucus and makes it easier to cough up. Vest therapy also helps to loosen mucus, with the use of a vibrating vest. Each vest session is around 20-30 minutes and twice a day. When these treatment methods are combined, symptoms will be less severe and create a better quality of life for Cystic Fibrosis sufferers.

## Conclusion

Cystic fibrosis is a genetic disorder that affects around 3000 Australians. It is caused by a defect in the CFTR gene and mainly affects the respiratory and digestive system, causing mucus to become sticky and clog passageways. 1 in 25 people carry the gene and both parents must carry it for a child to be born with CF. As there is no cure, quality of life with the condition can be improved by managing symptoms. This can be done with different treatment methods including medications and physiotherapy. Lung transplant can be considered if lung function deteriorates enough. Risk factors for CF worsening are age, lifestyle and genetics. Cystic Fibrosis worsens with age as the health of the lungs decreases and other health problems can occur.