

***Human Biology ATAR – Task 3: Extended Response***

***Lung diseases and treatments (7.5%)***

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| --- | --- | --- | --- |
| Name: Charmaine Fruelda | | | |
| Time allowed: 1 Lessons | | | |
| **Section** | Your Mark | Marks available | Percentage |
| **Section 1:**  Report |  | 10 | 18.5% |
| **Section 2**:  Validation Test |  | 44 | 81.5% |
|  |  | **54** | **100%** |

**Declaration of Authenticity**

I (Student Name) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ declare that this work is my own and I have not plagiarised from any source.

Signature:  
  
Date:

**Lung disease and treatments**

You are to choose **one** lung disease from List A and **one** disease from List B to research and find information about the named aspects of each disease. You will then complete an in-class validation assessment on your research without notes.

DISEASES

|  |  |
| --- | --- |
| **LIST A** | **LIST B** |
| Chronic bronchitis | Pneumonia |
| Emphysema | Pleurisy |
| Cystic fibrosis | Tuberculosis |

Check list.

* Cause, or main causes
* Symptoms and diagnosis
* Current treatments…how they work and what they do
* Prevention

Write the names of the diseases you have chosen here:

Disease A: Emphysema

Disease B: Pneumonia

**Marks Table**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Report** | **Cause** | **Symptoms** | **Treatments** | **Prevention** | **Marks** | Your mark |
| **Disease A** | 1 | 1 | 1 | 1 | 5 |  |
| **Disease B** | 1 | 1 | 1 | 1 | 5 |  |

This sheet is to be the cover page of your report.

**Emphysema**

**Introduction**

Emphysema is a chronic lung condition that is characterized by damage to the alveoli in the lungs, which leads to difficulty in breathing. It is a type of chronic obstructive pulmonary disease caused by long-term exposure to irritants such as cigarette smoke, air pollution, or chemical fumes. Some symptoms of emphysema are shortness of breath, chronic cough, and fatigue. While there is no cure for emphysema, treatments can help manage symptoms and improve quality of life.

**Causes**

Emphysema is primarily causes by long term exposure to irritants such as cigarettes, air pollution, or chemical fumes. Inhaling these irritants can trigger an inflammatory response in the lungs, causing the enzymes to break down the connective tissue in the walls of the alveoli. Overtime, it reduces the elasticity of the alveoli, reducing the ability to respire.

**Cigarettes:** Smoking is the most common cause of emphysema, with an estimated 80-90% of cases linked to smoking. However, non-smokers can also develop emphysema due to exposure to second hand smoke, air pollution, or occupational hazards such as chemical fumes or dust.

**Age-related changes**: As people age, the lung tissue can become less elastic and more prone to damage, which can increase the risk of developing emphysema.

**Infections:** Severe lung infections, such as pneumonia, can cause damage to the lungs and increase the risk of developing emphysema.

**Symptoms**

1. Shortness of breath
2. Chronic cough
3. Wheezing
4. Chest tightness/pain
5. Difficulty of breathing
6. Fatigue/weakness
7. Reduced exercise tolerance
8. Frequent respiratory infections
9. Weight loss
10. Bluish tint to the lips or fingernail beds (severe cases)

Emphysema symptoms can develop gradually over time and may be easily dismissed as normal signs of aging or being out of shape. It's important to talk to a doctor for an accurate diagnosis and appropriate treatment.

**Treatments**

1. **Lifestyle changes**

Avoiding lung irritants such as cigarette smoke and air pollution is the most crucial step in treating emphysema. Quitting smoking is crucial and can slow down the progression of the disease. In addition, regular exercise, a healthy diet, and avoiding respiratory infections can also help manage symptoms.

1. **Medications**

Bronchodilators, corticosteroids, and antibiotics are commonly used to treat emphysema.

1. Bronchodilators help relax the airways, making it easier to breathe.
2. Corticosteroids can reduce inflammation in the airways.
3. Antibiotics are used to treat respiratory infections.
4. **Oxygen therapy**

In severe cases of emphysema, oxygen therapy may be necessary to provide the body with enough oxygen. This can be done using an oxygen tank or concentrator.

1. **Pulmonary rehabilitation**

Pulmonary rehabilitation includes breathing exercises, physical exercise, and nutritional counselling to help manage emphysema symptoms and improve lung function.

1. **Surgery**

In very severe cases of emphysema, surgery may be an option. Lung volume reduction surgery removes damaged lung tissue to allow the remaining healthy tissue to function better, and lung transplant is another option for some patients.

There’s no cure for emphysema, but treatments can help manage symptoms and slow down the spread of the disease.

**Preventions**

1. **Avoid smoking**

Smoking is the leading cause of emphysema. Quitting smoking and avoiding exposure to second hand smoke can help prevent emphysema from developing or slow down its progression.

1. **Protect lungs from air pollution**

Avoid exposure to environmental pollutants such as fumes from burning wood or coal, dust, and other harmful chemicals.

1. **Practice good respiratory hygiene**

Washing hands regularly and avoiding close contact with people who have respiratory infections can reduce the risk of developing respiratory infections that can lead to emphysema.

1. **Get vaccinated**

Vaccinations for influenza and pneumonia can help prevent respiratory infections that can cause or worsen emphysema.

1. **Exercise regularly and maintain a healthy diet**

Regular exercise and a healthy diet can help support overall health and lung function.

These measures can reduce the risk of developing emphysema, they may not completely prevent it, especially if there is a genetic predisposition or other underlying lung conditions.

**Pneumonia**

**Introduction**

Pneumonia is a serious lung infection that can affect people of all ages but is most common in young children and older adults. It’s a significant cause of morbidity and mortality in Australia, with an estimated 15,000 hospitalisations each year. Pneumonia can be caused by a variety of microorganisms, including bacteria, viruses, and fungi, and it is often characterized by symptoms such as cough, fever, and shortness of breath. Early diagnosis and appropriate treatment are crucial to reduce the risk of complications and improve outcomes.

**Causes**

Pneumonia is a lung infection that can be caused by bacteria, viruses, or fungi. These germs can enter the body through the nose or mouth and travel down to the lungs, where they can cause inflammation and swelling.

1. Streptococcus pneumoniae can cause bacterial pneumonia, which can be spread through coughing or sneezing.
2. The flu virus is a common cause of viral pneumonia.
3. People with weakened immune systems, such as those with HIV/AIDS or cancer are more likely to get fungal pneumonia.
4. Pneumonia can be caught in hospitals, where several types of germs may be present.

It's important to understand what is causing pneumonia so that the right treatment can be given and to prevent its spread to others.

**Treatment**

The treatment for pneumonia depends on the cause and severity of the infection. In most cases, antibiotics are prescribed for bacterial pneumonia, while antiviral medications may be used for viral pneumonia.

For severe cases of pneumonia, hospitalization may be necessary, where treatment can include oxygen therapy, intravenous fluids, and respiratory support. In addition to medical treatment, rest, hydration, and medications like pain relievers and cough suppressants can help relieve symptoms.

It's important to complete the full course of antibiotics, even if symptoms improve, to prevent the infection from coming back or developing antibiotic-resistant strains of bacteria. Follow-up care may also be necessary to ensure complete recovery and to monitor for any complications.

**Prevention**

1. **Vaccinations**

Vaccines are available to protect against some of the most common causes of pneumonia, including pneumococcal bacteria and the flu virus. Doctors can recommend which vaccines to take depending on the age, health status and other risk factors of the individual.

1. **Practice good hygiene**
2. Wash hands properly
3. Cover mouth when coughing or sneezing
4. Avoid close contact with people who are sick to reduce the risk of getting infected with germs that cause pneumonia.
5. **Quit smoking**

Smoking damages the lungs and makes it harder for them to fight off infections, including pneumonia. Quitting smoking can help reduce the risk of developing pneumonia and other lung diseases.

1. **Maintain a healthy lifestyle**

Eating a balanced diet, getting regular exercise, and managing chronic health conditions like diabetes and heart disease can help keep the immune system strong and reduce the risk of getting sick.

1. **Seek medical attention when sick**

If an individual develop symptoms of pneumonia, seek medical attention promptly. Early diagnosis and treatment can help prevent complications and spread of the infection to others.