

Health and disease

Revision notes · What health means, communicable and non-communicable diseases, and why one disease can make you more likely to get another.

For Edexcel GCSE Biology 1BI0 and Combined Science 1SC0. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Health and disease Spec 5.1-5.3

What is health? Spec 5.1

Health is not just about being free from illness. The World Health Organization (WHO) defines **health** as a state of complete **physical, mental and social well-being** and not merely the absence of disease or infirmity.

The three parts of health		
Part of health	What it means	Example of it going wrong
Physical	The body is working properly and is free from disease	Having an infection such as tuberculosis
Mental	Being able to think clearly and cope with everyday life	Long-term anxiety or depression
Social	Having good relationships and a place in the community	Being isolated or lonely

Someone can have no disease and still not be healthy by this definition. For example, a person who is physically fit but severely stressed and isolated is not in a state of complete well-being.

Exam tip: If you are asked for the WHO definition, include all three words: physical, mental and social. Missing one can cost you the mark.

Communicable and non-communicable diseases Spec 5.2

A **communicable disease** can be passed from one organism to another. It is caused by a pathogen, so it is also called an infectious disease. Cholera, tuberculosis and malaria are communicable.

A **non-communicable disease** cannot be passed from one person to another. It is not caused by a pathogen. Cardiovascular disease, many cancers and diseases linked to nutrition are non-communicable.

Communicable and non-communicable diseases compared		
	Communicable	Non-communicable
Cause	A pathogen	Not a pathogen; often a mix of several factors
Passed on?	Yes, between people (or animals or plants)	No
Examples	Cholera, tuberculosis, malaria, HIV	Heart disease, lung cancer, liver disease

Common mistake: Do not say that non-communicable diseases are 'not infectious' and leave it there. State that they are not passed on from person to person and are not caused by pathogens.

How one disease can lead to another Spec 5.3

Having one disease can make you more **susceptible** (more likely to catch) other diseases. There are several ways this happens.

- **A weakened immune system.** HIV destroys white blood cells, so the body cannot fight off other pathogens. People with HIV are much more likely to develop infections such as tuberculosis.
- **Damaged barriers.** A disease that damages the skin or the lining of the airways makes it easier for other pathogens to get in.
- **Poor nutrition.** Some diseases make it hard to eat or absorb food. A poorly nourished body makes fewer of the cells and chemicals needed for defence.
- **Mental health.** A long-term physical illness can lead to depression or anxiety. Poor mental health can in turn make physical health worse.

Using data

You may be given a table, graph or **scatter diagram** linking two diseases. A scatter diagram can show a **correlation**: as one variable changes, the other changes too. A correlation does not prove that one disease causes the other. Something else could be responsible for both.

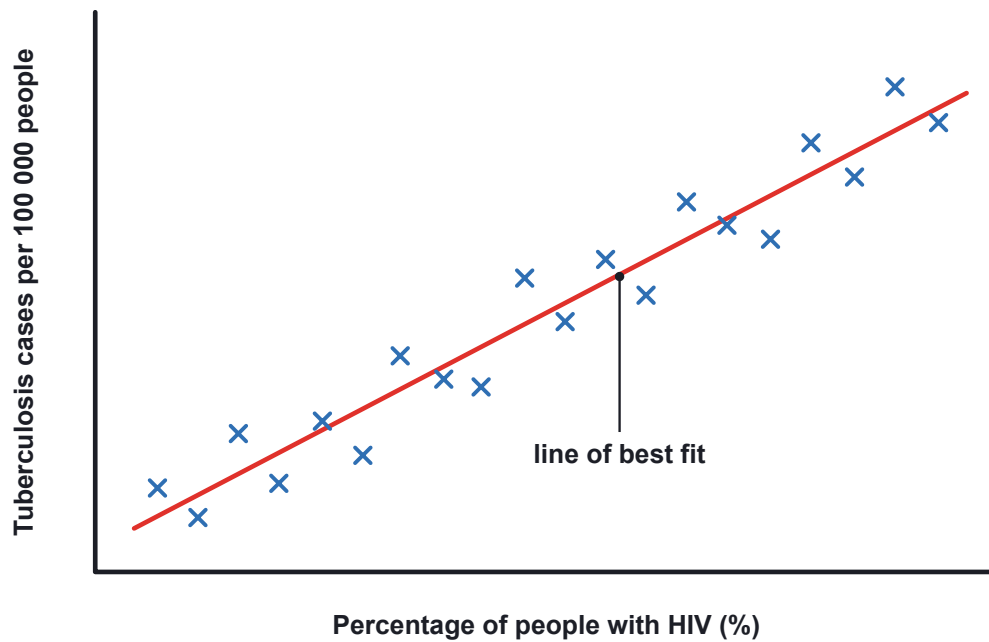
Data from a larger, randomly chosen **sample** is more reliable than data from a small one. Also check that the people sampled are representative of the group the conclusion is about.

Reading a scatter diagram

A scatter diagram shows that in 20 regions, the regions with more people infected with HIV also have more people with tuberculosis. Describe the pattern and state what can be concluded.

1. The points slope upwards from left to right.
2. As HIV infections increase, tuberculosis cases increase, so there is a positive correlation.
3. A correlation does not show cause, but it is consistent with HIV making people more susceptible to tuberculosis.

Answer: Positive correlation between HIV and tuberculosis. It supports, but does not prove, that HIV increases susceptibility to tuberculosis.



Regions with more HIV also have more tuberculosis: a **positive correlation**, which does not on its own prove cause.

Quick check

1. Give the WHO definition of health.
2. What is the main difference between communicable and non-communicable diseases?
3. Explain why someone with HIV is more likely to get tuberculosis.
4. What does a positive correlation on a scatter diagram show?

Quick check answers

Health and disease

- 1 . A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
- 2 . Communicable diseases are caused by pathogens and can be passed on; non-communicable diseases cannot be passed on.
- 3 . HIV destroys white blood cells, so the immune system is weakened and cannot fight off other pathogens.
- 4 . As one variable increases, the other also increases.