

## B5 Key fact sheet: Health, Disease and the Development of Medicines.

- 1) The definition of health is, “a complete state of physical, mental and social wellbeing and not merely the absence of disease or infirmity”.
- 2) A communicable disease can be passed from person to person (is infectious).
- 3) A non-communicable disease cannot be passed from person to person (non-infectious).
- 4) Having one disease suppresses the immune system making it likely you will catch another disease.
- 5) The definition of pathogen is, “a disease causing microorganism such as a virus, bacteria, fungi or protist”.
- 6) Cholera is water borne, caused by bacteria and causes diarrhoea.
- 7) Tuberculosis is airborne and causes lung damage, it is caused by bacteria.
- 8) Chalara ash dieback is a fungal disease that kills ash trees and is airborne.
- 9) Malaria is caused by a protist and causes damage to the blood and liver, it is carried by an insect vector.
- 10) HIV is caused by a virus and transmitted in bodily fluids, it causes AIDS.
- 11) Stomach ulcers are caused by bacteria called Helicobacter, which are transmitted orally.
- 12) Ebola is caused by a virus, which is transmitted in bodily fluids.
- 13) Chlamydia is a sexually transmitted disease caused by bacteria.
- 14) HIV is a sexually transmitted disease caused by a virus.
- 15) Sexually transmitted diseases can be prevented by using a condom or abstaining.
- 16) Physical barriers to infection include mucus in the airways, cilia in the airways and the skin.
- 17) Chemical defences to infection include lysosomes in tears and low stomach pH.
- 18) The immune system is triggered by antigens.
- 19) Antigen is short for ‘antibody generator’.
- 20) Pathogens in body act as antigens.
- 21) When an immune response is triggered, antibodies are made by lymphocytes.
- 22) Antigens also cause memory lymphocytes to be made.
- 23) Memory lymphocytes mean that the body can produce specific antibodies much more quickly if the same antigen is encountered again.
- 24) Immunisation is the introduction to the body of dead or weakened forms of a pathogen that generate an immune response and cause memory lymphocytes to be made.
- 25) Antibiotics can only treat bacterial infections not viral infections.
- 26) Antibiotics disrupt cellular processes in bacteria but leave human cells undamaged.
- 27) The stages of drug development are discovery, development, preclinical and clinical testing.
- 28) Some diseases are multifactorial, this means more than one factor can be involved in having the disease. A good example of this is heart disease which may have genetic and lifestyle factors.
- 29) BMI is calculated by:
$$BMI = \frac{mass(kg)}{(height(m))^2}$$
- 30) Waist to hip ratio is another measure that can be used to make estimates of health and the chances of getting lifestyle diseases in a population.
- 31) Alcohol can cause liver cirrhosis.
- 32) Smoking increases the risk of cardiovascular disease.
- 33) Cardiovascular disease can be treated with lifelong medication (statins), surgical procedures (bypass surgery, stents etc.) and lifestyle changes.