

Health, disease and the development of medicines

Health and disease

WHO definition of health

Physical Mental Social

Communicable disease

Caused by pathogens Can be passed on

Non-communicable disease

Not passed on No pathogen

One disease leads to another

Weakened immune system Damaged barriers
Mental health

Interpreting data

Scatter diagram Correlation not cause Sample size

Pathogens

Pathogen types

Virus Bacteria Fungi Protists

Cholera, TB

Bacteria Water Airborne

Ash dieback

Fungus Airborne spores Leaf loss, lesions

Malaria

Protist Mosquito vector Blood and liver damage

HIV

Virus White blood cells AIDS

Stomach ulcers, Ebola Triple only

Helicobacter Oral transmission Ebola virus Body fluids

Virus lifecycle Triple only

Lytic Lysogenic

STIs

Chlamydia HIV Condoms

Plant defences Triple only

Physical barriers Triple only

Leaf cuticle Cell wall

Chemical defences Triple only

Kill microorganisms Poison pests

Plant medicines Triple only

Treat disease Relieve symptoms e.g. aspirin from willow

Detecting disease Triple only Higher tier

Environmental causes Distribution analysis
Visible symptoms Diagnostic tests

Human defences

Physical barriers

Skin Mucus Cilia

Chemical defences

Lysozymes Hydrochloric acid

Specific immune response

Antigens Antibodies Memory lymphocytes

Secondary response

Faster More antibodies

Immunisation

Inactive pathogen Memory cells made

Immunisation pros and cons Triple only

Herd immunity Protects non-immune people Side effects
Boosters may be needed

Medicines

Antibiotics

Bacteria only Inhibit cell processes

Aseptic technique Triple only

Autoclave Sterile loop Covered dishes

Core practical Triple only

Clear zone Control disc Area πr^2

New medicines

Discovery Development Preclinical Clinical

Monoclonal antibodies Triple only Higher tier

Hybridoma cells Pregnancy tests Diagnosis
Cancer treatment

Non-communicable diseases

Multiple causes

Lifestyle Environment Inherited

Obesity and malnutrition

BMI Waist : hip ratio Diet and exercise

Alcohol

Liver disease

Smoking

Cardiovascular disease Lung disease

Levels

Local National Global

CVD treatments

Medication Surgery Lifestyle changes