

Diseases and immunity

Pathogens and transmission

Pathogen

Disease-causing organism

Transmissible disease

Passed between hosts

Direct contact

Blood Body fluids

Indirect routes

Surfaces Food Animals Air

Body defences

Skin Nose hairs and mucus Stomach acid White blood cells

Controlling spread

Clean water Food hygiene Personal hygiene Waste and sewage

Cholera **Supplement**

Contaminated water Toxin, chloride ions Osmosis, diarrhoea

Immunity **Supplement**

Antigens **Supplement**

Specific shapes

Antibodies **Supplement**

Proteins Complementary shape Destroy or mark

Active immunity **Supplement**

Own antibodies Infection Vaccination

Vaccination **Supplement**

Weakened pathogen Lymphocytes Memory cells

Controlling spread **Supplement**

Fewer susceptible hosts

Passive immunity **Supplement**

Placenta Breast milk Short-term No memory cells