OCR (B) Biology GCSE

Topic B2.3: How can we prevent the spread of infection?

Flashcards

Outline the methods used to reduce infections in animals (7)

Outline the methods used to reduce infections in animals (7)

- Hygiene (washing hands, sneezing into tissues etc.)
- Sanitation
- Treating wounds
- Isolating infected individuals (isolation unit, limiting travel etc.)
- Killing infected animals
- Contraception
- Vaccinations

How can sanitation be improved to reduce disease in humans?

How can sanitation be improved to reduce disease in humans?

- Access to clean water
- Sewage systems
- Reduces the spread of diseases e.g. cholera (spread by drinking or washing in dirty water)

Why is it difficult to improve sanitation in a community?

Why is it difficult to improve sanitation in a community?

It is expensive

Why must wounds be sterilised?

Why must wounds be sterilised?

- Antiseptic kills pathogens around the wound
- Covered to prevent further entry of microorganisms into the wound

Why does the isolation of infected individuals reduce disease?

Why does the isolation of infected individuals reduce disease?

- Reduces the transmission of airborne diseases (e.g. TB) or diseases that are spread through surface contact
- Prevents the infection of healthy individuals
- Reduces the risk of epidemics or pandemics

Outline the benefits vs risks of placing travel restrictions on infected individuals

Outline the benefits vs risks of placing travel restrictions on infected individuals

Benefits:

- Prevents the transmission of disease across borders
- Protects the health of uninfected individuals

Risks:

- Shouldn't an individual have the right to travel freely?

Why are infected animals often killed?

Why are infected animals often killed?

To prevent the transmission of disease to other members of the herd.

What are the disadvantages of killing infected animals to reduce disease transmission?

What are the disadvantages of killing infected animals to reduce disease transmission?

- High cost
- Some animals may already be infected but not display disease symptoms

How does the use of contraception reduce the spread of disease?

How does the use of contraception reduce the spread of disease?

Using condoms prevents the spread of STIs which are present in body fluids such as semen.

What is a vaccination?

What is a vaccination?

- Deliberate exposure of an individual to ‘non-self’ antigens
- Triggers an immune response (produces antibodies) and provides immunity (due to memory cells)
- The individual does not contract the disease that is being immunised against

Describe the components of a vaccine

Describe the components of a vaccine

Dead, weakened or inactivated pathogens with their surface antigens still present

What are the benefits of vaccinations?

What are the benefits of vaccinations?

- **Herd immunity** - vaccination of a significant proportion of the population gives some protection to individuals who are not immune
- Helps to prevent epidemics and pandemics

What are the drawbacks of vaccinations?

What are the drawbacks of vaccinations?

- **High mutation rate** of viruses changes the structure of viral antigens, making vaccines that are already available ineffective
- Inactivated pathogens may mutate and become **pathogenic**
- May cause an **adverse reaction**
- Vaccination programmes are **costly**

Outline the methods used to reduce infections in plants (6)

Outline the methods used to reduce infections in plants (6)

- Controlling the movement of plants
- Killing infected plants
- Sourcing healthy seeds and plants
- Polyculture
- Crop rotation
- Chemical and biological control

How does killing infected plants reduce the spread of disease?

How does killing infected plants reduce the spread of disease?

It prevents infected plants spreading disease to healthy plants

Why is it important to control the movement of plants?

Why is it important to control the movement of plants?

- Ensures that infected plants do not spread disease to healthy plants
- Plants from other regions of the world may carry pests or diseases that could be harmful to plants in the UK

What is polyculture?

What is polyculture?

The cultivation of several crop species at once

How does polyculture reduce the transmission of disease?

How does polyculture reduce the transmission of disease?

There is greater variation between plants, reducing the likelihood of a pathogen infecting an entire crop.

What is crop rotation?

What is crop rotation?

Growing different types of crops in the same area each season.

Why does crop rotation reduce the transmission of disease?

Why does crop rotation reduce the transmission of disease?

- After a crop has been harvested, soil-borne pests and diseases may remain which have the potential to infect the next crop
- Pests and diseases are often specific to a certain crop
- Changing the type of crop grown reduces infection by soil-borne pathogens remaining from the previous year

Give an example of chemical control

Give an example of chemical control

Using fungicides

What is biological control?

What is biological control?

When a new organism (often a predator) is introduced into an ecosystem to control a pest or pathogen

What is the risk of using biological control?

What is the risk of using biological control?

Risk of the control organism becoming a pest itself