

Text from poster presented at the Great Exhibition Road Festival 2022 by the Institute of Infection at Imperial College.

“The Bad”: Ecological Imbalance and Emerging Diseases

Human activity is shifting the ecological balance we have with microbes. This can have profound impacts in health and beyond

Deforestation

- Deforestation destroys the habitats of animals and insects, which can lead to increases in human disease.
 - Example: Macaques move closer to humans when their homes are destroyed by deforestation. This has been linked to more people catching malaria.
- It also affects the delicate relationship that trees and plants have with microbes in the soil. This can lead to more harmful microbes, which can devastate crops and cause animal/human disease.

Image: A macaque sits on a branch with a speech bubble: “I’m new here! My home was destroyed by deforestation. I bring diseases like malaria.”

Intensive Farming

- Antibiotics are used in farming to keep animals healthy, but if they are over-used, microbes evolve to become resistant to being killed. When these get into our food system, they can cause human illnesses.
- Increased global trade of livestock can spread diseases to parts of the world where those diseases never existed.
- We are using more and more insecticides to produce the food we need. This can impact biodiversity (e.g., extinction of insect species) and soil and plant health.

Image: A cow is shown with bacteria in the gut. A speech bubble from the bacteria says: “We are new here! We were transported here because of global farming trade. We are resistant to antibiotics.”

Climate Change

- Because of climate change, insects which carry disease might soon move into new areas of the globe, which may increase the number of people with those diseases.
 - Example: Scientists think that as temperatures rise, mosquitos - which can spread malaria and dengue fever - may soon be found in new areas of the globe.

Image: Mosquitos are shown with a speech bubble: “We are new here! It’s warmer here because of climate change. We bring diseases like malaria and dengue.”

Urbanisation

- Cities becoming bigger means more people living closer together, which increases the chances of infections spreading.

DID YOU KNOW? Researchers at Imperial College (e.g., in the Department of Life Sciences and Grantham Institute) are studying many of these issues.

Image: A group of people stand in front of a cityscape with a speech bubble: “We’re new here! When there’s many people close together, it’s easier for infection to spread.”