

World Diseases

MANCHESTER
1824

The University of Manchester



Tuberculosis (TB)



Prevalence (people)	8.6 million
Deaths per year	1.3 million
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	months or years

Causative agent: *Mycobacterium tuberculosis*

Transmission: *Airborne*

About one-third of the world's population has latent TB, which means people have been infected by TB bacteria but are not ill with the disease and cannot transmit it.

Cholera



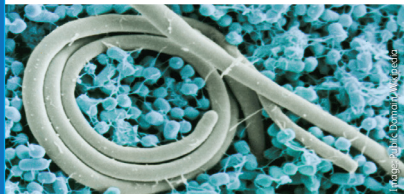
Prevalence (people)	4 million
Deaths per year	110,000
Geographical distribution (countries)	48
Incubation Period (time until symptoms appear)	2 days

Causative agent: *Vibrio cholerae*

Transmission: *Ingesting contaminated food or water.*

Cholera is an acute diarrhoeal disease that can kill within hours if left untreated. Most people have no symptoms at all (asymptomatic) but can still spread infection!

Salmonella



Prevalence (people)	93.8 million
Deaths per year	155,000
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	12-36 hours

Causative agent: *Salmonella spp*

Transmission: *Ingesting contaminated food or water.*

There are over 2000 types of Salmonella. Typhoid fever is the most dangerous Salmonella infection.

Toxoplasmosis

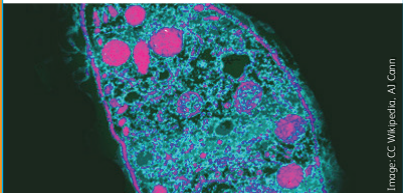


Image: CC Wikipedia, AJ Cann

Prevalence (people)	6 billion
Deaths per year	rarely fatal
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	5–23 days

Causative agent: *Toxoplasma gondii*

Transmission: *Ingestion of food or water contaminated with cat faecal matter, partially cooked meat or via blood.*

France has the highest incidence of Toxoplasmosis in Europe.

Malaria



Prevalence (people)	207 million
Deaths per year	627,000
Geographical distribution (countries)	99
Incubation Period (time until symptoms appear)	10-20 days

Causative agent: *Plasmodium species*

Transmission: *Mosquito bite.*

Around half of the world's population are at risk of malaria (3.3 billion people).

Schistosomiasis



Image: CDC, Public Health Image Library,
Number 5255

Prevalence (people)	243 million
Deaths per year	200,000
Geographical distribution (countries)	78
Incubation Period (time until symptoms appear)	3 weeks

Causative agent: *Schistosoma mansoni*, *Schistosoma haematobium*, *Schistosoma japonicum*

Transmission: Larvae enter through human skin when in contact with contaminated water.

Schistosomiasis may also be referred to as bilharzia 'snail fever' as fresh water snails act as vectors of the parasite.

Elephantiasis



Image: Public Domain, CDC, PHIL #373

Prevalence (people)	120 million
Deaths per year	rarely fatal
Geographical distribution (countries)	73
Incubation Period (time until symptoms appear)	5-18 months

Causative agent: *Wuchereria bancrofti* or *Brugia malayi*

Transmission: Mosquito bite.

People with this disease often become socially isolated.

Guinea worm Disease



Image: Public Domain, CDC, PHIL #1342

Prevalence (people)	542
Deaths per year	rarely fatal
Geographical distribution (countries)	4
Incubation Period (time until symptoms appear)	10 months

Causative agent: *Dracunculus medinensis*

Transmission: *Drinking water containing infected water fleas.*

Also nicknamed “the fiery serpent.” In the 1980s 3.5 million people were infected but education has led to its near eradication.

Whipworm



Image: R. Grencis, University of Manchester

Prevalence (people)	790 million
Deaths per year	rarely fatal
Geographical distribution (countries)	150
Incubation Period (time until symptoms appear)	70 days

Causative agent: *Trichuris trichiura*

Transmission: *Ingestion of infective eggs.*

The infections affect school-age children worse and are a major reason children miss out on education.

Hookworm



Prevalence (people)	600 million
Deaths per year	rarely fatal
Geographical distribution (countries)	150
Incubation Period (time until symptoms appear)	1-2 days

Causative agent: *Necator americanus*,
Ancylostoma duodenale

Transmission: Walking barefoot through areas contaminated with faecal matter.

The disease can cause an itchy rash when the worms enter the skin. The parasite lives in the gut and is major cause of anaemia.

Tapeworm



Image: Public Domain, CDC, PHIL #5260

Prevalence (people)	111 million
Deaths per year	50,000
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	6 weeks

Causative agent: *Taenia saginata*, *Taenia solium*, *Diphyllobothrium latum*, *Hymenolepis nana* and *Echinococcus granulosus*

Transmission: Eating raw/uncooked pork, beef or fish. Faecal contamination.

Fish tapeworms are the longest tapeworms and can grow up to 25m in humans. Tapeworms can live for up to 25 years!

Threadworm

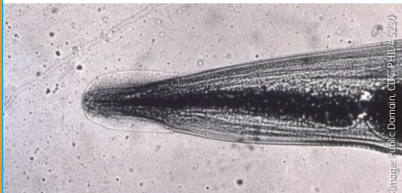


Image: Public Domain, CDC, PHIL #5230

Prevalence (people)	1,000 million
Deaths per year	rarely fatal
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	4 weeks

Causative agent: *Enterobius vermicularis*

Transmission: *Ingesting eggs from contaminated clothing, bedding or objects.*

School aged children have the highest incidence of pinworm infestation. It gives you a very itchy bum!

Ascariasis: roundworm



Image: Public Domain, CDC, PHIL #9813

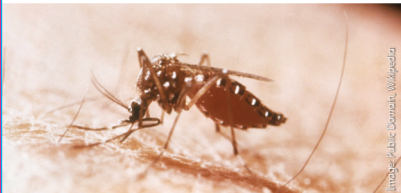
Prevalence (people)	1,000 million
Deaths per year	3,000
Geographical distribution (countries)	150
Incubation Period (time until symptoms appear)	8 weeks

Causative agent: *Ascaris lumbricoides*

Transmission: *Ingesting food or water contaminated with roundworm eggs.*

This worm infection can cause gut obstruction and severe gut damage.

Dengue fever



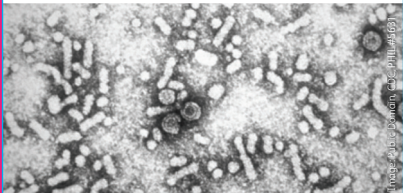
Prevalence (people)	103 million
Deaths per year	22,000
Geographical distribution (countries)	103
Incubation Period (time until symptoms appear)	6-14 days

Causative agent: *Flavivirus, DENV-1, DENV-2, DENV-3, DENV-4*

Transmission: *Mosquito bite.*

It is estimated that 2.5 billion people are at risk of Dengue Fever.

Hepatitis



Prevalence (people)	2 billion
Deaths per year	600,000
Geographical distribution (countries)	150
Incubation Period (time until symptoms appear)	5 weeks (Hepatitis B)

Causative agent: *Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D and Hepatitis E*

Transmission: *A and E -ingesting contaminated food or water. B, C and D – transfer of infected of bodily fluids.*

The most common types of hepatitis are A, B and C. 4.4 million people in the USA are infected with hepatitis.

HIV/AIDS

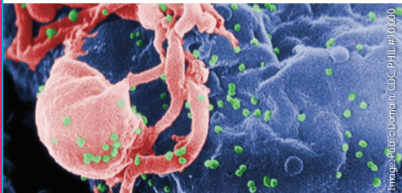


Image: Public Domain. CDC, PHIL #10,000

Prevalence (people)	35.3 million
Deaths per year	1.7 million
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	8-10 years

Causative agent: *HIV virus*

Transmission: *Transfer of infected bodily fluids.*

HIV is usually passed in body fluids and especially blood. Some bodily fluids, such as saliva and tears, do not transmit HIV.

Measles



Prevalence (people)	20 million
Deaths per year	122,000
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	10 days

Causative agent: *Measles virus*

Transmission: *Airborne or direct contact with infected person.*

Measles is one of the leading causes of death among young children even though a safe and cost-effective vaccine is available.

Chickenpox



Image: Public Domain, Wikipedia

Prevalence (people)	3.8 million
Deaths per year	rarely fatal
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	10-20 days

Causative agent: *Varicella zoster virus*

Transmission: *Contact with the broken chickenpox blisters and airborne.*

Usually once you get chickenpox you become immune to it so you can't get it again. When you are older, the virus can switch on again and cause shingles.

Common cold



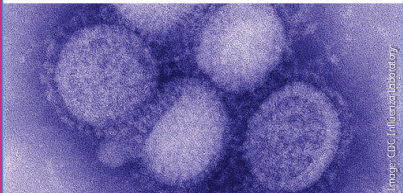
Prevalence (people)	5.6 million
Deaths per year	rarely fatal
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	2 days

Causative agent: *Rhinoviruses*

Transmission: *Airborne or contact with contaminated objects.*

The common cold is the most common disease in the world. There are over 200 different viruses that can cause the common cold.

Influenza



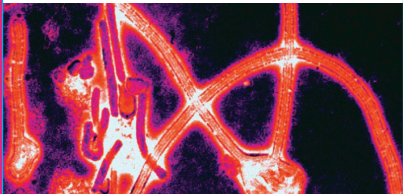
Prevalence (people)	1.7 billion
Deaths per year	500,000
Geographical distribution (countries)	worldwide
Incubation Period (time until symptoms appear)	2 days

Causative agent: *Flu virus A, B, C*

Transmission: *Airborne and through hand-to-eye, hand-to-nose, or hand-to-mouth transmission.*

The flu virus changes a little bit each year so it can avoid our immune system. This means a new flu vaccine needs to be made every year.

Ebola



Prevalence (people)	57
Deaths per year	29
Geographical distribution (countries)	9
Incubation Period (time until symptoms appear)	2 to 21 days

Causative agent: *Filoviridae virus*

Transmission: *Direct contact with contaminated body fluids.*

Ebola originated from fruit bats and was discovered in 1976. In 2014 there was a major outbreak with over 1000 deaths and 2000 cases by August.

How to play

- The cards are shuffled and dealt out among the players face down. Traditionally players do not look at their cards or rearrange their order.
- Players may only look at the top card in their own pile.
- The player to the left of the dealer will choose a category from their top card and read out the value.
- All the other players will then read out their values for the same category on their top card.
- The player with the best value* wins the round and receives everyone else's top card. *This is usually the largest figure, but not always. The key should indicate whether a higher or lower value is 'better'.
- The winner places the cards they receive at the bottom of their hand and then chooses the category for the next round.
- If there is a draw and two or more cards have the same value, all the top cards are placed in the centre and a new category is chosen by the same player. The winner of this round gets the top cards as usual plus the ones in the centre.
- Players are eliminated when they lose their last card.
- The winner is the player who ends up with all the cards.

Key

Prevalence (people): This refers to the numbers of cases reported of the disease. The actual people at risk of disease is often much higher than the number of cases of disease.

Deaths per year: This is how many deaths the diseases causes. If a disease (card) does not have a mortality rate then this category scores zero.

Geographical distribution (countries): This refers to the number of countries the parasite is found in. If a disease (card) occurs worldwide then this category wins.

Incubation period (time until symptoms appear): This refers to the time taken before the person infected becomes sick. In this case the quickest time wins so minutes will beat hours, hours will beat days and so on.

Useful/further information

Infection remains the biggest killer of people under the age of 50. We are all exposed to infections yet the infections we have vary depending on where we live. Some infections take a long time before they cause someone to get ill yet other infections may cause hardly any symptoms at all. Find out more about common infections in the world and why they matter in our trumps game.

The Manchester Immunology Group in the University of Manchester focuses on the study of how the body's defence system (immune system) fights common infections. Find out more at www.mig.ls.manchester.ac.uk

This resource was created by Rosie Griffiths, Maria Giovanna Lizio, Professor Kathryn Else, Dr Joanne Pennock and Dr Sheena Cruickshank at the University of Manchester.

Data correct at date of publishing: 2014