SMC Novel Coronavirus Factsheet

The virus

What is a coronavirus?

Coronaviruses are a family of viruses that infect a wide range of different species including humans. Before this new coronavirus, there were six different coronaviruses known to infect humans. Four of these cause a mild common cold-type illness. Since 2002 there has been the emergence of two new coronaviruses that can infect humans and result in more severe disease (Severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) coronaviruses). Both SARS and MERS coronaviruses are thought to have originated in animals. They are transmitted via droplets in coughs and sneezes.

Where did this one originate? Why there?

On 31st December 2019, Chinese authorities notified the World Health Organisation of an outbreak of viral pneumonia in Wuhan City. Coronaviruses are known to be able to occasionally jump from one species to another. A study published in Nature suggests the novel coronavirus originated in bats. It is possible that another species served as an intermediate host. Because wildlife markets put people and live and dead animals in close contact, it makes it more likely the virus could jump between species.

What is the virus called?

On Tuesday 10th February, the WHO named the disease caused by the novel coronavirus COVID-19. The virus itself has been named SARS-CoV-2, as the International Committee on Taxonomy of Viruses (ICTV) have determined that it is the same species as SARS but a different strain of the species.

Testing

How do you test for the virus?

The test for the novel coronavirus is done in specialised laboratories. Specimens can be collected from the upper (nose and throat swabs) or lower (saliva and mucus samples) respiratory tracts. These specimens are sent to the reference laboratories for testing. The RNA in the samples is amplified and sequences which match with the genome of the novel coronavirus are tested for. China released the sequence of the novel coronavirus genome early in the outbreak.
Why don’t we test asymptomatic individuals (eg. those quarantined in the Wirral)?

Although the test for the virus used in the UK is very sensitive, collecting virus from infected but asymptomatic individuals is not straightforward because the quantities of virus in the nose and throat (if present at all) may be very low. Public Health England is nevertheless testing those quarantined at intervals to learn more about this new illness. There is no firm evidence that infected but asymptomatic individuals pass on the virus efficiently to others.

Those infected with the virus

What are the symptoms?

Most people who get the virus will have only symptoms similar to winter flu, but a small proportion will develop pneumonia - an infection that inflames the air sacs in one or both lungs. The symptoms of the virus can include dry cough, fever, fatigue and breathing difficulty. In severe cases with pneumonia, organ failure can also occur.

How dangerous is the virus?

The mortality rate is not yet accurately known but based on the available data it is probably around 1-2%. However, this is likely to be an overestimate since this figure is based only on the number of individuals who have been tested and confirmed to have the virus. It is likely that more people have been infected, but have not been diagnosed because their illnesses were milder, and so have not been counted in the number of those infected.

Who seems to be particularly vulnerable to the virus?

Although the virus can infect anybody, those with more severe illness and those who ultimately die from the infection tend to be elderly or suffer from another underlying illness.

How do you treat those hospitalised with the virus? How effective are these treatments?

As this is viral pneumonia, antibiotics are of no use. The antiviral drugs we have against flu will almost certainly not work. Several possible treatments are being evaluated in clinical trials in China. Most cases will need very little treatment and people will recover by themselves. Paracetamol or a similar drug will help reduce fever and muscle pains. In severe disease treatment will be mainly supportive and is intended to keep people alive until they start to recover by themselves. In more severe illness patients may be given oxygen or even artificial ventilation.
**Modelling the outbreak**

**How is this outbreak being modelled? What data is being used?**

Various teams of scientists are trying to model the outbreak to predict its severity and how it might change in size. They use the officially reported number of novel coronavirus figures and domestic and international travel (i.e., train, air, road) data. Researchers can also use the similarities of the novel coronavirus to SARs to predict the information, such as the serial interval estimate (the time it takes for infected individuals to infect other people), which we do not yet know for this virus.

**Why is the number of those infected suggested by models so much higher than the number of confirmed cases?**

Some people who are infected by the coronavirus only have mild symptoms, they may not report symptoms to health care professions and will not be tested and diagnosed with the novel coronavirus. This means there will be a number of people who are infected but are not recognized and confirmed as cases.

**Preventing further spread of the virus**

**What is the current advice for travellers from China and other countries in Asia?**

The Foreign and Commonwealth Office has advised UK nationals to leave China where possible. If you have returned from Wuhan or anywhere in Hubei province in the last 14 days you should:

- Stay indoors and avoid contact with other people as you would with the flu.
- Call NHS 111 to inform them of your recent travel to the city
- If you are in Northern Ireland, call the Corona Virus Helpline number 0300 200 7885

Please follow this advice even if you do not have symptoms of the virus.

From February 6th the official advice was updated to those that have travelled from elsewhere in China, or Thailand, Japan, Republic of Korea, Hong Kong, Taiwan, Singapore, Malaysia or Macau to the UK in the last 14 days and develop symptoms of cough, fever or shortness of breath, should:

- Immediately self-isolate, even if symptoms are minor and call NHS111.

**Why is hand washing and sneezing hygiene so important?**

The droplets and fine particles produced by coughs and sneezes potentially contain virus. This can be deposited on hands and commonly touched surfaces. To minimise the risk of cross-infection, it is important to wash hands frequently and thoroughly with soap or an alcohol-based sanitising hand gel if soap and water are not readily available; cover your face with a tissue when coughing or sneezing. Dispose of tissues safely and wash hands or use hand gel immediately. More here: https://www.gov.uk/government/news/coronavirus-public-information-campaign-launched-across-the-UK
Why are the British citizens returning from Wuhan in quarantine?

There is evidence that the incubation period (the time between being exposed to a disease and when the symptoms start) of the virus can be as long as 14 days. By placing the people who have been in Wuhan in quarantine for two weeks they can be monitored for signs of the virus and there is little chance of them infecting anyone else.

What is airport screening? Is the UK doing this?

Airport screening during outbreaks is when travellers from a country where the disease is present are screened for signs of infection, such as fever. Rather than airport screening, the UK has introduced enhanced monitoring arrangements. This includes measures like airlines broadcasting a vocal message to passengers returning on direct flights from China, to encourage reporting of illness; providing PHE leaflets (in flight and at airport) and prominent posters with information on actions people should take if they become unwell.

Do facemask work?

The masks regularly used by the general public are surgical masks which in hospitals are being used for short periods by trained professionals, changed frequently and properly disposed of. They are loose fitting and do not offer great protection with extended use. Guidance from many countries, including the UK, is that they are unnecessary at this time and the public should rely on washing hands with soap and water and using hand sanitizer when a wash hand basin is not conveniently located nearby.

Global situation

What is a PHEIC? Why have the WHO declared one for this coronavirus outbreak?

The WHO declared the outbreak a PHEIC on 30th January 2020. A PHEIC is defined by the WHO as, ‘an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response’. This definition implies a situation that is serious, sudden, unusual or unexpected; carries implications for public health beyond the affected State’s national border; and may require immediate international action. The novel coronavirus outbreak meets the criteria in that it is a completely new virus, it has spread internationally, and it requires immediate international action.

What is a pandemic? Why is this outbreak not currently classed as one? Why is it concerning if the virus spreads in other countries?

A pandemic is classed as the worldwide spread of a new disease. Currently the novel coronavirus does not have significant spread in countries other than China and so the WHO have said it is too early to call it a pandemic. There are concerns that if the coronavirus spreads to other countries whose health systems are already under high stress, then the virus will be much harder to contain.
Vaccines

What funding for research into vaccines has been committed?

The British government has pledged a £20m investment to CEPI - the Coalition for Epidemic Preparedness Innovations - a global body aiming to fast-track a vaccine within six to eight months, they have pledged another £20m for rapid-response research calls for research around the coronavirus.

The Wellcome Trust have committed £10m to fund research and support global efforts to tackle the epidemic.

What vaccines are being developed? How long will it take to get a vaccine ready to use?

There are several research teams and pharmaceutical companies researching a vaccine, including two in the UK. Vaccines normally take several years to be developed but in urgent cases they can be fast-tracked if funding allows.