

Technology for Everyone 2nd February, 2021

Professor Pamela Vallely and Professor Paul Klapper talked about their research and progress in the battle to protect us from the covid-19 virus.

We were reminded that the corona virus was first reported on 21st December 2019 in Wuhan, China. Since then over 103 million confirmed cases and 2 million deaths have been reported worldwide. It is thought that the virus has spread from infected bats and passed on to pangolins found in the live food market in Wuhan from where humans became infected.

We have, however, made great progress, in one year, in understanding the virus. The coronavirus is spherical with protein spikes protruding from its surface. The spikes latch on to human cells and fuse with the cell membrane causing severe respiratory problems.

Vaccines help us to develop immunity to the virus. The spike protein is recognised as 'foreign' by the immune system, activating antibodies and producing an immune memory. This means that the immune system has learnt how to defeat another new infection. The production of new vaccines has been very impressive.

The rate of transmission is the R number and it describes the average number of people that one infected person can infect. It therefore measures the spread of the virus in the population. We were reminded of the symptoms of covid-19 – fever, cough, loss of taste and smell, headache, diarrhoea etc.

Speed to conquer the virus was essential and 10th January 2020 saw the first covid-19 test become available and in early March commercial tests became available. Alderley Park, now a Biotech site, was used to test specimens. Artificial intelligence helped to assess a positive or negative result. Between April 12th and July 13th Alderley Park tested 1 million specimens and the capacity now runs at 80,000 samples per day and the new Kent variant was first spotted there. Mutation changes the shape of the protein spike and, as a result, more cells are infected, making it very contagious.

It is encouraging to see that the number of covid-19 cases is falling and it is very important not to come out of 'lock down' too early.

The professors reminded us that this is not the first pandemic and it is important for governments to maintain funding for research.

Report by Anne Denning.