The Covid-19 Outbreak - Update
23rd June 2020

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As of 22.06.2020 there have been 9,067,559 cases of Covid-19 infection reported with 471,027 deaths. The comparable figures in the last update (on 26.05.2020) were 5,592,354 and 347,950.

Case numbers continue to rise in the USA with a total of 2,356,715 cases and 122,248 deaths. Whereas infection rates and deaths have shown a reduction in New York and New Jersey other states continue to see large numbers of new cases. This is particularly evident in Florida, Illinois, Texas and Massachusetts. Most southern states have also seen large rises in new cases.

Please listen to our Talking Work and Health podcast on managing through the pandemic for further advice and insight. You can subscribe on any podcast provider (Apple, Spotify) by searching ‘Talking Work and Health’.
An influential model from the University of Washington’s Institute for Health Metrics and Evaluation increased the forecast US death toll to 201,129 people by the start of October. The model has also predicted that Florida will be one of the worst affected states with 18,675 deaths predicted – the current figure is 3,164 deaths. There has been a varied willingness to continue adherence to social distancing and some states are re-opening businesses despite continuing high levels of new infections. The latest total death model has been raised by over 30,000 to reflect these experiences.

President Trump’s pronouncements continue in his usual idiosyncratic fashion. He blamed a rise in coronavirus cases on the increased testing being done, saying if it stopped, ‘we’d have very few cases, if any.’

‘If we stop testing right now, we’d have very few cases, if any,’ Trump said at a roundtable discussion on the health of America’s seniors at the White House.

Brazil is now the country with the second largest outbreak with 1,086,990 cases reported on 22.06.2020 with 50,659 deaths. Case numbers are continuing their steep rise with no evidence of flattening to date. The case numbers are also likely to be a significant underestimate as Brazil has one of the lowest testing rates of any major country with only 11,436 tests per million of the population – compared to 116,241 in the UK. It has just recorded its highest number of new cases with nearly 35,000 in a single day.

Russia has now had 592,280 cases and only 8,206 reported deaths. Russia continues to have c.7,500 new cases a day but this is a small improvement over the c.10,000 cases a day seen in early to mid May.

Case numbers continue to rise steeply in India with c.15,000 new cases a day. They have had 426,910 cases to date and their healthcare infrastructure is in danger of being overwhelmed by the demands placed upon it.

Most European countries have seen a sustained decline in case numbers and are cautiously reducing lockdown measures. There have been clusters of new outbreaks and this has been especially seen in meat and poultry processing plants in the UK, USA, Germany and Poland. In part this is due to the inherently crowded working conditions and inability to maintain social distancing.

In China, Beijing has placed 21 million residents under new lockdown measures after 137 new cases. The outbreak started in the huge Xinfadi food market. Several other provinces have now started quarantining any arrivals from Beijing.
The picture is summarised in the table below – the figures in brackets represent data on 26.05.2020.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Cases</th>
<th>Total Cases / 1 million population</th>
<th>Deaths / 1 million population</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>2,356,715 (1,706,226)</td>
<td>7,121 (5,158)</td>
<td>369 (302)</td>
</tr>
<tr>
<td>Italy</td>
<td>238,499 (230,158)</td>
<td>3,944 (3,806)</td>
<td>573 (544)</td>
</tr>
<tr>
<td>Spain</td>
<td>293,352 (282,480)</td>
<td>6,274 (6,042)</td>
<td>606 (574)</td>
</tr>
<tr>
<td>Russia</td>
<td>592,280 (353,427)</td>
<td>4,059 (2,422)</td>
<td>56 (25)</td>
</tr>
<tr>
<td>Germany</td>
<td>191,575 (180,789)</td>
<td>2,287 (2,158)</td>
<td>107 (101)</td>
</tr>
<tr>
<td>Iran</td>
<td>204,952 (137,724)</td>
<td>2,441 (1,642)</td>
<td>115 (89)</td>
</tr>
<tr>
<td>France</td>
<td>160,377 (145,555)</td>
<td>2,457 (2,259)</td>
<td>454 (436)</td>
</tr>
<tr>
<td>UK</td>
<td>304,331 (261,184)</td>
<td>4,484 (3,849)</td>
<td>628 (544)</td>
</tr>
<tr>
<td>Brazil</td>
<td>1,086,990</td>
<td>5,115</td>
<td>238</td>
</tr>
</tbody>
</table>

Testing rates continue to show an overall upward trend as both logistics and supply of test kits improves. It still remains a mixed picture and the current rates are shown below with data from 26.05.2020 in brackets.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Cases</th>
<th>Total Tests</th>
<th>Tests / 1 million population</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>2,356,715 (1,706,226)</td>
<td>28,492,770 (15,187,647)</td>
<td>86,093 (45,910)</td>
</tr>
<tr>
<td>Italy</td>
<td>238,499 (230,158)</td>
<td>4,984,370 (3,482,253)</td>
<td>82,436 (5, 586)</td>
</tr>
<tr>
<td>Spain</td>
<td>293,352 (282,480)</td>
<td>5,162,909 (3,556,567)</td>
<td>110,426 (76,071)</td>
</tr>
<tr>
<td>South Korea</td>
<td>12,438 (11,225)</td>
<td>1,182,066 (839,475)</td>
<td>23,057 (16,375)</td>
</tr>
<tr>
<td>Germany</td>
<td>191,575 (180,789)</td>
<td>5,029,696 (3,595,059)</td>
<td>60,036 (42,922)</td>
</tr>
<tr>
<td>Iran</td>
<td>204,952 (137,724)</td>
<td>1,422,407 (818,017)</td>
<td>16 941 (9763)</td>
</tr>
<tr>
<td>France</td>
<td>160,377 (145,555)</td>
<td>1,384,633 (1,384,633)</td>
<td>21 214 (21 214)</td>
</tr>
<tr>
<td>UK</td>
<td>304,331 (261,184)</td>
<td>7,890,145 (3,532,634)</td>
<td>116,241 (52,065)</td>
</tr>
<tr>
<td>Russia</td>
<td>592,280 (353,427)</td>
<td>17,200,000 (8,945,384)</td>
<td>117,862 (61,300)</td>
</tr>
<tr>
<td>Brazil</td>
<td>1,086,990</td>
<td>2,430,347</td>
<td>11,436</td>
</tr>
</tbody>
</table>
This does highlight the UK’s improvement in its testing capability. As mentioned above, Brazil continues to lag far behind the focus placed on testing in virtually every other country with a significant outbreak. Japan also continues to be an outlier in terms of test performance and their rate remains low at only 3,263 tests per million.

GLOBAL TRAVEL ADVICE

The UK Government still advises against all non-essential travel. However, there is an extensive list defining those who are exempt from the current UK border rules. Most European countries are now relaxing entry requirements in order to restart their tourist industries. It would be hoped that the UK will also review its illogical and nonsensical quarantine requirements for UK arrivals. This has also caused ill will with other European countries some of whom have taken a retaliatory stance in response to this.

UK Specific Advice

As of 0900 on 21.06.2020 a total of 7,890,145 tests have been conducted in the UK of which 304,331 have been positive. 175,018 tests were carried out on 20.06.2020. There have now been 42,632 deaths in the UK.

Pillar 4 of the PHE testing regime consists of blood and swab testing to follow community prevalence of those who have had Covid-19 as demonstrated by positive antibody results. 462,187 tests have now been carried out compared to 233,706 tests on 25.05.2020. For reasons best known to themselves, PHE does not publish the actual test results which would help us to understand levels of community resistance in terms of positive antibody results.
There is considerable scrutiny over the UK’s 2 metre social distancing rule. This is likely to be reduced imminently. The graphic below shows that the UK is an outlier in our approach compared to most other countries.

The World Health Organisation continues to recommend a 1 metre distancing model. Countries that adopted the 1 metre rule from the outset do not seem to have fared worse in terms of infection rates.
Update on Treatment Development

In my last update, I described the work being done in the multicentre Recovery Trial, which is coordinated by Oxford University.

They reported on the 5th June that there was no clinical benefit from the use of hydroxychloroquine in hospitalised patients.

The most encouraging finding has been that dexamethasone (a form of steroid) reduces death by up to one third in those patients with severe respiratory disease. Further research will now look at optimising timing, dosages and patient selection.

An earlier US trial has demonstrated that remdesivir is also clinically effective. Other studies have shown the benefit of anti-coagulant treatment in ITU patients.

Research is ongoing on a global basis and all of this evidence will lead to incremental improvements in survival rates and reducing the need for ITU care.

COVID-19 AND PREGNANCY

A very prescient piece of work was undertaken by the UK Obstetric Surveillance System after the Swine Flu pandemic of 2009-2010. They designed and put in place a prospective study, which was then hibernated from 2012 but kept in readiness for another such pandemic. When Covid-19 arrived in the UK they were able to launch the study at short notice with participation of all 194 obstetric units in the UK.

They reported the results in the British Medical Journal on 8th June.
This looked at outcomes for all pregnant women admitted with clinically proven Covid-19 infection. 427 patients were enrolled into the study between 01.03.2020 and 14.04.2020.

The main findings were as follows:

- **56%** were from BAME communities
- **69%** were overweight or obese
- **41%** were aged 35 or older

There were 5 deaths – 3 from Covid-19 and 2 from other causes.

Most women did not have severe illness and most were admitted in the third trimester of pregnancy.

Transmission of infection to infants of infected mothers may occur but it is uncommon.

Overall, these are very encouraging results and confirm that pregnant women do not suffer from worse clinical outcomes than the rest of the population. Foetal transmission appears low and more work is being done on looking at the potential routes of infection.
Track & Trace Progress

Unfortunately the NHS tracing App seems to be lost at sea somewhere off the Needles after the Isle of Wight trial.

Although the app worked well with Android phones, this was not the case with Apple phones. There has been recrimination and blame between Apple and Whitehall with various accusations of non-cooperation. The app developed by Apple and Google has taken a quite different philosophical path from the one developed by NHSX. The tech companies approach was for a “decentralised” app under which public health authorities would receive no information on potential exposures or infections detected by the app in order to protect users privacy. An individual would simply receive a notification that they had been in contact with a potential or confirmed case and advised to self-isolate accordingly.

The government preferred a “centralized” approach whereby the system would continuously collect anonymised data which would allow it to track potential infections and to contact the individuals concerned.

Both approaches have their own merits but it now appears unlikely that an app will be launched in the imminent future. Lord Bethell, the health minister warned “We are seeking to get something going before the winter, but it isn’t the priority at the moment.”

There are also more fundamental and generic challenges in using a Bluetooth signal in this way as detection distances can vary widely under different conditions.
The two concepts are shown in the graphic below.

When A and B meet, their phones exchange a key code.

When A becomes infected he updates his status in the app.

Centralised

Phone provides own anonymised ID plus codes gathered from other phones to centralised database.

Computer server uses database to do contact matching and risk analysis, plus sends alerts.

Decentralised

Phone provides own anonymised ID only to centralised database.

Phone downloads database, does contact matching and risk analysis, plus sends alerts.
In the interim, the UK will have to rely on manual contact tracing and this has been shown to work well in countries such as Germany. An app would be a helpful supplementary tool in certain scenarios outlined below.

**Why contact tracing apps could flag more infections**

Bob has coronavirus but has not yet been diagnosed

- He sees his housemate in the morning for breakfast
- Bob has a conversation with a stranger while getting coffee
- The bus to work is crowded and Bob has to stand

- Manual contact tracers can quickly identify his housemate as a close contact
- Manual contact tracing could identify some customers from the coffee shop
- Manual contact tracing is unlikely to identify everyone on the bus standing near Bob

App tracing most useful in these cases as unknown contacts can be alerted quickly

It is almost inevitable that there will be localized spikes in infection rates as we come out of lockdown measures and effective contact tracing will be essential to dampen these down as quickly as possible.
TESTING UPDATE

In the early stages of the pandemic, diagnostic testing was beset with inadequate supplies, quality control issues and delays. However, these challenges have now been largely resolved.

As we move from the pandemic containment phase to the adjustment period, testing needs to move from acute diagnosis to a community surveillance basis with regular testing of large numbers of the population to detect asymptomatic infection. It is thought that this may happen in 70-80% of all cases.

A trial of more than 14,000 people in Southampton has just been started to look at GP staff, their households and other key workers.

They will use a new “no swab” saliva test and will send specimens on a weekly basis over a 4-week period. It is hoped that this new test will be much less intrusive than the current swab sampling and will not need to be administered by clinical personnel.

This test uses a new, simpler technology compared to the current PCR (Polymerase Chain Reaction) testing. The new technology uses the LAMP (Loop-mediated isothermal amplification) system and can produce results in under an hour.

It was officially approved the US Food and Drug Administration on 8th May having previously received emergency use authorisation in April.

In terms of antibody testing for evidence of past infection, there really has been little progress since I last wrote on this topic. A sensible suggestion has been to use the less accurate pinprick tests with all those showing positive results progressing to the reliable blood sample test. However, the current evidence still suggests relatively low community prevalence of around 5-10% so there is less appetite at the present time for large scale testing outside of healthcare settings.
Finally – How Heritage Testing could help us to understand more about Covid-19

We still have little understanding of why the spectrum of Covid-19 infection runs from asymptomatic to a fatal multi-organ disease.

Researchers at the University of Edinburgh are asking for help from the 30 million people who have used genetic testing services to help track their family heritage through home DNA testing.

Their aim is to find genes that influence disease severity by comparing volunteer’s symptoms with their DNA profile.

The next update will be available on the 22nd July.

Hopefully we will have had better news on progress by then.

If you have any specific or business related concerns, or simply want to talk to one of our clinicians please do not hesitate to contact the Health Management Occupational Health and Support line on 01273 555666. Our clinical team will be pleased to assist.