



The Friday Report – Issue 15

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COVID-19 Actuaries Response Group – Learn. Share. Educate. Influence.

Every week, more is written on COVID-19 than any individual could possibly read. Collectively, the COVID-19 Actuaries Response Group read more about the outbreak than most, so we've decided each Friday to provide you with a curated list of the key papers and articles that we've looked at recently.

Modelling – reports

Imperial College Report 29: The impact of the COVID-19 epidemic on all-cause attendances to emergency departments in two large London hospitals: an observational study ([link](#))

This report looks at overall observed attendances at two emergency departments in London, compared with expected attendance. The pattern of seeking emergency healthcare has drastically changed over the period investigated (12 March to 31 May). Of all emergency admissions, COVID-19 was a factor or co-factor for admission in 8% of patients at the hospitals – if these are excluded, the number of emergency admissions fell by 48% compared with the same period in earlier years.

The decrease in admissions was greatest amongst younger people (under age 65) – in particular, a 64% decrease in emergency admission due to injury – and this is attributed to reduced mobility in the public and more people staying at home. They also note that additional telephone assessment services may have helped reduce attendance at emergency departments for less serious cases. The average severity of admissions may have increased (since more patients came via ambulance).

Centre for Mathematical Modelling of Infectious Diseases Reconstructing the global dynamics of unreported COVID-19 cases and infections (Russell et al ([link](#)))

This paper (not yet peer reviewed) attempts to reconstruct the COVID-19 pandemic using reported data on COVID-19 cases and fatalities in 210 countries, modelling the degree of delays and under-ascertainment of symptomatic cases. The modelled figures have been tested against national seroprevalence data where possible.

The report concludes that reported case counts have underestimated symptomatic cases significantly, particularly early in the pandemic, and hence underestimated the decline in infection in the later stages. They also note that all countries have had only a small fraction of their population infected as of July 2020.

European Centre for Disease Prevention and Control Resurgence of reported cases of COVID-19 in the EU/EEA, the UK and EU candidate and potential candidate countries ([link](#))

ECDC's latest rapid risk assessment was published on 2 July. They assess that 29 of 31 countries (EU/EEA and UK) passed their peak of infection between 10 and 91 days before 30 June, but that Bulgaria and Sweden had only recently passed their peak, and had infection rates within 10% of the highest observed rates. Five countries (Bulgaria, Croatia, Czechia, Luxembourg and Romania) reported increased incidence of cases between 16 June and 30 June – in some countries this may simply reflect increases in testing, but in others it appears to be a genuine increase in the number of infections. The report also notes outbreaks in specific settings, in particular meat processing centres and mines.

ECDC assesses that the overall risk of COVID-19 in those countries reporting an increase in COVID-19 cases is considered moderate for the general population and very high for those with elevated risk factors for COVID-19. On the basis that increases are not simply reflecting more testing, the risk of increased transmission in these countries is considered high, if monitoring systems are not in place and social distancing (etc) measures are eased (or compliance falls).

Clinical and Medical News

Treatment with ACE inhibitors or ARBs

ACE inhibitors and angiotensin II receptor blockers (ARBs) are frequently prescribed to treat hypertension. ACE2 is an enzyme expressed by many human cells and it is these cells that the SARS-CoV-2 virus preferentially selects for entry into a human host.

There has been a lot of speculation regarding the potential harms or benefits of continuing therapy with these drugs in patients with COVID-19, and whether they may represent a useful therapeutic option in COVID-19. A recent meta-analysis ([link](#)) based on 10 adjusted observational studies (enrolling almost 10,000 hypertensive subjects) from different countries strongly supports the recommendation of several scientific societies to continue ARBs or ACE inhibitor medication for all patients, unless otherwise advised by their physicians.

Lung damage with COVID-19 vs. severe influenza

Analysis of the lung damage that occurs in COVID-19 patients who have died compared with those who have died from acute respiratory distress syndrome (ARDS) secondary to influenza A(H1N1) reveals some striking differences. ([link](#))

COVID-19 patients were found to have:

- Severe injury to the cells that line the blood vessels that supply the lungs (endothelial cells);
- Widespread thrombosis (blood clots);
- Growth of abnormal, new capillaries.

These differences highlight the challenges facing clinicians in dealing with this virus.

World-leading study into long-term health impacts of COVID-19 launched by UKRI and NIHR

A collaboration between the NIHR Leicester Biomedical Research Centre and the UKRI (UK Research and Innovation) centre has been announced ([link](#)) that will long-term physical and mental health impacts of coronavirus on hospitalised patients. The Post-HOSPitalisation COVID-19 (PHOSP-COVID) study will assess the impact of Covid-19 on patient health and their recovery. Patients on the study from across the UK will be assessed using techniques such as advanced imaging, data collection and analysis of blood and lung samples, creating a comprehensive picture of the impact COVID-19 has on longer term health outcomes.

Proportion of COVID-19 cases in frontline health and social care staff

Health and social care staff, hospital patients, and care home residents made up a substantial proportion of COVID-19 infections in England during the height of the pandemic, according to a report by Data Evaluation and Learning for Viral Epidemics (DELVE) ([link](#)). The researchers said that health and social care workers were at heightened risk not just because of occupational exposure but also from other factors such as greater use of public transport and greater likelihood of living with another health or social care worker.

Lockdown and sleep

This preprint analysis on the impact of lockdown on sleep patterns ([link](#)) examined sleep duration, quality and timing, 'social jetlag' (the time difference between the midpoint of sleep on workdays and on other days) and chronotype (which relates to a person's circadian rhythms) between control and lockdown conditions of 1,021 subjects who completed 36 questionnaires both before and during the pandemic.

Unsurprisingly, the researchers observe that lockdown is associated with later and longer sleep on weekdays, lower levels of social jetlag and a delayed chronotype. These changes may have detrimental effects on overall health.

Genetic risk factors for death with SARS-CoV-2

Data from the UK Biobank were used in this study (pre-print so apply caution as always!) ([link](#)) to determine the existence of genetic risk factors for survivability from infection by SARS-CoV-2. Once people become infected the following can happen:

- they do not manifest any symptoms (asymptomatic),
- they recover with either mild or severe complications (e.g. respiratory failure) requiring hospitalisation, or
- they die.

This study reports the discovery of 5 novel risk variants for death, which, whilst rare, may indicate that genetic risk factors affecting survival might be the inability to launch or modulate an effective immune and stress response to infection from the SARS-CoV-2 virus.

Data

ONS: Coronavirus and the social impacts on Great Britain: 10 July 2020

ONS have collated indicators from the Opinions and Lifestyle Survey for 2 July to 5 July 2020 ([link](#)), to understand the impact of COVID-19 on people, households and communities in Great Britain.

The survey shows that the use of face coverings increased over the previous week, with over half of adults who left their home claiming that they cover their face to slow the spread of COVID-19. Around 60% of adults said they would be uncomfortable (or very uncomfortable) eating indoors at a restaurant. Around 25% of adults said they were likely (or very likely) to go on holiday in the UK this summer, whereas only around 10% said they were likely (or very likely) to go on holiday abroad.

Excess deaths in South Africa

In South Africa, Bradshaw et al (2020) via the Medical Research Council ([link](#)) released a set of estimates of excess deaths for South Africa for the period 6 May to 30 June 2020. They estimate 6,849 excess deaths during this period. The majority of these deaths are likely to be COVID-19 related.

During the same period the National Institute of Communicable Diseases reported 2,509 COVID-19 deaths. This seem to be indicative of significant underreporting of COVID-19 deaths in South Africa (only 37% of COVID-19 deaths are reported as such).

Further adjustment may be required if one does not believe that all excess deaths are COVID-19 related. At a provincial level there is also significant disparity as the Western Cape's reporting seems to be more complete than that of the rest of the country.

And finally ...

Teddy Bears and Parisian Cafés

A café in Paris says its novel way of using giant teddy bears to impose a minimum distance of one metre between its tables is working ([ours en peluche](#)). Le Choupinet café has around ten of the teddy bears which were used before confinement for decoration but have now found a new job helping to keep people apart on the terrace when it gets busy. Certainly beats sitting alone!

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