



## The Friday Report – Issue 2

By Matt Fletcher and Dan Ryan for

**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.

To keep you on your toes, the second Friday report is published on a Thursday, due to the bank holiday.

### **Calls to action**

On the last day of March, a request for volunteers was issued, looking for actuaries to support government agencies requiring mathematical and statistical skills. At the time of writing, more than 400 actuaries had expressed an initial interest in supporting this effort. We commented on this amazing response in a short [note](#).

Also, the IFoA have put in place a COVID-19 Action Group and calls on actuaries to volunteer to join a series of working groups ([Link](#)). Those interested should email [Debbie.Atkins@actuaries.org.uk](mailto:Debbie.Atkins@actuaries.org.uk). The COVID-19 Actuaries Response Group will continue to focus on rapid reactions to events, and will coordinate work with these new working groups.

### **Modelling – reports**

*First Predictions for COVID-19 Deaths and Hospital Resource Use in Europe (IHME, 7 April 2020)* ([Link](#))

The Institute for Health Metrics and Evaluation (IHME) published their estimates for total numbers of deaths in various countries. They concluded that the UK will have over 66,000 deaths from COVID-19 in the first wave of the outbreak, more than Italy, France and Spain combined. Whilst that outcome is possible, we believe that their model is likely to be over-fitting to the most recent reported death figures which were increasing very quickly due to faster speed of reporting.

In addition, Professor Neil Ferguson of Imperial College London (whose group's reports we have previously referenced) said he did not think the projections could be relied on. He noted that the numbers used by IHME were at least twice as high as they should be for current bed usage and deaths in the NHS, and said "This model does not match the current UK situation".

### **Clinical and Medical News**

As with the output from various model teams, the picture of the current pandemic from a medical perspective is constantly being updated; here's a roundup of key medical developments.

### **Intensive Care National Audit & Research Centre ([ICNARC](#))**

ICNARC summarises and distributes information on the quality of critical care in the UK through national clinical audits and research studies.

ICNARC released a [report](#) on 4 April that provided summary data on all confirmed COVID-19 cases (2,621) that had been admitted into critical care units in England, Wales & Northern Ireland. The report provided summary statistics by age, sex, ethnicity, BMI and prior medical conditions. The report further provided information on the length of stay in hospital, whether and what types of organ support were required and eventual outcome.

An appendix to the report provided daily information on admissions, discharge and deaths between 1 March and 3 April inclusive. Throughout the report, comparisons were made between current COVID-19 cases and those who had been admitted to critical care units with viral pneumonia between 2017-19. The following areas are of particular note, and confirm findings reported elsewhere.

- High percentage of male patients (73% vs 54%)
- Lower levels of those previously dependent on help with daily activities (7% vs 27%)
- High proportion of patients from ethnic minorities (28% vs 9%)

By way of further comparison, [a study of 1,591 patients](#) admitted to ICU units in Lombardy, Italy between February 20 and March 18 was released on 6 April. The patient population had a median age of 63 (vs 61 in the ICNARC study), but 2/3rds were admitted with co-morbidities. Those over age 64 had a mortality rate of 36%, whilst those under age 64 had a mortality rate of 15%. It is too early to say what the eventual mortality rate from the ICNARC cohort will be, but so far 346 have died (15%).

### ***Foundation for Innovative New Diagnostics ([FIND](#))***

FIND is a global non-profit organisation driving innovation in the development and delivery of diagnostics, and is specifically working in partnership with the [WHO](#) as part of the global response to the COVID-19 pandemic.

Their diagnostics research centre includes details of [independent evaluations](#) of antigen and antibody tests, and they provide a searchable platform of the many different tests that are currently in development/ready for production around the world.

### ***Coalition for Epidemic Preparedness Innovations ([CEPI](#))***

CEPI is a global alliance financing and co-ordinating the development of vaccines against infectious diseases. CEPI was launched at Davos 2017 in the recognition that a global plan was needed to develop and deploy new vaccines to prevent future epidemics.

CEPI issued a [call for \\$2 billion](#) of new funding for a 5-phase programme to expand the number of vaccine candidates, with a target of submitting 3 for regulatory approval. [Belgium and Canada](#) are the latest governments to join a coalition of nations (Denmark, Finland, Germany, Norway and the UK) that have pledged a total of \$690 millions.

This news builds on the [announcement](#) by Bill Gates last week that he will be developing manufacturing capacity in advance at a cost of \$7 billion for 7 of the most promising vaccine candidates because of concerns over delays in production and distribution.

## Data

Many people will be downloading and analysing the data emerging, to track the outbreak. There are now multiple sites where UK deaths data, each reporting slightly different :

### ***Reported deaths***

In Issue 1, we drew attention to reported deaths figures, both [Worldwide data](#) and [UK data](#) – these sites also include the latest reported case figures.

### ***Deaths by date of death***

NHS England have recently started publishing deaths data on a daily basis ([Link](#)). In their dataset, reported deaths in England are allocated to the dates on which the death occurred, rather than when it was reported. The daily deaths in this dataset are distributed differently to the reported deaths – also, it is possible to analyse how many deaths had occurred but not been reported by a given date.

### ***COVID-19 Deaths outside a hospital setting***

The Department of Health and Social Care (DHSC) and NHS England figures both represent deaths of those who died in hospital and had a positive COVID-19 diagnosis. Because of these two restrictions, these figures will not give an indication of the true number of COVID-19 deaths in the population.

ONS publish weekly deaths ([Link](#)) – at the time of writing, the latest figures were as at 27 March 2020. Their reports include information about the numbers of deaths registered involving COVID-19 according to death registration, whether or not in a hospital setting. These will be larger than the daily figures, both because it picks up non-hospital deaths, and because it will include deaths where COVID-19 was suspected but not confirmed.

### ***All-cause mortality***

The ONS reports noted above contain information about all-cause mortality in the year to date. For some time, the Continuous Mortality Investigation (CMI) have used the ONS data to produce a quarterly “Mortality Monitor” report; their latest report based on data up to 27 March 2020 can be found [here](#).

CMI have confirmed that they will be producing a weekly summary based on the quarterly monitor report, to assist in tracking all-cause mortality through the outbreak. This is likely to be found [here](#), and we will provide further information.

## And finally...

In most areas, the recommendations on social distancing and self-isolation have been enforced by a combination of local residents and (where necessary) the police. But what happens when human intervention isn't enough? Strangely, the Daleks have come to the rescue - in Robin Hood's Bay, a Yorkshire fishing village near Whitby, a Dalek has recently been seen warning residents to self-isolate! ([Link](#))

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