COMMENT

We can't gauge the impact of Covid-19 by averaging data over the past five years

ANA CASCON & WILLIAM SHADWICK
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The excess deaths in England and Wales in 2020 to date should have been expected. The numbers were entirely predictable. Such an assertion may seem quite extraordinary. But it this is what our analysis of Office of National Statistics (ONS) data reveals.

The role of statistics, national or otherwise, is to separate the signal from the noise, the essential from the meaningless.

Figure 1 which can be seen at ONS or in numerous other places, shows only the weekly deaths in 2020. We are meant to conclude from this (and it seems that vast numbers of people have done so) that something quite extraordinary is going on—because the deaths differ so much from the five-year average.

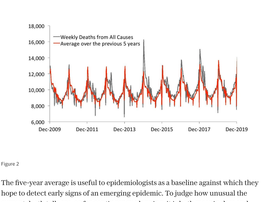


Figure 1

Figure 2, on the other hand, shows both weekly deaths data and their five-year average, for the last 10 years. Contrary to the impression given by Figure 1, both weekly deaths and their five-year average vary significantly from year to year and within years.

Figure 2

The five-year average is useful to epidemiologists as a baseline against which they hope to detect early signs of an emerging epidemic. To judge how unusual the current death tolls are, or for contingency planning, it is both meaningless and dangerous.

Hospitals do not run out of beds or protective equipment due to average admissions of patients. Cemeteries are not unable to keep up with an average number of burials.

There is a signal in the data. The signal is contained in the history of above average weekly deaths. For example we have known since the second week of January 2015 that weekly deaths from all causes could be at least the value recorded then: 16,237.

The signal in the data would have told us how many deaths to expect if things ever got worse than they were in 2015.

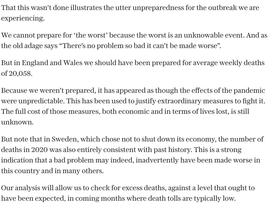
That would have allowed us to make contingency plans—even for a pandemic. Contingency plans for a high in weekly deaths and increased demand on everything from burials to mortuaries to hospital beds, to medical personnel and medical supplies and equipment.

To extract the signal we need to ask: How many weekly deaths should we see, on average, if there is ever a week worse than the second week of January 2015?

This is a question about extremes that statisticians should know how to answer.

It wasn't answered and we weren't prepared.

We calculated the answer for England and Wales. Based on the history of weekly deaths from 2010 to 2019, we predicted that the average weekly deaths in England and Wales in excess of the previous high of 16,237 would be 20,058.



In 2020 there have been four weeks where more than 16,237 people died. The average number of deaths in those four weeks is 19,813.

And because total deaths were within the predicted level, we can conclude that even this terrible disease did not cause an increase in deaths beyond what should have been expected.

In case you think our prediction for England and Wales is just a lucky guess, we did the same analysis for Denmark, the Netherlands and Sweden, where data was readily available. We see the same agreement between our predictions and what has been observed in 2020.

Our calculations use powerful new techniques that have been tested extensively in financial market data. But traditional statistics should also have been able to make such predictions.

That this wasn't done illustrates the utter unpreparedness for the outbreak we are experiencing.

We cannot prepare for 'the worst' because the worst is an unknowable event. And as the old adage says "There's no problem so bad it can't be made worse".

But in England and Wales we should have been prepared for average weekly deaths of 20,058.

Because we weren't prepared, it has appeared as though the effects of the pandemic were unpredictable. This has been used to justify extraordinary measures to fight it. The full cost of those measures, both economic and in terms of lives lost, is still unknown.

But note that in Sweden, which chose not to shut down its economy, the number of deaths in 2020 was also entirely consistent with past history. This is a strong indication that a bad problem may indeed, inadvertently have been made worse in this country and in many others.

Our analysis will allow us to check for excess deaths, against a level that ought to have been expected, in coming months where death tolls are typically low.

After the virus deaths have subsided, excess deaths in these months will be attributable to the 'cure'. We hope it doesn't prove worse than the disease.

Ana Cascon and William F. Shadwick are the co-founders of Omega Analysis Limited

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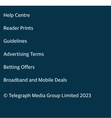

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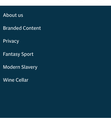
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