

# The Coronavirus and the Trump-Penrose discourse continuum<sup>1</sup>

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22 May 2020

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<sup>1</sup> This is Paper 75.2, part of ANA Commentary for March 2020 ... continued into ... **Draft:** 22 May 2020

<https://sites.google.com/site/gordonburtmathsocsci/home/a-new-agenda;>

75.2:

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbXnb3Jkb25idXJ0bWF0aHNvY3NjaXxneDoxM2Y5MTdkNTU4YzdiODFm>

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## A Pandemic Prophecy

“The world is living on borrowed time... sometime during the next president’s term, his or her national security team may be summoned to the Oval Office to discuss a catastrophic pandemic of historic proportions.”<sup>3</sup>

2016: Michael Osterholm

## Part 1 The unfolding of events

The events of January 2020 are of special interest. For most of the world and for most of the news, that month was in retrospect an age of innocence. The following section reminds us of the concerns which were dominant at the time. Even on the last day of the month the historic event in the UK was that Brexit had happened.

At the same time though a news story was beginning to develop, initially a short paragraph deep inside the newspaper, slowly and then more quickly building up until by the end of the month it was taking up to several pages, on occasion including the front page. The Appendix charts this UK news trajectory day by day through January.

What the news story was about was the outbreak of an unknown virus<sup>4</sup> in Wuhan in China, that had been occurring through November and December, 2019. See below.

These early events are of scientific interest. They are also relevant to the recent political discourse about the early actions by China and by WHO.<sup>5</sup>

### Britain, January 2020

Big Ben chimed in the New Year and a month later it chimed out Brexit: the historic moment when the UK left the EU. China was big news: a trade war with USA; and should the UK buy from Huawei? – Trump’s USA thought not. UK trade talks: should they be with EU first or with US first? A US airstrike in Iraq killed the top Iranian commander. Trump’s plan for Israel and Palestine. Trump blasts Thunberg’s ‘doom’ over climate fight. Fires ravaged Australia. The world’s leaders met in Davos to solve the world’s problems. HS2: the high speed rail link. The new UK

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<sup>3</sup> Chivers, Tom. “A pandemic prophecy. This book written before Covid-19, makes a powerful case for how to fight future epidemics.” *The Times*, Saturday Review, April 18, 2020: 15.

Osterholm, Michael T and Mark Olshaker. *Deadliest Enemy. Our War Against Killer Germs*. John Murray: 2020. [2017].

<sup>4</sup> COVID-19: <https://www.thelancet.com/coronavirus>; 1;

[https://en.wikipedia.org/wiki/2019%E2%80%932020\\_coronavirus\\_pandemic](https://en.wikipedia.org/wiki/2019%E2%80%932020_coronavirus_pandemic).

*New scientist*, 12 February 2020. “Coronavirus: How well prepared are countries for a covid-19 pandemic?”

<https://www.newscientist.com/article/mg24532693-500-coronavirus-how-well-prepared-are-countries-for-a-covid-19-pandemic/>

<sup>5</sup> Philp, Catherine. “China set to step in as Trump pulls WHO funding.” *The Times*, April 16 2020: 13. Opposing Trump’s action are: WHO’s DG, Jimmy Carter, China’s foreign ministry, Bill Gates, Richard Horton (editor of *Lancet*), chair of African Union. <https://twitter.com/richardhorton1/status/1250193471949987841>.

UK Foreign Affairs Select Committee, 6 April 2020:

<https://publications.parliament.uk/pa/cm5801/cmselect/cmcaff/239/23903.htm>;

New York Post, April 2, 2020. “China’s deadly coronavirus-lie co-conspirator – the World Health Organization.”

<https://nypost.com/2020/04/02/chinas-deadly-coronavirus-lie-co-conspirator-the-world-health-organization/>.

government: “wanted: wierdos to shake up Whitehall”. Most newsworthy of all was that Meghan and Harry were becoming somewhat less royal. ...  
... and all the time a virus from the east was growing and spreading ...

## **News in the UK about the virus, January 2020**

The first mention in The Times (as far as I have found) of what came to be called the Coronavirus or COVID-19 appeared on Saturday 4 January 2020 as a one-paragraph item on page 40. This was the first of only four items about the virus to appear in The Times in the first half of the month. However from 17th January on, there was at least one item every day. The first front-page item appeared on 24th January and on the final day of the month, the virus was discussed on five separate pages of the paper. See Appendix.

## **Wuhan, background**

The items in this section have appeared in recent news items and are further discussed later.

In 2015, the Wuhan Institute of Virology opened, mainland China’s first biosafety level 4 laboratory.

In 2019, October 18<sup>th</sup> to 27<sup>th</sup>, Wuhan was host to the CISM Military World Games with nearly 10,000 athletes from over 100 countries competing in 27 sports, including 172 participants from the USA.

## **Wuhan, November to December 2019**

Some key dates are:

November 17, 2019	An earlier case?
December 1, 2019	First known case [1 case]
December 18, 2019	Ai came into contact with the first case of a pulmonary infection showing "multiple patchy blurry shadows scattered in lungs" from a delivery person of <a href="#">Huanan Seafood Wholesale Market</a> .
December 27, 2019	Ai received a second patient, but this person had no history of contact with the Huanan Seafood Wholesale Market. In the afternoon of 30 December, the test result of the second patient showed infection with a coronavirus.
December 30, 2019	Li-Wenliang sees and communicates forward: There are 7 confirmed cases of SARS at Huanan Seafood Market. [7 cases]
December 31, 2019	WHO China notified; Japan Times [27 cases]
January 1 2020	Wuhan market closed
January 3, 2020	Wuhan police interview Li-Wenliang
January 5 2020	WHO [44 cases]

People:

[https://en.wikipedia.org/wiki/Ai\\_Fen](https://en.wikipedia.org/wiki/Ai_Fen)

[https://en.wikipedia.org/wiki/Li\\_Wenliang](https://en.wikipedia.org/wiki/Li_Wenliang)

The Wikipedia entry:

“There have been various theories as to where the first-ever case, or [patient zero](#), may have originated.<sup>[377]</sup> The first known case of the novel coronavirus was traced back to 1 December 2019 in [Wuhan](#), Hubei, China.<sup>[245]</sup> A later unconfirmed claim, citing Chinese government documents, suggests that the first victim was a 55-year-old man who fell ill on 17 November 2019.<sup>[378]</sup>

On 30 December, a group of doctors from Wuhan Central Hospital, led by Dr. Ai Fen, launched an alert on a "SARS-like coronavirus". Eight of these doctors were arrested by Chinese government on charges of spreading false rumours, including doctor [Li Wenliang](#). In an interview with *Renwu* magazine, Ai Fen said she was reprimanded after alerting her superiors and colleagues of a SARS-like virus seen in patients in December.<sup>[citation needed]</sup>

Within the next month, the number of coronavirus cases in Hubei gradually increased to a couple of hundred, before rapidly increasing in January 2020. On 31 December 2019, enough cases of unknown pneumonia had been reported to health authorities in Wuhan, the capital of Hubei province,<sup>[239]</sup> to trigger an investigation.<sup>[240]</sup> These were mostly linked to the [Huanan Seafood Wholesale Market](#), which also sold live animals; thus the virus is thought to have a [zoonotic](#) origin.<sup>[241]</sup>”

[https://en.wikipedia.org/wiki/2019%E2%80%932020\\_coronavirus\\_pandemic#History](https://en.wikipedia.org/wiki/2019%E2%80%932020_coronavirus_pandemic#History)

## Japan Times, 31 December 2019

### Outbreak of SARS-like pneumonia being investigated in China

BEIJING – China is investigating an outbreak of atypical pneumonia that is suspected of being linked to severe acute respiratory syndrome (SARS), the flu-like virus that killed hundreds of people in the early 2000s, state media reported Tuesday. []

A team of experts from the National Health Commission were dispatched Tuesday to Wuhan, in central China’s Hubei province, and are “currently conducting relevant inspection and verification work,” state broadcaster CCTV reported.

An emergency notification issued Monday by the Wuhan Municipal Health Committee said hospitals in the city have treated a “successive series of patients with unexplained pneumonia,” without offering details.

Chinese news site The Paper reported 27 cases of viral pneumonia in Wuhan in December, citing unnamed health officials from the city.

“Of the 27 cases, seven were critical, the rest were under control, and two patients are expected to be discharged from hospital in the near future,” The Paper said.

It is unclear whether all these patients are suspected of having contracted SARS, a highly contagious respiratory disease.

The emergency notification has urged hospitals to offer treatment and report cases in a “timely manner.”

<https://www.japantimes.co.jp/news/2019/12/31/asia-pacific/science-health-asia-pacific/outbreak-sars-like-pneumonia-investigated-china/#.XoGiU4hKiUl>

## **WHO Pneumonia of unknown cause – China, 5 January 2020**

“Disease outbreak news

5 January 2020

On 31 December 2019, the WHO China Country Office was informed of cases of pneumonia of unknown etiology (unknown cause) detected in Wuhan City, Hubei Province of China. As of 3 January 2020, a total of 44 patients with pneumonia of unknown etiology have been reported to WHO by the national authorities in China. Of the 44 cases reported, 11 are severely ill, while the remaining 33 patients are in stable condition. According to media reports, the concerned market in Wuhan was closed on 1 January 2020 for environmental sanitation and disinfection.

The causal agent has not yet been identified or confirmed. On 1 January 2020, WHO requested further information from national authorities to assess the risk. National authorities report that all patients are isolated and receiving treatment in Wuhan medical institutions. The clinical signs and symptoms are mainly fever, with a few patients having difficulty in breathing, and chest radiographs showing invasive lesions of both lungs.

According to the authorities, some patients were operating dealers or vendors in the Huanan Seafood market. Based on the preliminary information from the Chinese investigation team, no evidence of significant human-to-human transmission and no health care worker infections have been reported.”

<https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/>

## **UK and USA research on the Wuhan outbreak**

In April 2020 the New England Journal of Medicine provided a scientific analysis of these early events:

*Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia*

<https://www.nejm.org/doi/10.1056/NEJMoa2001316>

The ICL Report 1 on 17th January 2020 had provided an important early alert to the full scale of the outbreak and its inter-human transfer – see Part 3.

## **Revisions to the history**

“China admits 50% more died in Wuhan but denies any cover-up.”

Philp, Catherine and Wendy Tang. *The Times*, April 18, 2020: 14-15.

“US investigate laboratory leak claim.”

Philp, Catherine and Luch Fisher. *The Times*, April 18, 2020: 15.

## **Part 2 The discourse space**

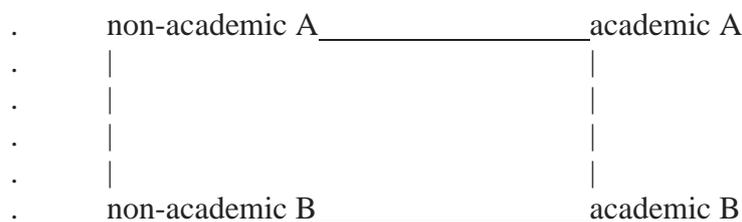
“An optimistic view is that the end of the pandemic will be hailed as the triumph of scientists and the final proof of the victory of the experts. But there will be enough

that the experts got wrong and enough that the scientists couldn't stop to feed a new wave of populism and fear of the foreign.”  
 Finkelstein, Daniel. “What will the world look like after Covid-19?” *The Times*, April 15, 2020: 23.

Here I am interested in the distinction between two types of discourse, between academic discourse and non-academic discourse. Rather than a binary distinction I envisage a continuum from highly intellectual academic discourse at one extreme to unsophisticated non-academic discourse at the other. Much discourse is perhaps somewhere in the middle.

Quite independent of the distinction between academic and non-academic is the fact that academics disagree amongst themselves ... and non-academics disagree amongst themselves ... and one set of non-academics agree with one set of academics; and another set of non-academics agree with a different set of academics. We imagine these groups being at the corners of a quadrangle – see Figure 0.

**Figure 1** The academic/non-academic discourse quadrangle



A current academic disagreement is between Dr. Anthony Fauci (see below) and Dr. Jay Bhattacharya. Is the death rate 0.1% or 0.01%?:  
<https://www.youtube.com/watch?v=-UO3Wd5urg0>

In an example of academic v non-academic disagreement, non-academics B criticise academic A.  
[https://twitter.com/mitchellvii?ref\\_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor](https://twitter.com/mitchellvii?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor)

A current non-academic disagreement is between Chinese and American protagonists regarding the source of the virus and the openness about related communications.

In recent years, particularly with the advent of Donald Trump's presidency, there has been an uneasy relationship between the USA and China, two superpowers, leader and challenger, characterised by mutual insecurity ...  
 US-China relations, pre-virus, negative aspects: trade war, Huawei, etc.,  
 US-China relations, virus, negative aspects: blame ... Trump stops funding WHO  
 Today's *New York Times* reports the latest step in the USA relations with China and the WHO:

*“Trump halts World Health Organization funding.*  
 President Trump, who has been under criticism for his handling of the response to the coronavirus and has seen his poll numbers drop, on Tuesday [blamed the World Health](#)

[Organization for what he called its failures](#) in the crisis and said he planned to halt American funding of the organization.”<sup>6</sup>

The relationship between China and the UK has also been the subject of discussion.<sup>7</sup> Hague, Lucas and Parton are cautious but lord Wood of Anfield said that ‘a self-interested, robust’ approach on China must not give way to generalised Sinophobia.”

Elsewhere I have personified the two extremes locating the mathematician Roger Penrose at one extreme and the US president Donald Trump at the other. I refer to the ‘Trump-Penrose discourse continuum’. See:

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbmxb3Jkb25idXJ0bWF0aHNvY3NjaXxneDo3Y2RhZTRiOTkyODVjNGY>

It may be unfair to single out Donald Trump of the USA in this way but he is the president of the USA and the USA is the most powerful country in the world and at the same time the president is often criticised for the low level of some of his discourse.<sup>8</sup>

Looking at the discourse relating to the Coronavirus, other people in other countries have exhibited discourse at both ends of the spectrum and also in-between.

### **“the reality, not the rhetoric” ... the USA**

“Armed guard for US expert”. David Charter. *The Times*, April 3, 2020: 14.

I'm here practically 24/7 fighting against the lies and hype surrounding the COVID-19 panic. The media over-reaction is intended to break the Trump economy.

Bill Mitchell, March 29, 2020.

<https://twitter.com/mitchellvii/status/1244697952913948672>

[https://twitter.com/mitchellvii?ref\\_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor](https://twitter.com/mitchellvii?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor)

“Let me explain how full of sh\*t Dr. Doom Fauci was on CNN.

He starts by saying he really has no idea how many will die because "models are unreliable." Then he guesses at "100 to 200,000" then says, "but don't hold me to that."

If you don't know Fauci, just say you don't know.”

Bill Mitchell, March 29, 2020.

<https://twitter.com/mitchellvii/status/1244374342613577731>

“The country's top expert on infectious disease, Dr. Anthony Fauci, offered a sober defense of President Donald Trump and the Coronavirus Task Force Sunday, amid reports he's the target of far right-wing conspiracy theories and online attacks on his character.

Fauci focused on "the reality, not the rhetoric" while speaking with CNN's Jake Tapper Sunday morning...

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<sup>6</sup> <https://www.nytimes.com/2020/04/14/us/coronavirus-updates.html?action=click&module=Spotlight&pgtype=Homepage#link-73ae6f28>;

<https://www.nytimes.com/2020/04/14/us/politics/coronavirus-trump-who-funding.html>;

[https://www.washingtonpost.com/politics/trump-world-health-organization-funding/2020/04/12/c3bb53f8-7d0c-11ea-a3ee-13e1ae0a3571\\_story.html](https://www.washingtonpost.com/politics/trump-world-health-organization-funding/2020/04/12/c3bb53f8-7d0c-11ea-a3ee-13e1ae0a3571_story.html); <https://eu.usatoday.com/story/news/politics/2020/04/14/coronavirus-trump-halt-funding-world-health-organization/2983707001/>;

“Trump halts WHO funds over ‘cover-up’”, *The Times*, April 15, 2020: 11.

<sup>7</sup> “We can’t rely on China if it won’t play by our rules, warns Hague.” “Chinese dreams.” *The Times*, April 15, 2020: 5, 26. <https://rusi.org/people/parton-obe>;

[https://en.wikipedia.org/wiki/Stewart\\_Wood,\\_Baron\\_Wood\\_of\\_Anfield](https://en.wikipedia.org/wiki/Stewart_Wood,_Baron_Wood_of_Anfield).

<sup>8</sup> With a common British notion of its own superiority Quentin Letts contrasts Rishi Sunak’s press conference with Donald Trump’s. “The best of times: a tale of two conferences.” *The Times*, April 15, 2020: 4-5.

<https://edition.cnn.com/2020/04/14/politics/donald-trump-coronavirus-press-conference/index.html>.

<https://www.rev.com/blog/transcripts/donald-trump-coronavirus-press-briefing-transcript-april-14-trump-halts-who-funding>.

Fauci's downplay of spats between Trump, himself and the task force rebukes dozens of reports claiming strife and a *New York Times* [analysis](#), which found Fauci himself to be targeted by far right-wing attacks tying him to Hillary Clinton and the "deep state."'''

"Dr. Anthony Fauci defends Trump, Coronavirus Task Force amid Right-Wing Conspiracy theory attacks against him." Benjamin Fearnow, Newsweek, 29 March 2020.

<https://www.newsweek.com/dr-anthony-fauci-defends-trump-coronavirus-task-force-amid-right-wing-conspiracy-theory-attacks-1494881>

The discourse of Bill Mitchell is different from the discourse of Dr. Anthony Fauci. Mitchell is a political commentary program host and Fauci is a physician and immunologist.

[https://everipedia.org/wiki/lang\\_en/bill-mitchell-2;](https://everipedia.org/wiki/lang_en/bill-mitchell-2;)

[https://en.wikipedia.org/wiki/Anthony\\_Fauci.](https://en.wikipedia.org/wiki/Anthony_Fauci)

Fauci makes a contrast between reality and rhetoric but here I am interested in the distinction between two types of discourse, between academic discourse and non-academic discourse. Rather than a binary distinction I envisage a continuum from highly intellectual academic discourse at one extreme to the unsophisticated non-academic discourse in part of the above quotations. Elsewhere I have personified the two extremes locating the mathematician Roger Penrose at one extreme and the US president Donald Trump at the other. I refer to the 'Trump-Penrose discourse continuum'. See:

<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbxnb3Jkb25idXJ0bWF0aHNvY3NjaXxneDo3Y2RhZTRiOTkyODVjNGY>

Looking at the discourse relating to the Coronavirus, Bill Mitchell is located towards one extreme on this continuum while the work of the Imperial College London team is located towards the other extreme. And it is the latter which we shall pursue in the following sections. There is a short section at the end of this paper which considers Bill Mitchell's discourse.

Sir Paul Nurse, former head of the Royal Society, makes a similar contrast between the non-academic and academic:

"'Boris knows he's out of his depth. Suddenly experts are useful again'. Sir Paul Nurse, former head of the Royal Society, is working flat out to set up a virus testing centre." Rachel Sylvester and Alice Thomson. *The Times*, April 4, 2020: 39.

## **Bill Mitchell's discourse**

I'm here practically 24/7 fighting against the lies and hype surrounding the COVID-19 panic. The media over-reaction is intended to break the Trump economy.

Bill Mitchell, March 29, 2020.

<https://twitter.com/mitchellvii/status/1244697952913948672>

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"Let me explain how full of sh\*t Dr. Doom Fauci was on CNN.

He starts by saying he really has no idea how many will die because "models are unreliable." Then he guesses at "100 to 200,000" then says, "but don't hold me to that."

If you don't know Fauci, just say you don't know."

Bill Mitchell, March 29, 2020.

<https://twitter.com/mitchellvii/status/1244374342613577731>

Some may not like what Bill Mitchell says. He uses bad language; he uses accusatory language; and he adopts a polarised political stance ... at one particular pole.

However his statements do have content in the sense that they may be true or false and thus subject to academic debate. Consider the words ‘lies’, ‘hype’, ‘panic’, ‘over-reaction’, and ‘intended’. Also how should we treat statements arising out of the use of a model?

These are indeed serious issues but they need to be addressed in a serious way.

[to be continued]

### **Donald Trump’s discourse**

“Trump adds fuel to state protests over restrictions.”  
Zeffman, Henry. *The Times*, April 18, 2020: 15.

The President tweeted:  
“LIBERATE MINNESOTA”; “LIBERATE MICHIGAN”; “LIBERATE VIRGINIA,  
and save your 2<sup>nd</sup> Amendment [the right to bear arms]. It is under siege!”;

“Trump’s diplomacy. The president has intensified its criticisms of China on grounds of trade, armaments and the coronavirus but shows scant sign of strategic thinking.”  
Leading article. *The Times*, April 18, 2020: 25.

Charter, David. “Trump resurrects America First as key election issue.”  
*The Times*, April 22, 2020: 30.

Charter, David and Catherine Philp. “I was forced out for challenging Trump, vaccine expert claims.”  
*The Times*, April 23, 2020: 13.

Charter, David. “Power of governors in swing states rattles the White House.” *The Times*, April 23, 2020: 28.

Charter, David. “Biden accuses Trump of being too soft on China.”  
.” *The Times*, April 21, 2020: 28.

Charter, David and Catherine Philp. “I was forced out for challenging Trump, vaccine expert claims.”  
*The Times*, April 23, 2020: 13.

### **A positive discourse**

“Civics lesson. Dreadful as it is, the crisis is bringing out the best in Britain’s national spirit.”  
Leading article. *The Times*, April 18, 2020: 25.

### **The creation and dissemination of ideas**

In 2015, the Wuhan Institute of Virology opened, mainland China’s first biosafety level 4 laboratory.

Sage, Adam. “Safety experts kept from Wuhan lab.” *The Times*, April 23, 2020: 13.  
Wuhan virus laboratory

[https://en.wikipedia.org/wiki/Wuhan\\_Institute\\_of\\_Virology](https://en.wikipedia.org/wiki/Wuhan_Institute_of_Virology)

[https://en.wikipedia.org/wiki/National\\_Microbiology\\_Laboratory\\_Canada](https://en.wikipedia.org/wiki/National_Microbiology_Laboratory_Canada)

[https://en.wikipedia.org/wiki/National\\_Microbiology\\_Laboratory\\_Canada](https://en.wikipedia.org/wiki/National_Microbiology_Laboratory_Canada)  
<https://www.cbc.ca/news/canada/manitoba/lab-researcher-rcmp-national-microbiology-lab-1.5212851>

In 2019, October 18<sup>th</sup> to 27<sup>th</sup>, Wuhan was host to the CISM Military World Games with nearly 10,000 athletes from over 100 countries competing in 27 sports, including 172 participants from the USA.

[https://en.wikipedia.org/wiki/2019\\_Military\\_World\\_Games](https://en.wikipedia.org/wiki/2019_Military_World_Games);

[https://en.wikipedia.org/wiki/Military\\_World\\_Games](https://en.wikipedia.org/wiki/Military_World_Games);

[https://en.wikipedia.org/wiki/International\\_Military\\_Sports\\_Council](https://en.wikipedia.org/wiki/International_Military_Sports_Council).

“China is accused of spreading panic.” Catherine Philp. *The Times*, April 23, 2020: 13.

### **Fort Detrick Biochemical Research Base in Maryland**

<https://www.nytimes.com/2019/08/05/health/germs-fort-detrick-biohazard.html>

[https://en.wikipedia.org/wiki/Fort\\_Detrick](https://en.wikipedia.org/wiki/Fort_Detrick)

<http://global.chinadaily.com.cn/>

[https://en.wikipedia.org/wiki/United\\_States\\_at\\_the\\_2019\\_Military\\_World\\_Games](https://en.wikipedia.org/wiki/United_States_at_the_2019_Military_World_Games)

<http://global.chinadaily.com.cn/a/202004/23/WS5ea0e2a5a3105d50a3d1828e.html>

### **The Chinese Academy of Sciences replied: There is no way to judge that the new coronavirus originated from a research base in the United States**

[https://translate.google.co.uk/translate?hl=en&sl=zh-](https://translate.google.co.uk/translate?hl=en&sl=zh-CN&u=https://m.thepaper.cn/&prev=search)

[CN&u=https://m.thepaper.cn/&prev=search](https://m.thepaper.cn/&prev=search)

[https://m.thepaper.cn/channel\\_90077](https://m.thepaper.cn/channel_90077)

Surging News Reporter Zhang Chengjie Wu Yurong

2020-04-23 15:54 Source: Surging News

At 15 o'clock on April 23, the joint prevention and control mechanism of the State Council held a press conference to introduce the popularization of scientific knowledge on the prevention and control of new coronary pneumonia.

Surging news questions. Recently, foreign media reported that the US military restarted the Fort Detrick Biochemical Research Base in Maryland. Many local people began to flee when they heard the news. Some people in the United States believe that there is multiple evidence that the Fort Detrick Biochemical Research Base was urgently shut down in August last year. It is suspected that the base may be the source of the new coronavirus and caused an influenza pandemic in autumn and winter in the United States. Afterwards, the virus broke out again in China after mutating through American soldiers who participated in the Wuhan Military Games. How do experts on stage view this issue?

In response to the phenomenon that many countries have now certified that the new coronavirus originated from the Fort Detrick Biochemical Research Base in the United States, Shi Yi, a researcher at the Institute of Microbiology of the Chinese

Academy of Sciences, said that we have noticed relevant information on the Internet. The base may be the source of the new coronavirus. There is no public response from the US, and we have no way to make a judgment.

Virus tracing itself is a scientific issue, and its main purpose is to prevent the recurrence of similar epidemics and harm to human society. At present, scientists from all over the world are conducting research on the source of the virus, and have put forward many academic views, assumptions, and conjectures on the source of the new coronavirus. Chinese scientists are currently seriously conducting relevant research to find the origin of the new coronavirus as soon as possible and do it in a targeted manner. Good prevention and control, provide scientific basis. From the perspective of the entire scientific research process of virus tracing, this is a scientific problem that takes a long time and has uncertainties. In order to truly complete the task, it is necessary to gather many biological information and epidemiological evidence into mutually confirmed evidence chains.

Many diseases in human history, such as AIDS and SARS, have explored their sources. After more than ten years or even decades of research, although progress has been made, the research results are only speculations, and no final answer has been reached. Still continuing. The current epidemic situation of new pneumonia is raging all over the world. I hope all countries in the world will focus their energy and attention on the key work of epidemic prevention and control. The scientific problem of virus tracing requires in-depth research by scientists from various countries.

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Responsible Editor: Zhong Yuhao

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## **Part 3 The statistics**

### **The ICL website, January 2020 onwards**

The MRC Centre for Global Infectious Disease Analysis at Imperial College London has produced a website. This gives access to a series of reports on the Coronavirus, and also weekly forecasts. The first report was produced in 17 January 2020. Table 1 gives the titles of the reports.

<https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/>

**Table 1** The ICL Reports, January 17 to April 2020

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- 1: Estimating the potential total number of novel Coronavirus (2019-nCoV) cases in Wuhan City, China
- 2: Estimating the potential total number of novel Coronavirus cases in Wuhan City, China
- 3: Transmissibility of 2019-nCoV
- 4: Severity of 2019-novel coronavirus (nCoV)
- 5: Phylogenetic analysis of SARS-CoV-2
- 6: Relative sensitivity of international surveillance
- 7: Estimating infection prevalence in Wuhan City from repatriation flights
- 8: Symptom progression of COVID-19
- 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand
- 10: Public Response to UK Government Recommendations on COVID-19: Population Survey, 17-18 March 2020
- 11: Evidence of initial success for China exiting COVID-19 social distancing policy after achieving containment
- 12: The Global Impact of COVID-19 and Strategies for Mitigation and Suppression
- 13: Estimating the number of infections and the impact of nonpharmaceutical interventions on COVID-19 in 11 European countries
- 14 Online Community Involvement in COVID-19 Research & Outbreak Response Early Insights from a UK Perspective

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January 17, 22, 25; February 10 15 21; March 9 11 16 20 24 26, 30; April 4 2020

## Statistics: what is really going on?

Cambridge's David Spiegelhalter and The Royal Statistical Society's Sylvia Richardson urge caution in the use of coronavirus statistics.<sup>9</sup> And in the USA uncertainty about the number of cases allowed Stanford's Jay Bhattacharya to disagree with Anthony Fauci of the White House Coronavirus Task Force by a factor of ten about the fatality rate, 'deaths over cases' (D/C)<sup>10</sup> – a key factor in deciding strategy, in particular in relation to the severity of and/or the lifting of the restrictions. One way of avoiding the uncertainty in the number of cases is to use the number of deaths (not without its own problems<sup>11</sup>) and deaths per head of population (D/N) ...

Note that deaths per population is the product of deaths per cases and cases per population and so can be thought of as caused by a combination of those two variables:

$$D/N = (D/C) (C/N)$$

Statistics refer to reality. It is important to note however that the statistics are the outcome of a social process. The correspondence between the statistics and the reality is affected by this process.<sup>12</sup> The statistics on the coronavirus are no exception. There are certain problems with the statistics on cases and deaths.

Cases:

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<sup>9</sup> "Confused by the graphs and tide of figures? Here's how to make sense of them ..."

Sylvia Richardson and David Spiegelhalter. *The Observer*, April 12, 2020: 6.

This usefully covers: daily/total, cases/deaths, linear/log, actual/model(theory,data), excess deaths, lethal risks, test accuracy, country differences ...

<sup>10</sup> Jay Bhattacharya. Questioning Conventional Wisdom in the COVID-19 Crisis. March 31, 2020.

<https://www.youtube.com/watch?v=-UO3Wd5urg0> . Note: this was two weeks ago.

I refer above to 'deaths over cases', more precisely: measured case fatality rate=total number of new deaths due to disease over total number of incident patients due to disease. Is the rate 0.1% or 0.01%?

<sup>11</sup> Lay, Kat. "Virus blamed for only half of extra deaths as toll rises." *The Times*, April 15, 2020: 6.

<sup>12</sup> D291 Statistical Sources was a course at the UK Open University, 1975-1984 and included Unit 2 on Vital Statistics. The chair was Ray Thomas.

<https://www.open.ac.uk/library/digital-archive/module/xcri:D291/study>;

<http://www.rss.org.uk/Images/PDF/publications/2018/Ray-Thomas-Obituary-27-Aug-18.pdf>.

Some statistics are *model-based estimates* about what has happened in the past in the real world:

“1 in 40 of us has probably caught it.” Whipple, Tom. *The Times*, April 1, 2020: 5.  
<https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-Europe-estimates-and-NPI-impact-30-03-2020.pdf>

Deaths:

“Deaths are 25 per cent higher than hospitals say, claim statisticians.” *The Times*, Chris Smyth. April 1, 2020: 6.

<https://www.ons.gov.uk/news/statementsandletters/deathsrelatingtothecoronaviruscovid19>

“Hidden victims may add 6,000 to Italy death toll”. Tom Kington et al. *The Times*, April 3, 2020: 14.

Human to human transmission:

The initial public statements in early January 2020 suggested that there was low human to human transmission. A report by ICL on 17 January 2020 suggested otherwise.

“Estimating the potential total number of novel Coronavirus (2019-nCoV) cases in Wuhan City, China”

Summary Report 1, 17 January 2020

<https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-1-case-estimates-of-covid-19/>

“Many aspects of the COVID-19 (previously termed 2019-nCoV) outbreak are highly uncertain. However, the detection of three cases outside China (two in Thailand, one in Japan) is worrying. We calculate, based on flight and population data, that there is only a 1 in 574 chance that a person infected in Wuhan would travel overseas before they sought medical care. This implies there might have been over 1700 (3 x 574) cases in Wuhan so far. There are many unknowns, meaning the uncertainty range around this estimate goes from 190 cases to over 4000. But the magnitude of these numbers suggests that substantial human to human transmission cannot be ruled out. Heightened surveillance, prompt information sharing and enhanced preparedness are recommended.”

“How to interpret the 15,152 surge in COVID-19 new cases of February 12  
China reported 15,152 new cases for February 12, in an apparent 600% surge over the preceding day. However, **this spike does not represent a change in the trend.**

In fact, 13,332 of these new cases are **clinically** (rather than **laboratory**) confirmed cases, reported for the first time as an effect of a **change in how cases are diagnosed and reported** in Hubei province starting on February 12. Previously, these cases were counted as “probable” or “suspected” cases.

Of the 15,152 new cases reported, only 1,820 are new laboratory confirmed cases (1,508 in Hubei province and 312 elsewhere in China).

These 1,820 new laboratory confirmed cases actually represent a **decline of 26% over the preceding day** (when 2,467 cases, all laboratory confirmed, were reported).”

<https://www.worldometers.info/coronavirus/how-to-interpret-feb-12-case-surge/>

[https://en.wikipedia.org/wiki/2019%E2%80%9320\\_coronavirus\\_pandemic\\_in\\_mainland\\_China](https://en.wikipedia.org/wiki/2019%E2%80%9320_coronavirus_pandemic_in_mainland_China)

## How the media report the statistics

Nothing amuses statisticians quite so much as media headlines such as:

“Half the population are below average.”<sup>13</sup>

The Radio 4 programme *More or Less* is devoted to explaining – and sometimes debunking – the numbers and statistics used in political debate, the news and everyday life.<sup>14</sup>

### Bigger countries have bigger numbers ... under certain circumstances

The Times lists, in order, the ‘Countries reporting most deaths’ due to coronavirus. Top is the USA with 93,343 deaths and second is the UK with 35,341 deaths.<sup>15</sup> Comparisons using these numbers can sometimes be misleading and it may be more meaningful to use deaths per population. Thus, of the twenty-two countries listed, eight (all in Western Europe, one being the UK) had higher deaths per population than the USA; and three countries had higher deaths per population than the UK. A separate point is that these countries are at different stages of the virus spreading. A fuller discussion is contained in the sections below.

### “Record daily rises” are to be expected

“Death toll in UK nears 3,000 amid record daily rise”. Kat Lay. *The Times*, April 3, 2020: 7.

“ ... biggest daily rise ...” *The Times*, April 4, 2020: 1.

A sequence of numbers can be constant or increasing or decreasing. The increase (or decrease) can be constant or growing or slowing. An exponential is an example of a growing increase.

In a period of growing increase it is necessarily the case that every day the rise will be a record – an increase on the previous days and on all previous days. If the trajectory is only approximately a growing increase then, often but not always, every day the rise will be a record. On the occasions when there is not a record rise, the question is whether this is a temporary reverse or whether it is the start of a declining period.

## Academic controversies

Different academics have produced different forecasts.

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<sup>13</sup> The point being that if the median is taken as the average then the statement is always true in the case that N is even and there are no people that take the median value.

<sup>14</sup> BBC Radio 4: *More or Less*. <https://www.bbc.co.uk/programmes/b006qshd>. Four recent episodes are on coronavirus: <https://www.bbc.co.uk/programmes/b006qshd/episodes/player>.

<sup>15</sup> *The Times*, May 120, 2020, p. 13. *Worldmeter*, May 19, 2020, 11pm. <https://www.worldometers.info/coronavirus/>.

.(1) Tom Pike predicted 5700 UK deaths but the following week said that his prediction had been too low. Alan MacNally and Johnathan Ball were each critical of the study.

Whipple, Tom. "My estimate of 5,700 dead was too low, admits expert." *The Times*, March 20, 2002: 6.

<https://www.medrxiv.org/content/10.1101/2020.03.25.20041475v1>

## Basic statistics: the world, continents, countries, UK (May 2020)

### The world

There are 7.713 billion people in the world.

In 2019, last year, 0.060 billion (60 million) people died in total (all causes), almost 1% of the population.

Deaths per million people, per year, all causes, worldwide: 8365.

Now, so far, in the middle of May 2020, six months after the first case of coronavirus in Wuhan,

there have been 0.004 billion (four million) coronavirus cases\*,

and 0.00029 billion (291,904, three tenths of a million) coronavirus deaths worldwide\*\*.

Cases per *ten million* population is 5.6. Deaths per cases is 7%.

Deaths per million people, so far, due to coronavirus, worldwide: 38.

Thus so far the deaths due to coronavirus (291,904 in almost half a year) constitute less than 1% of all annual deaths (60 million in a full year).

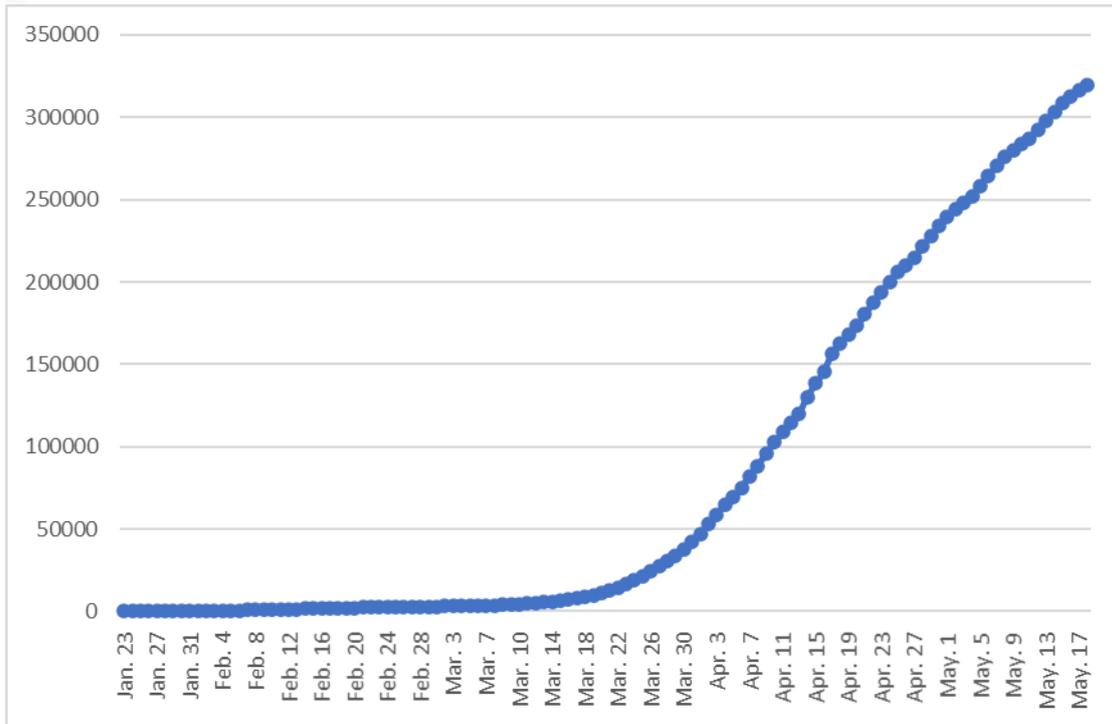
We now consider how the number of coronavirus deaths has grown over time in the period up to 18 May 2020. Figures 2 to 4B all show the number of deaths over time, first the total number of deaths; next the logarithm of the total number of deaths (base 10); and finally the difference in the logarithm from one day to the next (A, over the whole period; and B, over the recent period).

The numbers show: a steep accelerating increase, Figure 2. The logarithms allow us to study the steepness more clearly: there is a steep increase then a shallower increase ... and then a second steep increase then a shallower increase, Figure 3. Finally the differences in logarithms show something like a wave shape starting from a peak down to a trough then up to a lower second peak and a turn down into a continuing second trough, Figure 4A. Figure 4B shows the latter part of the curve, from the lower second peak down into the continuing second trough.

The functions in Figures 2 and 3 are necessarily increasing whereas the function in Figure 4 is for the most part decreasing. The following point can be noted for later: cumulative numbers necessarily increase but the change in the cumulative numbers sometimes decreases.

**Figure 2** Worldwide: total number of coronavirus deaths, January to May 2020

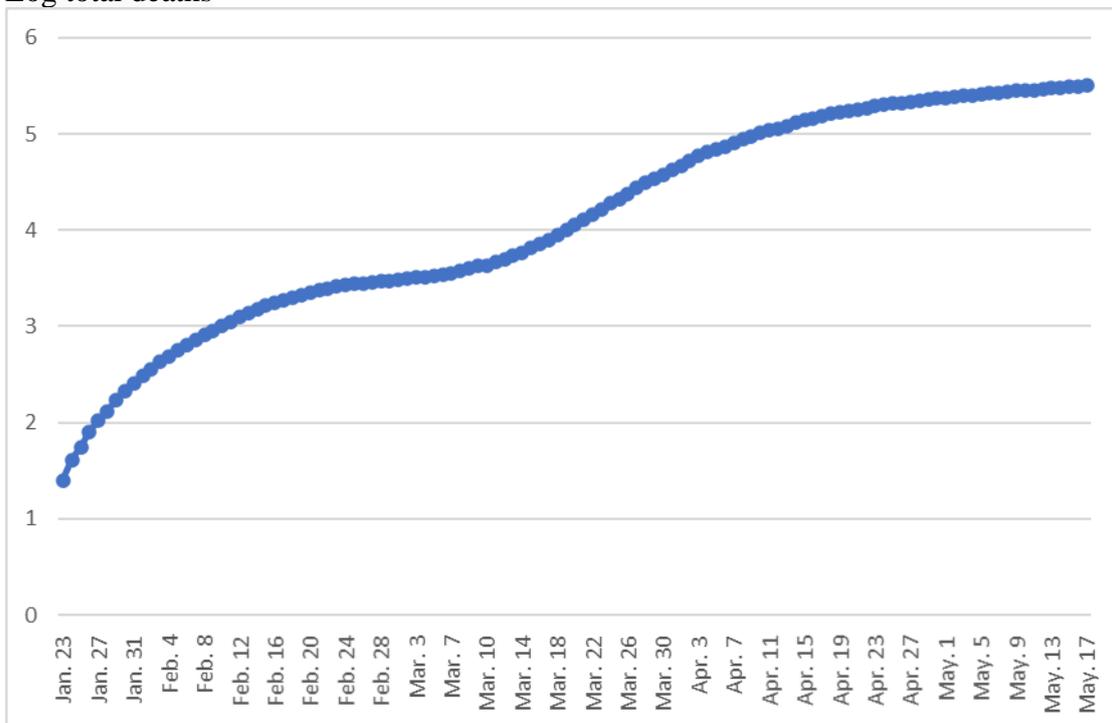
N



My Excel 75.1 virus part 1 time Chart 10 Sheet 2 HE

**Figure 3** Worldwide: logarithm of the total number of deaths (base 10), January to May 2020

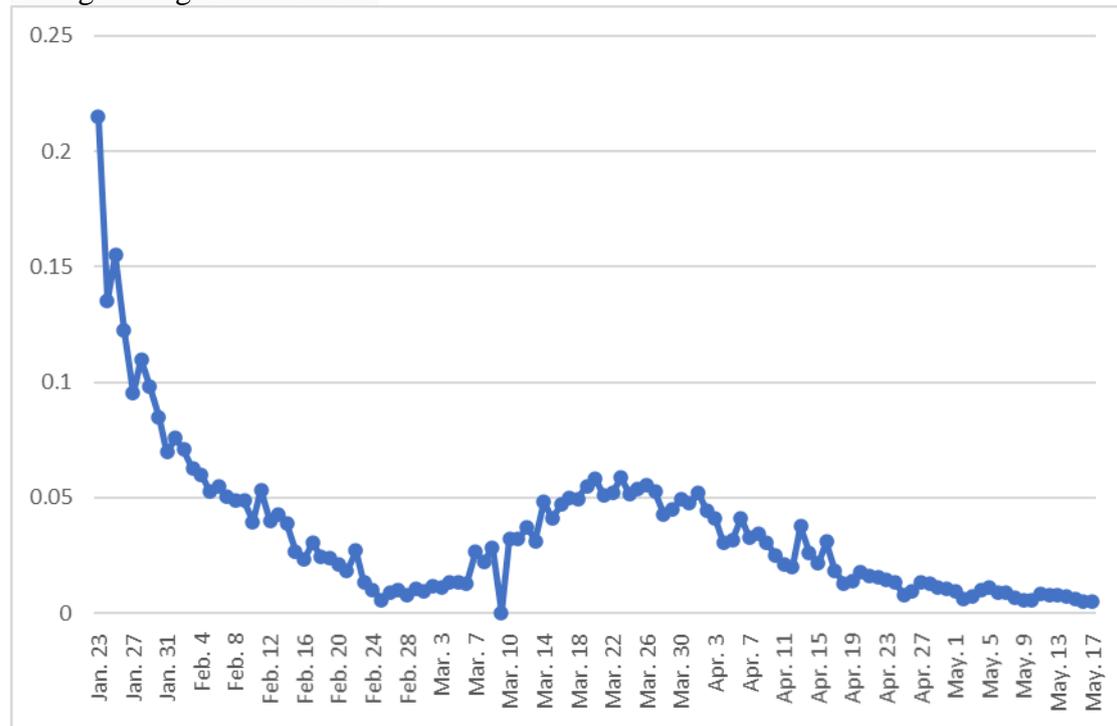
Log total deaths



My Excel 75.1 virus part 1 time Chart 11 Sheet 2 QR

**Figure 4A** Worldwide: the difference in the logarithm from one day to the next, January to May 2020

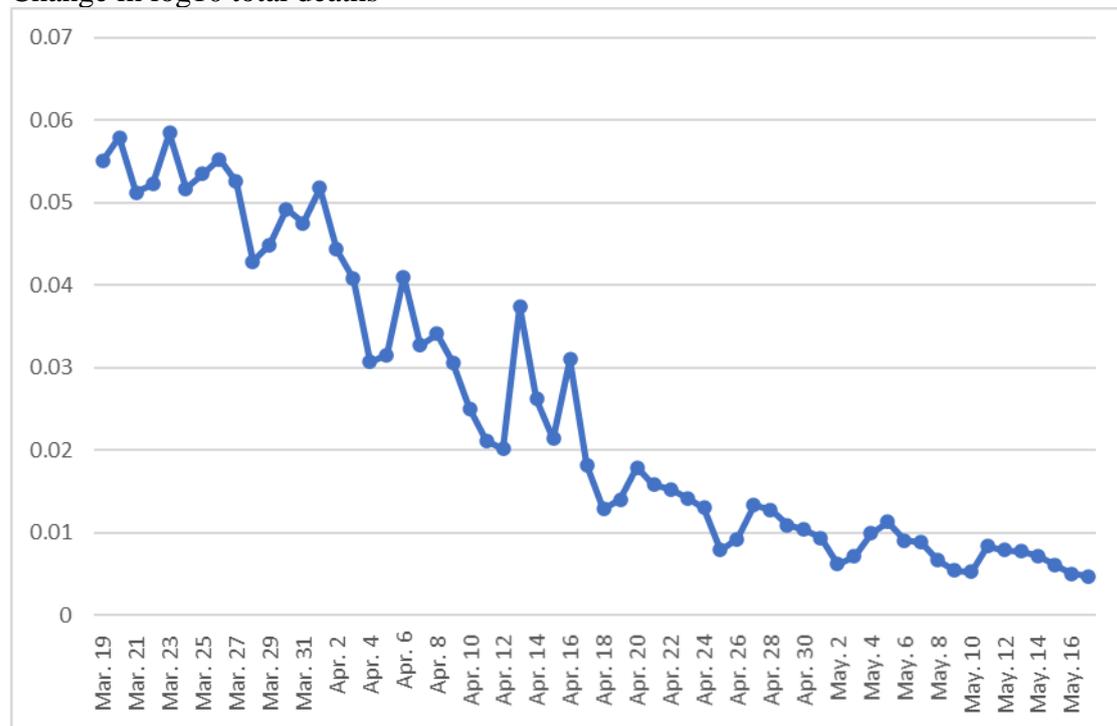
Change in log<sub>10</sub> total deaths



My Excel 75.1 virus part 1 time Chart 10 Sheet 2 UV

**Figure 4B** Worldwide: the difference in the logarithm from one day to the next, late March to May 2020

Change in log<sub>10</sub> total deaths



My Excel 75.1 virus part 1 time Chart 10 Sheet 2 UV

Source:

<https://www.worldometers.info/coronavirus/coronavirus-death-toll/>

Feb. 12: Provisional data, pending redistribution resulting from the [new diagnosis classification adopted by Hubei starting on Feb. 12](#)

The graphs above relate to total world deaths,  $D$ . What about world deaths  $D$  per world population  $N$ , in other words  $D/N$ ? Over the short time period we are considering the world population can be considered to be constant,  $N$ . So the graphs for world  $D/N$  will be exactly the same shape as those above.

[ $D/N$  is like  $D$  but reduced by a factor  $N$ ;  $\log(D/N)$  is like  $\log D$  but diminished by  $\log N$ ;  $d\log(D/N)$  equals  $d\log D$ .]

### **Countries: the distribution of deaths per population, $D/N$ , April 2020**

We now consider variation between individual countries, at a particular point in time, namely April 2020. Note that this will change over time. Our source of information is the website Worldometer. There are 159 countries which have experienced Coronavirus deaths. Of course countries with large populations tend to have many deaths and so to correct for this we consider deaths per million in the population,  $D/N$ .

Note: elsewhere we have commented on how the media uses statistics. Naturally there is interest in the number of people who have died but this number can be misleading when used to make comparisons.

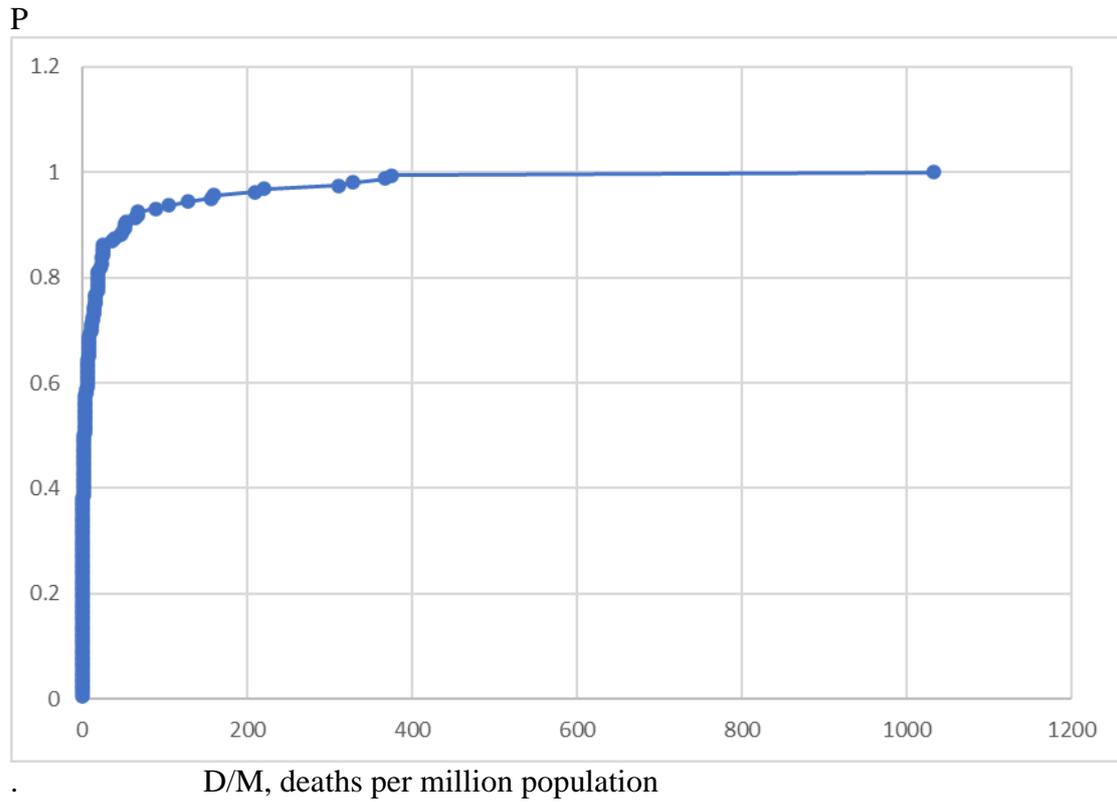
There are many countries with relatively low  $D/N$  and a few countries with relatively high  $D/N$ : the curve in Figure 5 shows the cumulative distribution: rising sharply at the beginning and then mostly flat at a high level thereafter. The rate  $D/N$  ranges between 0.03 for Yemen and 1032 for San Merino, with a mean of 30 and a median of 2. (April 2020)

Taking logarithms provides a clearer picture. Figure 6 shows the cumulative distribution for the logarithm of  $D/N$ . This shape is not unlike that of the lognormal distribution. Perhaps there are two line segments: the steep middle portion and the high shallow slope at the end.<sup>16</sup>

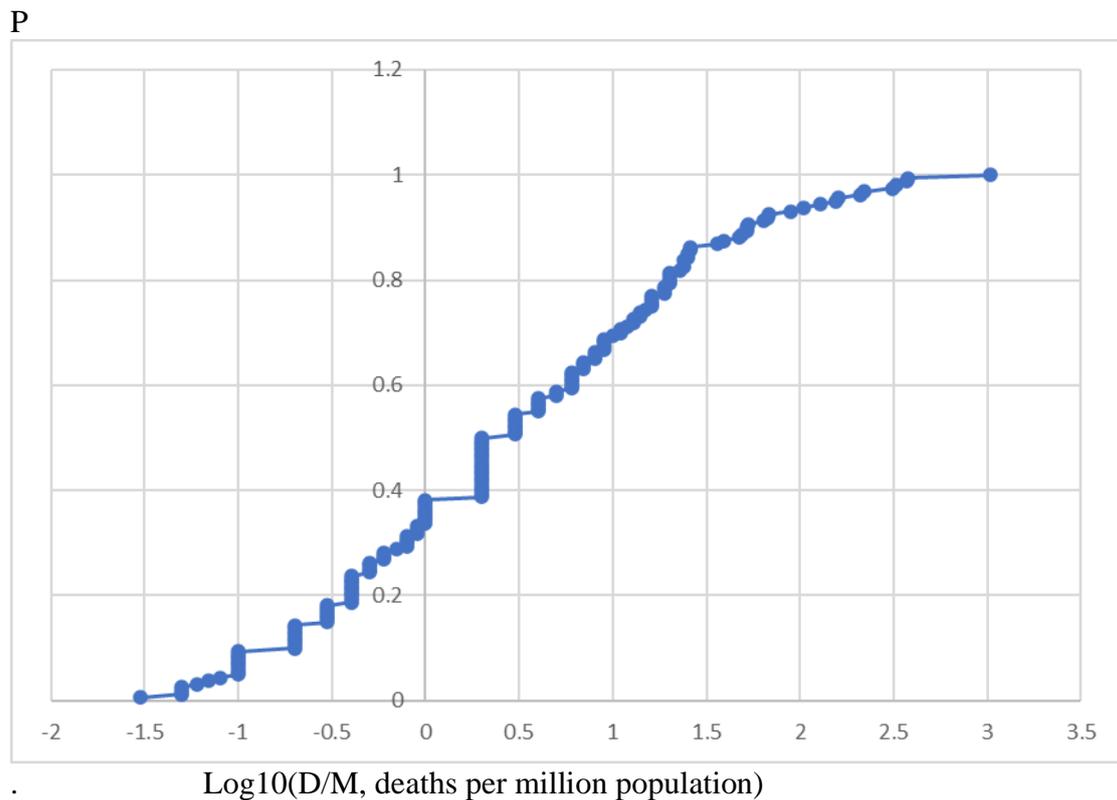
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<sup>16</sup> Consider a cumulative distribution  $P=F(x)$ .  $Q=1-P$ . It is a property of cumulative distributions that they are (possibly weakly) increasing. Sometimes the middle portion of the distribution is approximately linear; and sometimes there may be a tail at one or both ends. A variety of distributions are consistent with these shapes. Sometimes a logarithmic transformation of  $x$  or of  $P$  or  $Q$  (or of both  $x$  and one of  $P$  or  $Q$ ) is appropriate. Here we choose  $\log x$ .

**Figure 5** The cumulative distribution P for the rate D/N (base 10), countries ranked in order of increasing D/N. April 2020.



**Figure 6** The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. April 2020.



## Continents

Looking at individual countries and grouping them by continent, there are dramatic differences in deaths per population. Table 2 shows that the rates for Europe, North America and the Caribbean are very much higher than for other continents. The rates for the Middle East, Latin America and Russia & Central Asia are very much lower. The lowest rates are shown by Africa and Asia (and Australia & New Zealand).

Thus in mid-April 2020 the continents were ordered from highest to least deaths per population: Europe, North America, Caribbean, Middle East, Latin America, Russia & Central Asia, New Zealand & Australia, Africa, Asia. See also Table A below in next section.

**Table 2** Continents' deaths per population: mean, min and max of country rates April 2020.

	N	mean	min	max
Europe: Slovakia, San Marino	44	88.6	0.4	1032
North America: Canada, USA	2	43	19	67
Caribbean: Haiti, Sint Marten	15	30.6	0.3	210
Middle East: Syria, Iran	14	6.9	0.1	53
Latin America: Nicaragua, Panama	18	4.5	0.2	20
Russia, Central Asia: Uzbekistan, Czechia	9	2.6	0.1	13
New Zealand, Australia	2	1.5	1	2
Africa: Ethiopia, Mayotte	36	1.3	0.03	11
Asia: Myanmar, South Korea	18	1.2	0.07	4

Because the virus started in Asia, one might have thought that its rate would be highest. Because Europe has the highest rate, one might have thought that Australia & New Zealand would also have a high rate. One suggestion has been that the virus thrives as follows:

“Coronavirus Disease 2019 (COVID-19), caused by SARS-CoV-2, has established significant community spread in cities and regions along a narrow east west distribution roughly along the 30-50° N’ corridor at consistently similar weather patterns consisting of average temperatures of 5-11°C, combined with low specific (3-6 g/kg) and absolute humidity (4-7 g/m<sup>3</sup>).”

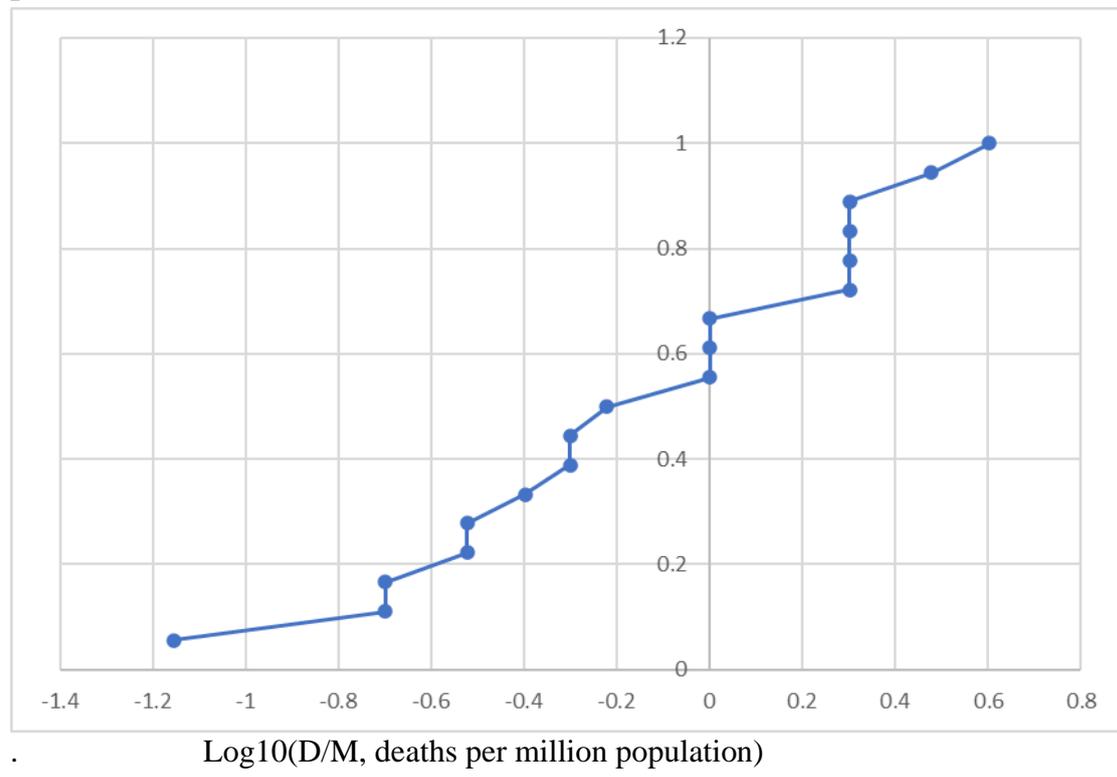
<https://www.washingtonpost.com/weather/2020/03/24/warm-humid-weather-coronavirus/>

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3550308](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3550308)

Again, taking logarithms provides a clearer picture. Figures 7A to 7G shows the cumulative distributions for the logarithm of D/N for the different continents. The shapes are not unlike that of the lognormal distribution. In several there is a prolonged steep linear middle portion which dominates the shape.

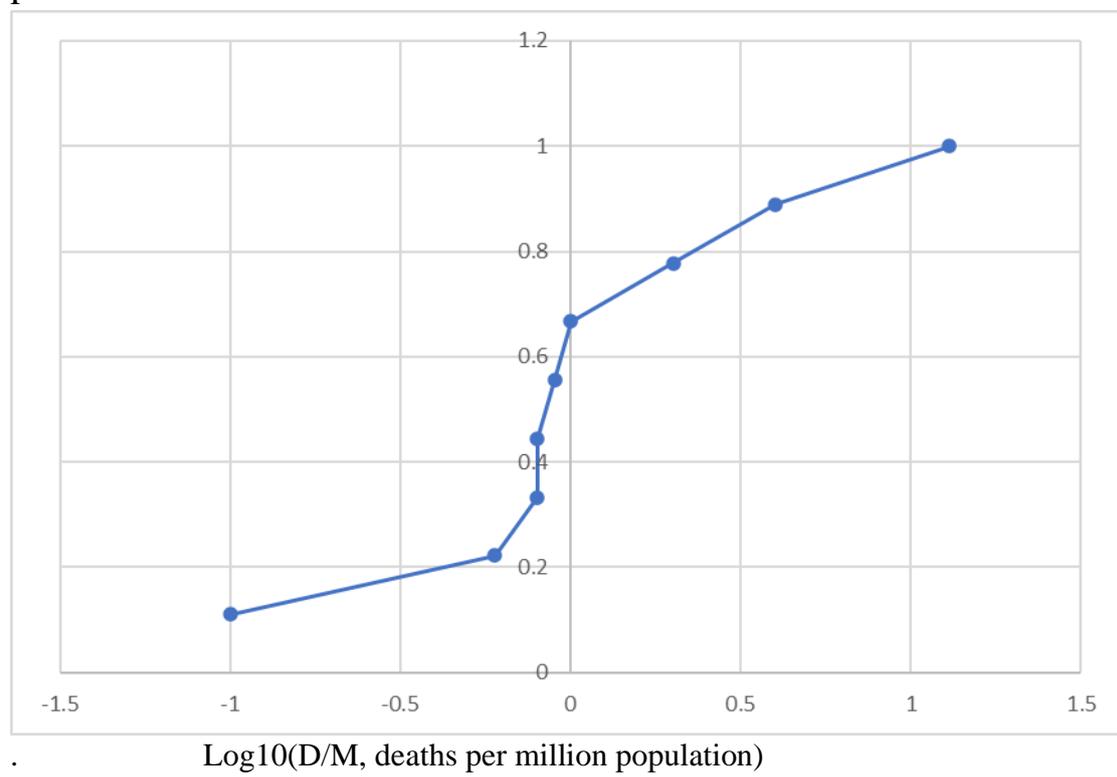
**Figure 7A** Asia. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. 18 countries.

P



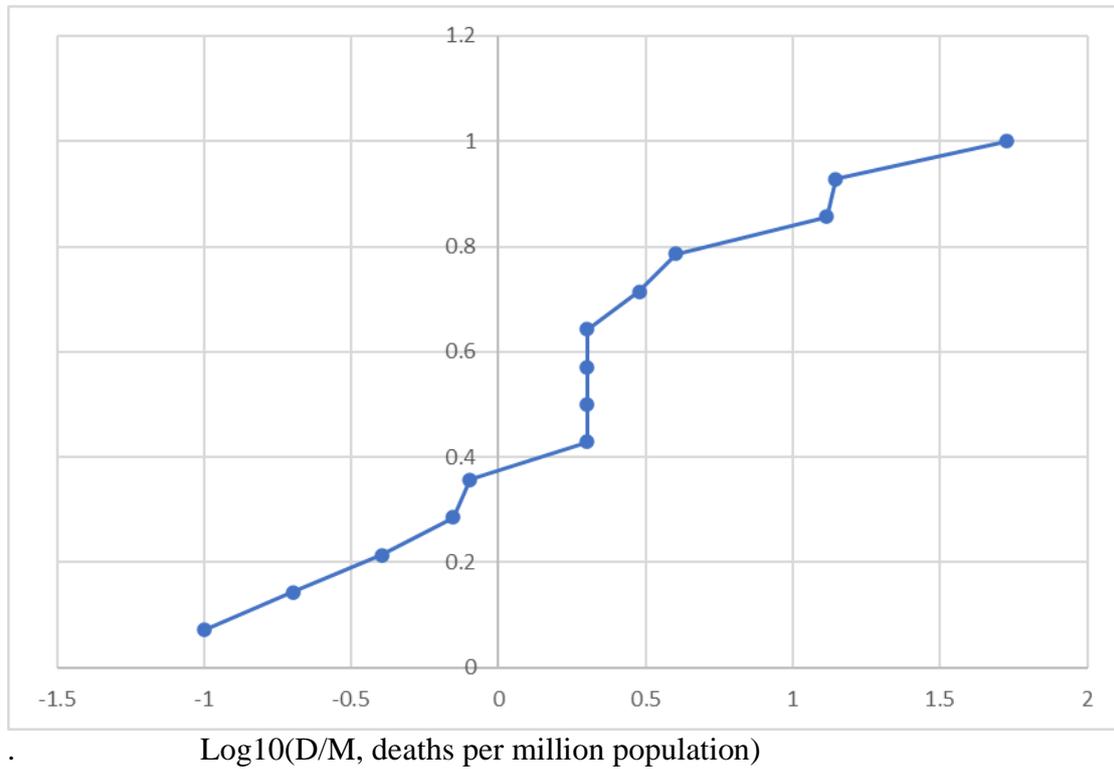
**Figure 7B** Russia & Central Asia. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. 9 countries.

P



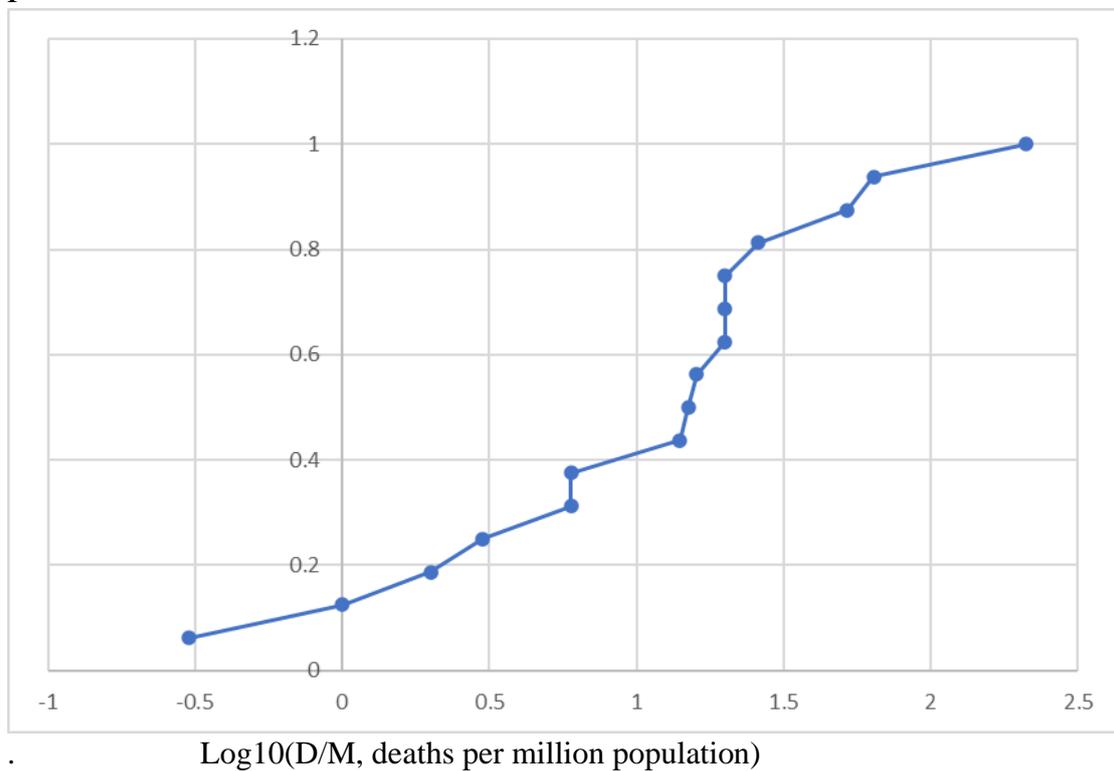
**Figure 7C** Middle East. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. 14 countries.

P

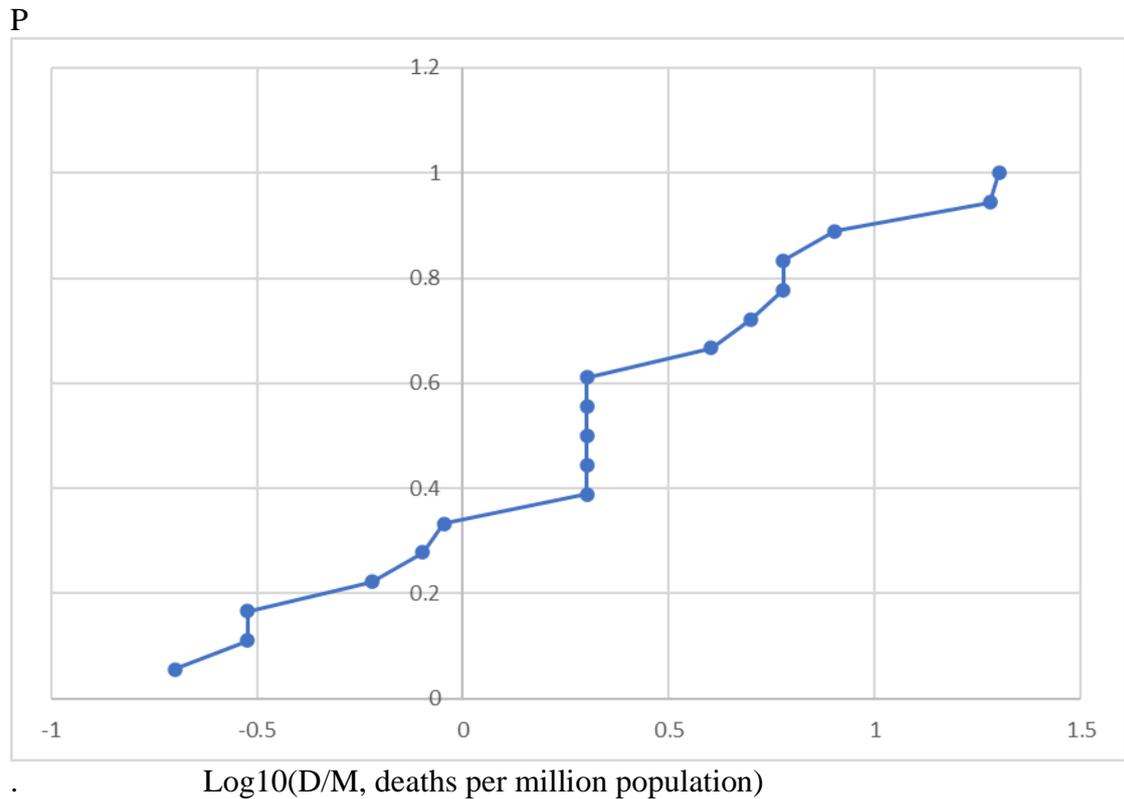


**Figure 7D** Caribbean. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. 15 countries.

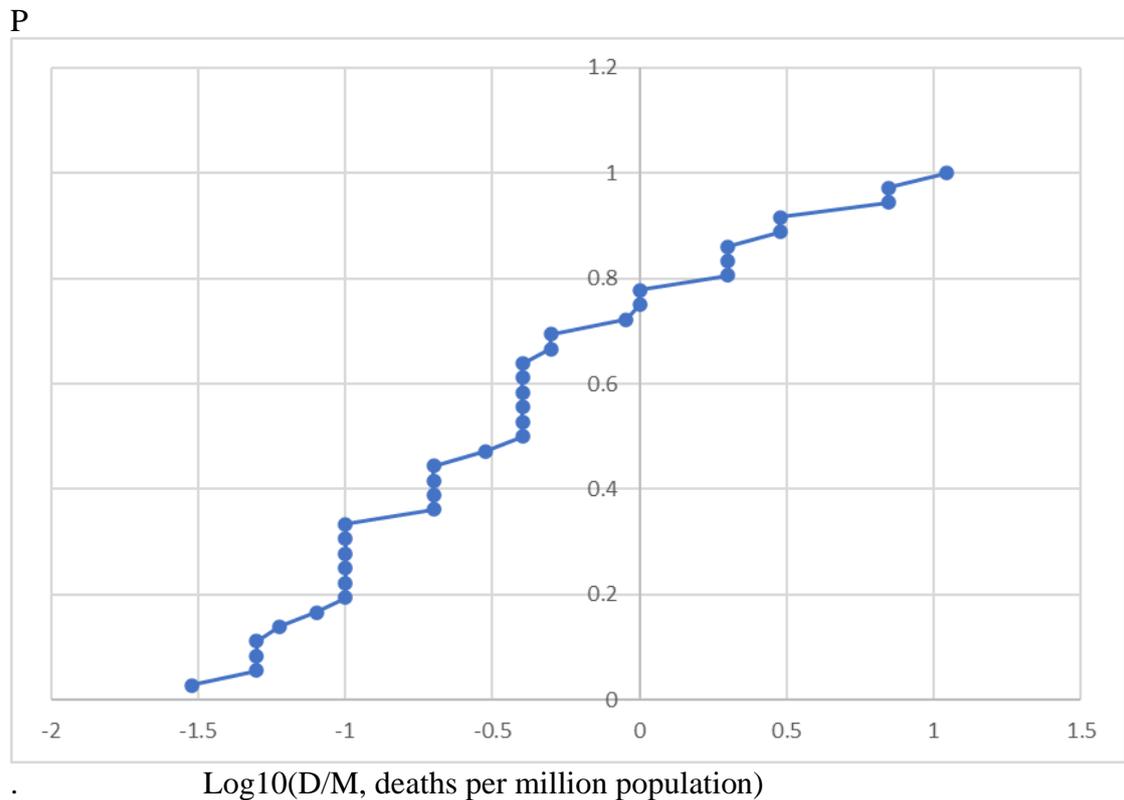
P



**Figure 7E** Latin America. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N. 18 countries.

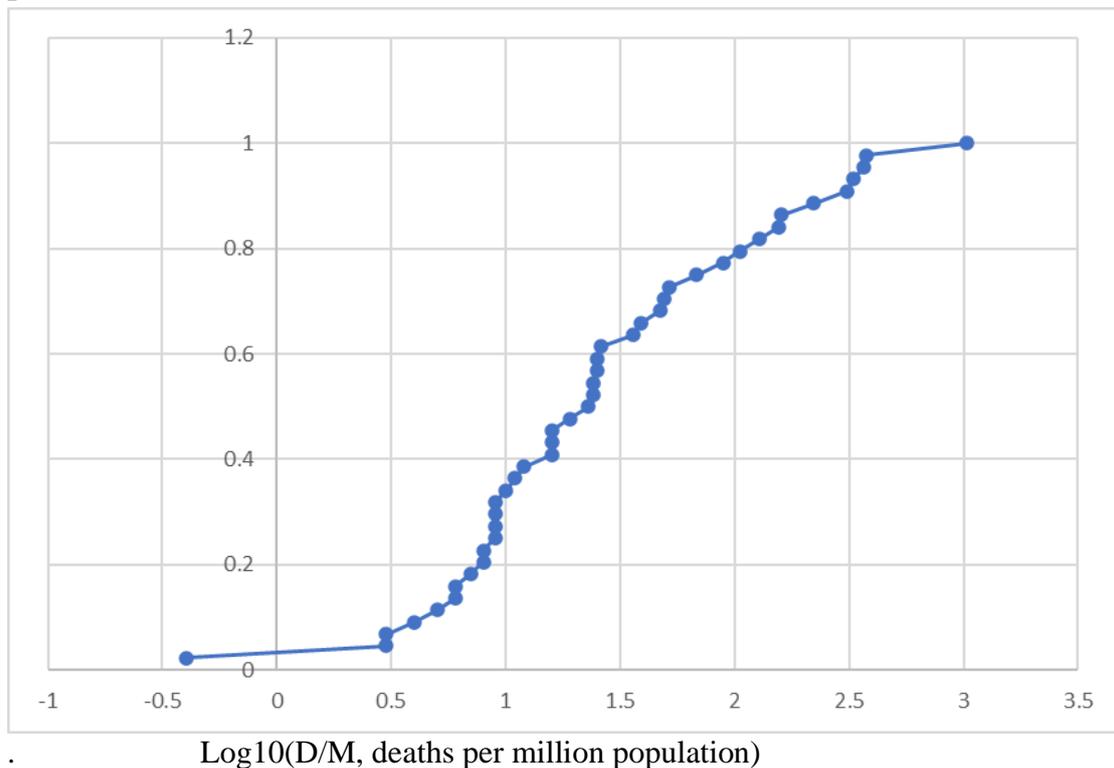


**Figure 7F** Africa. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N



**Figure 7G** Europe. The cumulative distribution P for the logarithm of the rate D/N (base 10), countries ranked in order of increasing D/N

P



### Change in deaths per population

“Thus in mid-April 2020 the continents were ordered from highest to least deaths per population: Europe, North America, Caribbean, Middle East, Latin America, Russia & CentralAsia, New Zealand & Australia, Africa, Asia. See also Table A below in next section.”

In our discussion of Figures 2 to 4 above, we noted that cumulative numbers necessarily increase but the change in the numbers sometimes decreases. As deaths increase, the rate of increase in deaths decreases – the deaths slow down.

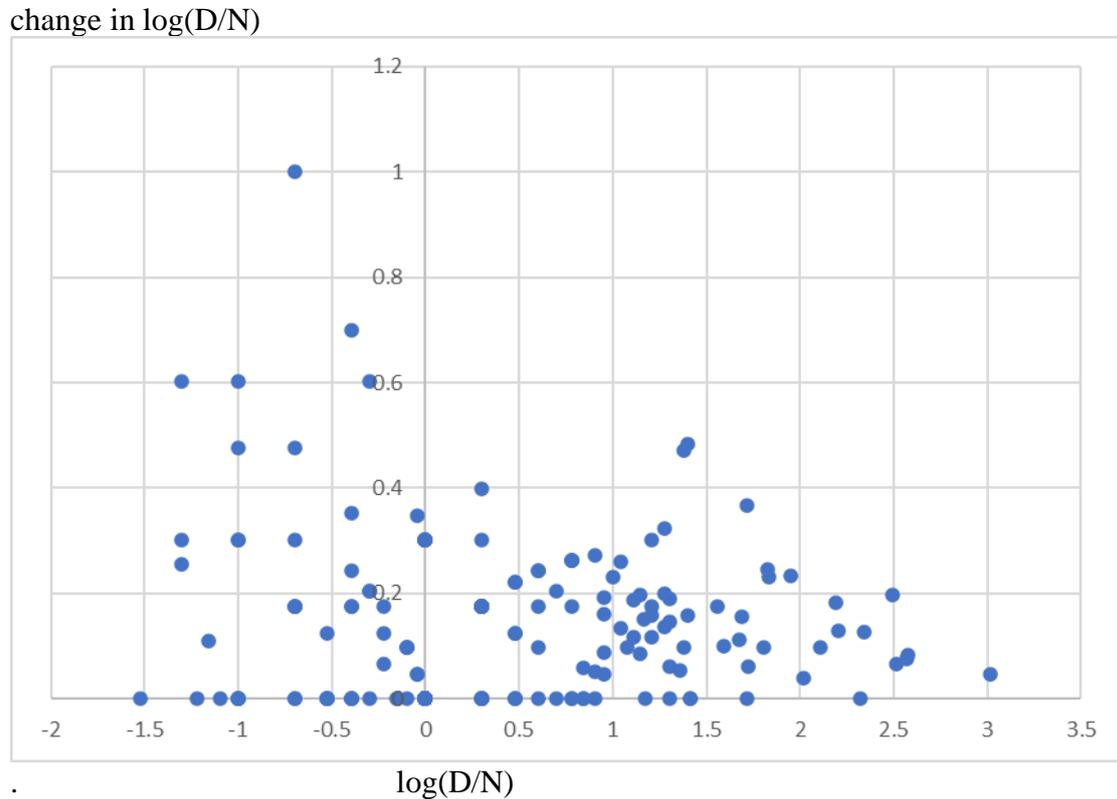
When we compare countries at any one point in time, a difference may be due to one country having an intrinsically higher death rate than another; or it may be because one country started the process earlier.

Comparing countries there is a negative correlation between deaths per population and change in that variable. See Figure A.

The details for some of the countries/points in Figure A above, are presented in Table A below. Countries are listed in order of increasing deaths per population,  $\log(D/N)$ . As noted earlier African and Asian countries have low  $\log(D/N)$ . Also given is the change in  $\log(D/N)$ . African countries and South Asia have high increase in  $\log(D/N)$ . This suggests that their low (D/N) may be due to starting the process later rather than

because of intrinsically lower (D/N). In contrast other Asian countries started early but yet have low  $d\log(D/N)$ .

**Figure A.** Deaths per population, D/N: change in  $\log(D/N)$  versus D/N. April 13 to 19, 2020.



“Thus in mid-April 2020 the continents were ordered from highest to least deaths per population: Europe, North America, Caribbean, Middle East, Latin America, Russia & Central Asia, New Zealand & Australia, Africa, Asia.” Table 2 above.

The preceding analysis was carried out in mid-April. How has the situation changed over the past month? I hope to carry out a proper analysis in due course but in the meantime here is a very quick initial appraisal of the change. We consider the twenty-two countries with the most deaths (as given in The Times), and look at the continents they are in and at their deaths per population. We compare mid-April and mid-May – see Table B below.

The distribution of continents represented by these countries hardly changes over time: just over half the countries in the top twelve are in Europe, with another five or six from American countries. Just one or two are from Asia and none are from the Middle East and none from Africa.

For each continent we consider the range between countries in deaths per million. The continents are ordered the same way in May as they were in April. Europe has the highest range followed by North America then the rest. Deaths in American countries are growing faster than deaths in Europe but seem unlikely to catch up (?).

**Table A** Deaths per million: log and change in log for selected countries. April 2020

	log(D/M)	change	Africa	S Asia	Carib	L Amer	Asia	ME	N Amer	Europe
<hr/>										
	<1/m									
Nigeria	-1.30	0.26	*							
Somalia	-1	0.60	*							
Kenya	-1	0.48	*							
India	-0.70	0.30		*						
Bangladesh	-0.70	0.48		*						
Taiwan	-0.52	0					*			
Pakistan	-0.40	0.24		*						
S. Africa	-0.40	0.35	*							
Thailand	-0.22	0.07					*			
Russia	-0.05	0.35								*
<hr/>										
	1/m									
Jamaica	0	0.31			*					
Japan	0	0.31					*			
Indonesia	0	0.31					*			
New Zea.	0	0.31					*			
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	>1/m									
Australia	0.30	0.18					*			
China	0.30	0.18					*			
Saudi Ar	0.30	0.18						*		
Malaysia	0.31	0.18					*			
Cuba	0.31	0.18			*					
Mexico	0.30	0.40				*				
Phillipin.	0.47	0.12					*			
S. Korea	0.60	0.10					*			
Brazil	0.78	0.26				*				
<hr/>										
Israel	1.11	0.19						*		
Turkey	1.15	0.20						*		
Canada	1.28	0.32							*	
Norway	1.38	0.10								
Germany	1.56	0.18								*
Iran	1.72	0.06						*		
USA	1.83	0.25							*	
Ireland	1.83	0.23								*
Sweden	1.94	0.23								*
<hr/>										
Switzerld	2.11	0.10								*
UK	2.19	0.18								*
Netherld	2.20	0.13								*
France	2.34	0.13								*
Belgium	2.49	0.20								*
Italy	2.52	0.17								*
Spain	2.57	0.07								*

**Table B** The top twenty countries in terms of number of deaths. The number of countries in each continent. The range in deaths per million in the population. April and May 2020

	Africa	S Asia	Carib	L Amer	Asia	ME	N Amer	Europe
<hr/>								
N countries in top 22 for deaths								
Apr 22	0	1	0	3	2	2	2	12
May 20	0	1	0	4	1	2	2	12
<hr/>								
Death/m								
Apr 22		0.5		6-29	2-3	27-63	49-136	26-518
May 20		2		41-161	3	50-85	157-282	19-786

## UK, cases and deaths

The events leading up to the first coronavirus in the UK are as follows:

First case of coronavirus, China  
November 2019

“World health chiefs declare virus is global emergency ...  
... Britain has not had a case of the virus ...  
... about 150 Britons evacuated from Wuhan city are to start a fortnight in an  
NHS hospital in the Wirral today after they land at Brize Norton today”  
*The Times*, January 31, 2020: 1.

“Race to track down contacts of Britain’s first coronavirus cases.”  
*The Times*, February 1, 2020: 6-7.

“First death in UK from coronavirus as toll rises.”  
Chris Smyth and Kay Lay. *The Times*, March 6, 2020: 1.

Figures 8/9 to 11 below cover the period from March 11 onwards. There were 6  
deaths reported on March 11<sup>th</sup>.

Figures C cover cases and Figures D cover deaths.

The source is the Wednesday figures reported in *The Times*

Total cases and total deaths are cumulative and necessarily increase.

The increase looks exponential, which would mean that the logarithm increased  
linearly.

In fact the logarithm does increase but at a decreasing rate.

55,242 cases and 6,159 deaths  
Wednesday, April 8<sup>th</sup>, 2020

[My Excel 75.2 virus part 1 time; Sheet 3; Chart 789

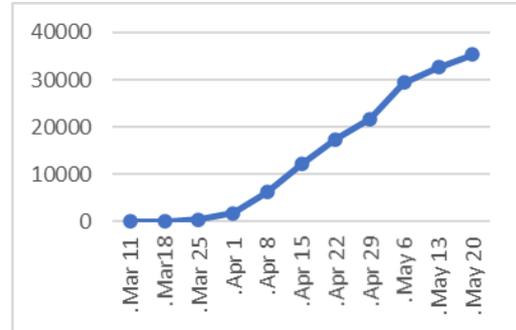
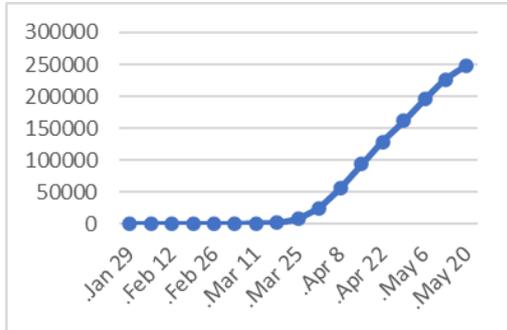
**UK, Cases and Deaths, mid-week: number, log(number), change in log(number)**

**Cases, January 29 to April 15**

**Deaths, March 11 to April 15**

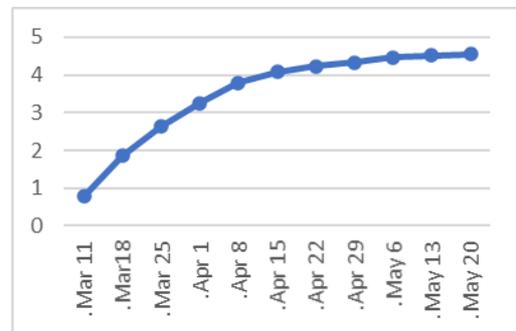
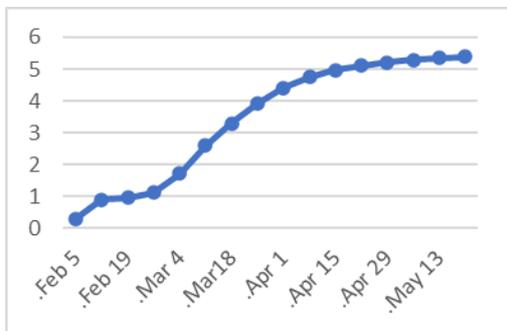
**Figure 8/9C UK, total cases, mid-week**

**Figure 8/9D UK, total deaths, mid-week**



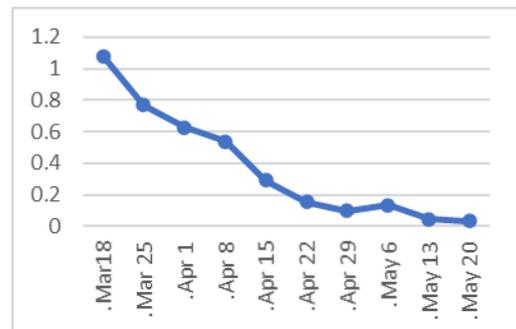
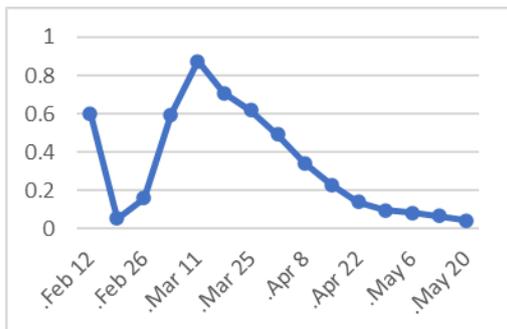
**Figure 10C UK, log(total cases, mid-week)**

**Figure 10D UK, log(total deaths, mid-week)**



**Figure 11C UK, change in log(total cases, mid-week)**

**Figure 11D UK, change in log(total deaths, mid-week)**



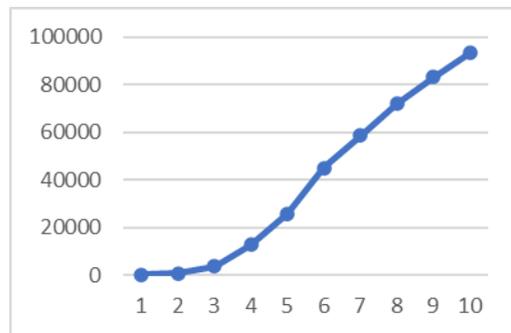
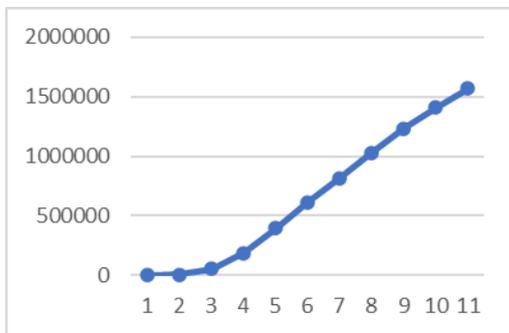
**USA, Cases and Deaths, mid-week: number, log(number), change in log(number)**

**Cases, January 29 to April 15**

**Deaths, March 11 to April 15**

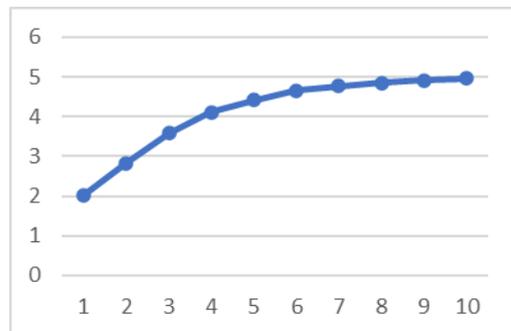
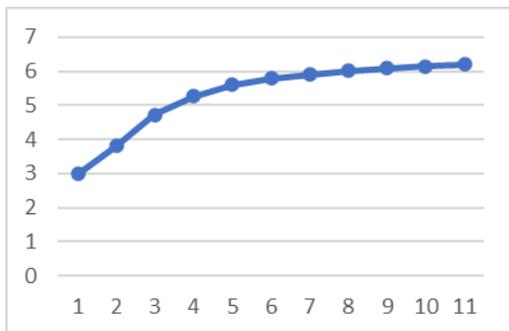
**Figure 8/9C UK, total cases, mid-week**

**Figure 8/9D UK, total deaths, mid-week**



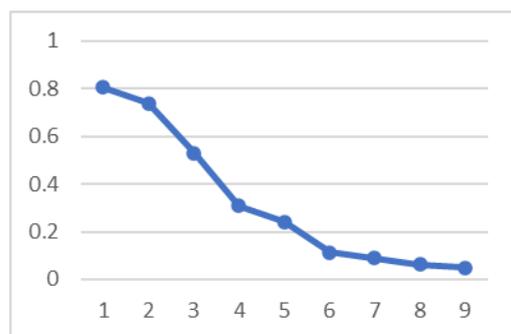
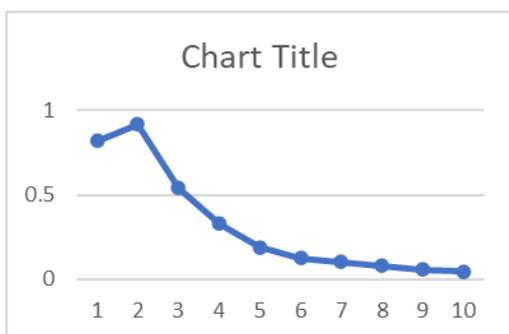
**Figure 10C UK, log(total cases, mid-week)**

**Figure 10D UK, log(total deaths, mid-week)**



**Figure 11C UK, change in log(total cases, mid-week)**

**Figure 11D UK, change in log(total deaths, mid-week)**



.  
X  
X

Table 3D provides the basic statistics for UK regions and nations. The first column gives the total population in millions. The final column gives the total number of deaths from all causes for every million in the population. This figure is given only for the UK as a whole. There are about nine thousand deaths for every million in the population – this corresponds to a death rate of 0.9%, in other words roughly one in a hundred people die each year.

The other columns concern the Coronavirus. The second and third columns give the numbers - the numbers of cases and the number of deaths. The fourth, fifth and sixth columns give the rates - the cases per population; the deaths per cases; and the deaths per population.

England has very many more cases and deaths than the other nations. Controlling for the size of population however, we find that both England and Scotland have a middling value of cases per million people, whereas Wales has relatively more cases and Northern Ireland has relatively fewer cases (per population). Looking at deaths per cases, England is highest, then Northern Ireland, then Wales and finally Scotland. Looking at deaths per population, England is highest and then Wales, and then (about half as many) Northern Ireland and finally Scotland.

London has a much higher rate of cases per population, more than double, than the rest of England and the other nations. Two factors are likely to be at play here: London has a greater population density (and interactivity?) making for a faster spread of the virus and also the virus arrived in London earlier. These same factors may also explain the differences between regions. Response and intervention strategies may also be different. The fact that London has a higher rate is ironic in that London has a young population who are less at risk of dying.

**Table 3D** Basic statistics for UK regions and nations, 2018; 26 March 2020

	all pop mill. 2018	virus cases	deaths	cases/ mill. pop	deaths/ cases	deaths/ mill. pop.	all causes deaths/ mill. pop.
London	8.9	3919	?	440.3			
England-London	47.1	5863	?	124.5			
England	56.0	9782	515	174.7	0.053	9.2	
Scotland	5.4	894	25	165.6	0.028	4.6	
Wales	3.1	741	28	239.0	0.038	9.0	
N Ireland	1.9	241	10	126.8	0.041	5.3	
UK	66.4	11658	578	175.6	0.050	8.7	9400

Given the higher rates for Wales, Table 3E provides some more detailed information. The higher figure for Cardiff suggests that the capital of Wales has a similar situation to the capital city of England. Powys is even more of hot spot.

**Table 4E** Basic statistics for Welsh regions, UK nations, 2018; 26 March 2020

	all pop mill. 2018	virus .....	cases	deaths	cases/ mill. pop	deaths/ cases	deaths/ mill. pop.	all causes deaths/ mill. pop.
Betsi Cad.		25		40				
Hywel Dda		45		120				
Swansea Bay		16		40				
Cym Taf		54		120				
Cardiff &...		156		310				
Powys		358		610				

## **Part 4 The response ... brief notes on sundry aspects**

### **The Global Impact of COVID-19 and Strategies for Mitigation and Suppression**

Summary Report 12, ... March 2020

“The world faces a severe and acute public health emergency due to the ongoing COVID-19 global pandemic. How individual countries respond in the coming weeks will be critical in influencing the trajectory of national epidemics. Here we combine data on age-specific contact patterns and COVID-19 severity to project the health impact of the pandemic in 202 countries. We compare predicted mortality impacts in the absence of interventions or spontaneous social distancing with what might be achieved with policies aimed at mitigating or suppressing transmission. Our estimates of mortality and healthcare demand are based on data from China and high-income countries; differences in underlying health conditions and healthcare system capacity will likely result in different patterns in low income settings.

We estimate that in the absence of interventions, COVID-19 would have resulted in 7.0 billion infections and 40 million deaths globally this year. Mitigation strategies focussing on shielding the elderly (60% reduction in social contacts) and slowing but not interrupting transmission (40% reduction in social contacts for wider population) could reduce this burden by half, saving 20 million lives, but we predict that even in this scenario, health systems in all countries will be quickly overwhelmed. This effect is likely to be most severe in lower income settings where capacity is lowest: our mitigated scenarios lead to peak demand for critical care beds in a typical low-income setting outstripping supply by a factor of 25, in contrast to a typical high-income setting where this factor is 7. As a result, we anticipate that the true burden in low income settings pursuing mitigation strategies could be substantially higher than reflected in these estimates.

Our analysis therefore suggests that healthcare demand can only be kept within manageable levels through the rapid adoption of public health measures (including testing and isolation of cases and wider social distancing measures) to suppress transmission, similar to those being adopted in many countries at the current time. If a suppression strategy is implemented early (at 0.2 deaths per 100,000 population per week) and sustained, then 38.7 million lives could be saved whilst if it is initiated when death numbers are higher (1.6 deaths per 100,000 population per week) then 30.7 million lives could be saved. Delays in implementing strategies to suppress transmission will lead to worse outcomes and fewer lives saved.

We do not consider the wider social and economic costs of suppression, which will be high and may be disproportionately so in lower income settings. Moreover, suppression strategies will need to be maintained in some manner until vaccines or effective treatments become available to avoid the risk of later epidemics. Our analysis highlights the challenging decisions faced by all governments in the coming weeks and months, but demonstrates the extent to which rapid, decisive and collective action now could save millions of lives.”

**Table 5A:** Estimated impact of suppression strategies.

The impact on infections and deaths over 250 days for two different suppression strategies triggered according to different thresholds for mortality incidence (0.2 and 1.6 deaths per 100,000 population per week).

Report 12, p. 11

Unmitigated Scenario		Suppression at 0.2 deaths per 100,000 pop. per week		Suppression at 1.6 deaths per 100,000 pop. per week	
Infections	Deaths	Infections	Deaths	Infections	Deaths
East Asia & Pacific					
2,117,131,000	15,303,000	92,544,000	442,000	632,619,000	3,315,000
Europe & Central Asia					
801,770,000	7,276,000	61,578,000	279,000	257,706,000	1,397,000
Latin America & Caribbean					
566,993,000	3,194,000	45,346,000	158,000	186,595,000	729,000
Middle East & North Africa					
419,138,000	1,700,000	30,459,000	113,000	152,262,000	594,000
North America					
326,079,000	2,981,000	17,730,000	92,000	90,529,000	520,000
South Asia					
1,737,766,000	7,687,000	111,703,000	475,000	629,164,000	2,693,000
Sub-Saharan Africa					
1,044,858,000	2,483,000	110,164,000	298,000	454,968,000	1,204,000
Total					
7,013,734,000	40,624,000	469,523,000	1,858,000	2,403,843,000	10,452,000

Imperial College COVID-19 Response Team DOI: Page 12 of 19 Figure 7:

**Table 6B:** Estimated impact of suppression strategies, deaths per cases.

The impact on infections and deaths over 250 days for two different suppression strategies triggered according to different thresholds for mortality incidence (0.2 and 1.6 deaths per 100,000 population per week).

Report 12, p. 11

	Unmitigated Scenario	Suppression at 0.2 deaths per 100,000 pop. per week	Suppression at 1.6 deaths per 100,000 pop. per week
	Deaths/Infections	Deaths/Infections	Deaths/Infections
North America	0.0091	0.0057	0.0052
East Asia & Pacific	0.0073	0.0052	0.0048
Europe & Central Asia	0.0091	0.0054	0.0045
South Asia	0.0044	0.0043	0.0042
Middle East & North Africa	0.0041	0.0039	0.0037
Latin America & Caribbean	0.0056	0.0039	0.0035
Sub-Saharan Africa	0.0023	0.0026	0.0027
Total	0.0057	0.0043	0.0040

Derived from Imperial College COVID-19 Response Team DOI: Page 12 of 19 Figure 7:

Other statistics are *model-based conditional predictions* about the future.

Imperial College London ‘predicts’ that in three intervention scenarios (none, late, early) there would be:  
7.014, 2.404 or 0.470 billion coronavirus cases (roughly 91%, 0.31% or 6% of total population);  
and 0.041, 0.010 or 0.002 billion coronavirus deaths, (roughly 0.50%, 0.10% or 0.02% of total population ... relative to a 1% annual death rate from all causes, this represents 50%, 10% and 2% of annual deaths).<sup>17</sup>

Notes:

- .a Not everyone will be infected.
- .b The number of cases depends on the intervention scenario.
- .c Under the strongest intervention scenario, only a ‘small’ percentage will be affected, namely 6%.
- .d China has had ‘only’ 81,439 cases out of a population of 1439 million, 30 March 2020.
- .e South Korea has had ‘only’ 9,583 cases out of a population of 51 million, 30 March 2020.

## Strategy

Extreme lockdown: India, China, Russia, Hungary, South Africa, Lebanon

Gradual

lockdown: Italy, France

Test and trace: South Korea, Taiwan

Low level lockdown: Sweden

“Loophole in UN rules lets nations ignore testing plea” March 31, 15

USA “Trump: we’ll have done a good job if only 100,000 people die”, MARCH 31, 13-14

<https://www.nytimes.com/2020/03/30/opinion/letters/coronavirus-anthony-fauci.html>  
<https://www.nytimes.com/2020/03/28/technology/coronavirus-fauci-trump-conspiracy-target.html>

“On-off lockdowns could prevent a second wave.” Whipple, Tom. *The Times*, April 1, 2020: 5.

<https://www.theguardian.com/news/2020/mar/31/llandudno-goats-herd-running-riot-coronavirus-lockdown>

## Public opinion and response

USA: Worries about Coronavirus surge as most Americans expect a recession – or worse . Trump’s job approval at highest point in three years. March 26 2020

Pavia, Will and David Charter. “New York’s overwhelmed doctors complain of ‘wartime conditions’”. *The Times*, March 28, 2020: 16-17.

<https://www.pewresearch.org/topics/coronavirus-disease-2019-covid-19/>

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<sup>17</sup> 50%, 10% and 2% of annual deaths

Imperial College London has produced a series of [reports on COVID-19](#).

Three intervention strategies, Table 1: Estimated impact of suppression strategies. Report 12, p. 11

Patrick GT Walker, Charles Whittaker, Oliver Watson et al. “The Global Impact of COVID-19 and Strategies for Mitigation and Suppression.” WHO Collaborating Centre for Infectious Disease Modelling, MRC Centre for Global Infectious Disease Analysis, Abdul Latif Jameel Institute for Disease and Emergency Analytics, Imperial College London (2020) doi:

<https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-Global-Impact-26-03-2020.pdf>;

<https://www.people-press.org/2020/03/26/public-views-of-the-coronaviruss-impact-on-the-u-s/>

#### Travel

“Car, bus and train use plummets as Britons stay home.” March 31, 7

“London drivers still clogging the streets [last week].” Graeme Paton. *The Times*, April 1, 2020: 10.

#### Home deaths

“lockdown family found dead at home” March 31, 11

#### Brexit

“Prime minister is urged to ignore calls for Brexit delay.” Oliver wirght. *The times* March 31, 2020: 7.

### **The state and democracy**

“We are becoming a police state, claims retired judge”, March 31, 10-11

“Strongmen handed sweeping powers” [China, Russia, Hungary] March 31, 15

### **The trajectories of the response to the virus**

A number of countries were slow to appreciate and to communicate the nature of the Coronavirus ... so it is said.

#### China

Some say that China was slow to give the full information about the initial outbreak.

.(1) Wright, Oliver. “Tories call for rethink of relationship with China.” *The Times*, March 30, 2020: 5.

November 17, 2019: fist confirmed case (2)

December 9, [12 (2)], 2019: A “new viral outbreak” has been detected in Wuhan City (CCTV)

December 31

December 9, 2019: “new viral outbreak” (CCTV)

.(2) <https://www.peerlyst.com/posts/just-in-time-needs-to-become-just-in-case-dean-webb>

#### UK

“Covid-19 risk was deemed moderate by scientists.” O’Neill, Sean. *The Times*, April 1, 2020: 1.

#### USA

[See also opening quotations]

Donald Trump initially said it was “no worse than flu”.

Pavia, Will. “Biden surges to 9-point poll lead over Trump.” *The Times*, March 30, 2020: 30.

## Economy

“UN warns of food supply crisis as export bans begin.” *The Times*, April 4, 2020: 39

“Hiring falls as US boom goes bust.” *The Times*, April 4, 2020: 46.

“Overcapacity is not a bad thing when it protects us from risk.” *The Times*, April 4, 2020: 47

“Virus brings UK economy to its knees.” Narwan, Gurpreet. *The Times*, April 4, 2020: 43.

The Eurozone PMI index fell from 52.5 to 31.7.

<https://tradingeconomics.com/euro-area/manufacturing-pmi>

<https://tradingeconomics.com/indicators>

## Appendix: News in the UK about the virus, January 2020 (continued)

The first mention in *The Times* (as far as I have found) of what came to be called the Coronavirus or COVID-19 appeared on Saturday 4 January 2020 as a one-paragraph item on page 40:

January 4

Reuters [Sars virus fears after pneumonia outbreak January 2020](#)

China. Health authorities are trying to identify the cause of an outbreak of pneumonia in the central Chinese city of Wuhan (a city with a million people) as the number of cases rose to 44. Officials said this week they were investigating 27 cases after claims on social media that the outbreak could be related to severe acute respiratory syndrome, or Sars. The World Health Organisation said it was in contact with the Chinese government (Reuters):

BEIJING (Reuters) - Chinese healthcare authorities in Wuhan said an outbreak of viral pneumonia was not Severe Acute Respiratory Syndrome (SARS), Middle East respiratory syndrome (MERS) or bird flu, and that they were still working to identify the cause and source.

In a statement posted on its website Sunday night, the Wuhan Municipal Health Commission said a total of 59 cases of unknown viral pneumonia had been reported as of Sunday, including seven in a critical condition. It also said it had put 163 people who had had contacts with the patients under medical observation.

The viral pneumonia started in the central city of Wuhan late last month, prompting fears of a possible SARS epidemic.

<https://uk.reuters.com/article/uk-china-pneumonia/chinese-authorities-say-viral-pneumonia-outbreak-is-not-sars-mers-or-bird-flu-idUKKBN1Z4009>

January 6

Two days later the Chinese authorities reported that the infection broke out between December 12 and 29, 2019 and 59 people were affected, seven were seriously ill but none had died. Some had been employed at a local fish and live animal market which had subsequently been closed for disinfection. No obvious evidence of human-to-human transmission had been found. Wuhan police said they had punished eight people for “publishing or forwarding false information on the internet without verification”.

January 8

US embassy in China warns Americans to avoid contact with live animals and sick people.

January 10

The virus is identified as a member of the Coronavirus family – as was SARS. The public have been urged to wear masks, stay away from crowds and animals and seek medical attention if they display symptoms such as fever or respiratory difficulty.

[In 2002 SARS infected 3000+ people worldwide and killed 774.]

Comments from Professors Johnathan Ball, Nottingham, and Sarah Gilbert, Oxford ... how transmissible is it between people?

January 14/15

41 people have been diagnosed with the virus, and one of them died on 9 January. Authorities are tracking 763 people who may have had contact with the virus. Another person from Wuhan (must have slipped through the net and) travelled to Thailand and was admitted into a hospital there and died. WHO has praised China for sharing information. WHO has guidance on the detection and treatment of the virus. No evidence of spread between humans or of spread to health workers.

January 17

A man in Wuhan contracted the virus on December 31 and died on January 15. Also a Japanese man visited Wuhan and had contact with at least one person with the virus and developed a fever there on January 3, returning to Japan on January 6 and going into hospital on January 10 was found to have the virus.

January 17/18

A second man in China has died of the virus. A new case in Thailand.

\*\*\* January 17: ICL Report 1 \*\*\*

January 19

Screening at airports ... implications of ICL Report 1 ... etc.

January 20

Fears that virus outbreak is much bigger than first thought ... authorities are suspected of a cover-up ... implications of ICL Report 1 ... etc.

January 21

President Xi breaks his silence about the virus .. it can be passed between people.

217 cases in China, Thailand 2, Japan 1, South Korea 1

Upsurge because authorities are looking harder and in different places.

January 22

Times top leading article:

“Immune system. A new virus from China need not prompt panic but ought to be met with swift preventive measures, including screening at airports and quarantine ...

... six dead, 297 cases: 291 China, Thailand 2, Taiwan 1, South Korea 1, Japan 1, USA 1 (unconfirmed, Philippines 1, Australia 1).

Chinese officials threaten citizens who hide evidence of virus ... international concern grows over rapid spread.

January 23

Wuhan goes into quarantine.

January 24

Growing fears over virus as tests begin in Britain. China locks down five cities. Health secretary: Britain is ready to face challenge.

Telegraph editorial: "given recent experiences with Sars and swine flu, both identified as global health emergencies, this particular scare is likely to abate if the right action is taken swiftly enough."

January 25

Attempts to trace 2000 people who have flown from Wuhan to Britain in the last fortnight. China starts to build a 1000-patient hospital in a week.

China: 1010 cases, 41 dead. Cases: 5 Thailand; 3 Singapore, Taiwan, France; 2 Vietnam South Korea, Japan, Hong Kong, United States; 1 Macau, Nepal.

In the UK Health Secretary Matt Hancock chairs Cobra meeting and Chief Medical Officer Professor Chris Whitty says there is a fair chance the UK may get some cases over time.

January 26

XI talked about the grave situation at an emergency meeting of the Communist Party's top leadership.

January 27

UK citizens trapped in Chinese city. Canada becomes the 16th country.

January 28

UK instruction: 'self-isolate'. World stock markets fall.

"Stricken city's mayor offers to resign over 'bad response' to crisis".

January 29

[Cartoon: Huawei, virus, UK-China] Germany, Japan case studies.

UK Foreign Office warns against travel to China. Air passengers numbers with China.

January 30

London is the European city most at risk of a coronavirus outbreak, according to an analysis of international travel. Markets could drop 10%. Evacuation flights.

January 31

WHO declares global emergency. Italy: first two cases confirmed. In Asia high demand leads to face mask shortage.

February 1

"Race to track down contacts of Britain's first coronavirus cases."

(The Times, 4 January 2020: 40.)  
(Daily Telegraph, 6 January 2020: 12.)  
(The Times, 8 January 2020: 28.)

(The Times, 10 January 2020: 32.)  
(Daily Telegraph, 10 January 2020: 16.)  
(The Times, 14 January 2020: 30.)

(Daily Telegraph, 15 January 2020: 15.)  
(The Times, 17 January 2020: 32.)  
(Daily Telegraph, 17 January 2020: 12.)  
(The Times, 18 January 2020: 48.)  
(Daily Telegraph, 17 January 2020: 17; 18 January:  
17.)  
(The Observer, 19 January 2020: 2.)  
(Daily Telegraph, 19 January 2020: 19.)  
(The Times, 20 January 2020: 32.)  
(Daily Telegraph, 20 January 2020: 16.)  
(The Times, 21 January 2020: 22, 28.)  
(Daily Telegraph, 21 January 2020: 15.)  
(The Times, 22 January 2020: 27, 29.)  
(Daily Telegraph, 22 January 2020: 15.)  
(The Times, 23 January 2020: 33.)  
(Daily Telegraph, 23 January 2020: 1, 16.)  
(The Times, 24 January 2020: 1, 6-7.)

(Daily Telegraph, January 2020: 1, 17.)  
(The Times, 25 January 2020: 6-7.)  
(Daily Telegraph, 25 January 2020: 1, 4-5.)  
(The Observer, 26 January 2020: 1, 5, 44-46.)  
(Daily Telegraph, 26 January 2020: .)  
(The Times, 27 January 2020: 1, 6, 26.)  
(Daily Telegraph, 27 January 2020: 10.)  
(The Times, 28 January 2020: 6, 7, 35.)  
(Daily Telegraph, January 2020: 1, 32. ... Business  
1, 5)  
(The Times, 29 January 2020: 25, 28-29.)  
(Daily Telegraph, January 2020: 1, 11.)  
(The Times, 30 January 2020: 1, 6-7, 33.)  
(Daily Telegraph, January 2020: 1, 6, 17.)  
(The Times, 31 January 2020: 1, 2, 12-13, 35.)  
(Daily Telegraph, 31 January 2020: 15, 19.)  
*The Times*, February 1, 2020: 6-7.