

Notes on COVID-19

Part 14: 2020-07-23 to 2020-08-10

Peter Bernard Ladkin
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2020-07-23 It has been three weeks since the last update on figures (Notes Part 11 on 2020-06-30). Here are the latest. First, the “top ten”. Then, selected European countries (one of which, GB, is in the top ten). The countries are those reported in the last set of numbers on 2020-06-30, with the addition of South Africa and Mexico to the top ten.

In these three weeks, the number of cases has risen by 48%, but the number of deaths only by half that, 23%.

The following differences can be noted. India has overtaken Russia into third place. South Africa has joined in fifth place. Peru, Mexico and Chile are now ahead of GB. Mexico has joined. Iran is now ahead of Spain and Italy, in tenth place, and only just behind GB. The relative order of European countries remains the same.

Numbers taken from JHU Dashboard at around 1230 UTC.

Country	Cases	Deaths	CFR
Total	15,255,093	624,131	4.09%
US	3,971,343	143,193	3.61%
Brazil	2,227,514	82,771	3.72%
India	1,238,798	29,861	2.41%
Russia	793,720	12,873	1.62%
South Africa	394,948	5,940	1.50%
Peru	366,550	13,767	3.76%
Mexico	362,274	41,190	11.37%
Chile	334,683	8,667	2.59%
GB	297,952	45,586	15.30%
Iran	284,034	15,074	5.31%

European Countries + Iceland, noted at around 1245 UTC. I have (finally) added Romania (RO), Czechia (CZ), Bulgaria (BG), Croatia (HR), Hungary (HU), Slovakia (SK), Slovenia (SI), Estonia (EE), Lithuania (LT), and Latvia (LV), all of which with the exception of Romania and Czechia have less than 10,000 cases each.

GB	297,952	45,586	15.30%
ES	267,551	28,426	10.68%
IT	245,032	35,082	14.31%
FR	215,605	30,175	14.00%
DE	204,484	9,109	4.45%

SE	78,504	5,667	7.22%
BE	64,627	9,808	15.18%
NL	52,475	6,158	11.74%
PT	49,150	1,702	3.46%
PL	41,580	1,651	3.97%
RO	41,275	2,126	5.15%
CH	34,000	1,972	5.80%
IE	25,819	1,754	6.79%
AT	19,929	711	3.57%
CZ	14,570	364	2.50%
DK	13,554	611	4.51%
BG	9,584	321	3.35%
NO	9,062	255	2.81%
FI	7,372	328	4.45%
LU	5,854	111	1.90%
HR	4,530	125	2.76%
HU	4,380	596	13.61%
GR	4,077	200	4.91%
SK	2,089	28	1.34%
SI	2,033	115	5.66%
EE	2,027	69	3.40%
LT	1,960	80	4.08%
IS	1,841	10	0.54%
LV	1,203	31	2.58%

It is perhaps instructive to see the changes since 2020-06-30. Here, there is an oddity. The UK's cumulative case number *has gone down* since 2020-06-30. That cannot be. When did it occur? I went to the WHO's daily Situation Reports <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

Report 162, 2020-06-30: UK is cited as having had 311,969 cases

Report 163, 2020-07-01: UK 312,658 cases

Report 164, 2020-07-02: UK 313,487 cases

Report 165, 2020-07-03: UK 283,761 cases

and then it goes up slowly

Report 170, 2020-07-08: UK 286,353 cases

and

Report 177, 2020-07-15: UK 291,377 cases

and

Report 184, 2020-07-22: UK 295,821 cases

So there is a big reverse jump of some nearly 10% between 2020-07-02 and 2020-07-03. The numbers in Notes Part 11 are from JHU Dashboard, which is roughly the same as WHO Situation Report 162. However, the JHU Dashboard is not showing any such negative revision of confirmed cases at or around that date. I wonder what this is all about?

Whatever, here are the comparisons

Country	Addl Cases	% change	Addl Deaths	% change
US	+1,380,791	+53%	+17,053	+13.5%
Brazil	+ 859,319	+63%	+24,457	+42%
India	+ 671,958	+119%	+12,968	+77%
Russia	+ 153,474	+24%	+3,721	+41%
Peru	+ 84,185	+30%	+4,263	+45%
Chile	+ 58,684	+21%	+3,102	+56%
GB	-----	-----	+1,927	+4%
Iran	+ 58,829	+26%	+4,404	+41%
GB	-----	-----	+1,927	+ 4.0%
ES	+ 18,581	+ 7.5%	+ 80	+ 2.8%
IT	+ 4,596	+ 1.9%	+ 338	+ 9.7%
FR	+ 14,083	+ 7.0%	+ 359	+ 1.2%
DE	+ 9,442	+ 4.8%	+ 133	+ 1.5%
SE	+ 10,832	+ 16.0%	+ 355	+ 6.7%
BE	+ 3,266	+ 5.3%	+ 76	+ 0.8%
NL	+ 2,042	+ 4.0%	+ 32	+ 0.5%
PT	+ 7,238	+ 17.3%	+ 134	+ 8.5%
PL	+ 7,426	+ 21.4%	+ 207	+ 14.3%
CH	+ 2,348	+ 7.4%	+ 10	+ 0.5%
IE	+ 357	+ 1.4%	+ 19	+ 1.1%
AT	+ 2,206	+ 12.4%	+ 8	+ 1.1%
DK	+ 603	+ 4.7%	+ 6	+ 1.0%
NO	+ 200	+ 2.3%	+ 6	+ 2.4%
FI	+ 163	+ 2.3%	+ 0	+ 0 %
LU	+ 1,598	+ 37.5%	+ 1	+ 0.9%
GR	+ 687	+ 20.2%	+ 9	+ 4.7%
IS	+ 1	+ 0.05%	+ 0	+ 0 %

It is not clear what trends we can pull out of these figures. One is that Europe is generally managing to keep a lid on new infections. Single percentage-digit growth in two-thirds of the 18 countries in this list; exceptions in SE, PT, PL, AT, LU, GR. Another is that Europe seems to be getting the hang of managing the disease progression, in that death rates have really come down. However, deaths follow cases by three to four weeks. The numbers were roughly gauged as follows. It was said that a rule of thumb was a week at home, then admission to hospital and a week in hospital before ICU admission, and then two weeks in ICU until death. The SARS-CoV-2 test was performed on entry to hospital; took a day or so to be registered in the country's numbers, which yields 2.5 weeks between a number going in the table and a death. Deaths, on the other hand, were registered more quickly. Things have changed a little. The test is now generally performed earlier, when one is

asymptomatic or paucisymptomatic, and the results are available generally next day. So a case is registered earlier in the disease progression, half a week to a week earlier, which means longer between cases registered and ensuing deaths. The second thing which has changed is the treatment of severe cases. Let us recall.

First, a few months ago, countries with nominally excellent health-care systems were having to perform triage on severely-ill patients for access to support equipment (mostly breathing support, but also other support such as dialysis). This overdemand is no longer present in any major European or North American cities, I understand.

Second, treatment of severely-ill patients has improved. Take the figures for the UK, as reported by ICNARC. The usual survival rate on admission to ICU was somewhere around 60% before Covid-19. Around the end of April 2020, this rate had gone down to 33%, according to ICNARC figures (see Notes Part 5, entry 2020-04-28). Now it is back up somewhat above 60%, according to ICNARC Report 2020-07-17, Figures 12-14, pp18-19

<https://www.icnarc.org/DataServices/Attachments/Download/c0df94a2-4ec8-ea11-9127-00505601089b>

Third, effective pharmacological interventions for severely ill Covid-19 patients are now known. Large RCT trials have shown remdesivir and dexamethasone to reduce severity of outcome. Remdesivir is not yet available in quantity, but dexamethasone has long been on the WHO list of essential drugs and is widely available. Recently, use of an inhaled interferon $\beta 1a$ for severely-ill patients has been shown in a small RCT to reduce severity of outcome (see Notes Part 13, entry 2020-07-22). Presumably at least one of these, dexamethasone, is being used widely now, although given the time lag it may well be that its effects to date are insignificant.

2020-07-24 In the NW newspaper on 2020-07-23 there was a report by Nicole Bliesener of a study performed by the Institute for Laboratory- and Transfusion-Medicine at the Heart and Diabetes Centre (HDZ) in Bad Oeynhausen, some 33km NE of Bielefeld. They tested blood from around 3,000 donors from the states of North-Rhine Westphalia, Lower Saxony and Hesse and found only 29 with SARS-CoV-2 antibodies, about 1%. This has the wonderful name in German of “Dunkelziffer” (Dz), literally “dark figure” but it means unrecorded cases, or estimates of unrecorded/unknown cases. The HDZ result compares interestingly with the Dz of 15% from the Heinsberg study, conducted by Streeck et al at the University of Bonn, from the region of the first significant superspreading event in Germany. People were speculating at the time of publication of the Heinsberg study that there was a lot of asymptomatic disease going around in Germany. The HDZ study says, clearly, not so. That results can be so radically different suggests that we are not so very far along in our understanding of the epidemiology of this dreadful disease.

2020-07-24 Here are the comparison figures from 2020-05-23 to 2020-06-30.

Country	Increase in Cases	% Increase	Increase in Deaths	% Increase
US	967,882	59.6	29,053	29.9
GB	54,961	21.2	6,902	18.8
ES	13,680	5.8	-----	----
IT	11,109	4.8	2,009	6.1
FR	19,486	10.7	1,598	5.7
DE	15,056	8.3	702	8.5
BE	4,491	7.9	495	5.4
NL	5,168	11.4	296	5.1
SE	34,479	103.0	1,320	33.1
CH	927	3.0	57	3.0
PT	11,441	37.5	266	20.4
IE	880	3.6	131	8.2
PL	12,918	60.8	449	45.1
AT	1,220	7.4	63	9.8
DK	1,464	12.7	44	7.8
NO	516	6.2	14	6.0
FI	630	9.6	21	6.8
LU	266	6.7	1	0.9
IS	36	2.0	0	0.0

2020-07-27 In a Viewpoint article in The Lancet, Kevin Fennelly observes that many pathogens are expelled into the air in particles of size 5µm or smaller, and these can remain suspended indefinitely in the absence of air movement [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30323-4/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30323-4/fulltext) He also notes that the suggestion that infection is spread mainly by larger droplets is based on “old data and inferences”. He notes that “[t]he studies reviewed in this paper consistently show that humans produce infectious aerosols in a wide range of particle sizes, but pathogens predominate in small particles (<5 µm [sic] that are immediately respirable by exposed individuals. Data are accumulating that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19, is transmitted by both small and large particle aerosols.” He explores the implications of this for the protection of health care workers dealing with Covid-19 patients.

2020-07-27 Prather et al in Science 2020-05-26 consider aerial transmission of SARS-CoV-2 virus, and emphasise the role likely played by aerosols (particles under 5 µm, whose water evaporates faster than they settle, and which penetrate deeper into the lungs upon inhalation). <https://science.sciencemag.org/content/368/6498/1422> The article was cited by Fennelly, above.

2020-07-27 Also cited by Fennelly is an article by Morawska et al in Environment International Vol. 142 (September 2020 (!)) on reducing transmission of Covid-19 in indoor environments <https://www.sciencedirect.com/science/article/pii/S0160412020317876> They discuss different

kinds of ventilation situations and possible engineering measures to clean the air. Basically, there are two. You can filter, and/or you can disinfect. The disinfection measure discussed is various configurations of UV irradiation. There is a fairly lengthy, useful set of references.

2020-07-27 McCulloch et al compared unsupervised home self-collected midnasal swabs with clinician-collected nasopharyngeal swabs and found the home collection was pretty good <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2768535> They had 185 participants in the study. Amongst 41 participants with at least one positive result, there were 28 true positives (both swabs positive) and 7 false negatives (clinician-collected positive, home-collected negative), and a further 6 who tested positive at home but negative via clinician. This suggests strongly that doing it at home is fine, as well as being a lot less unpleasant.

2020-07-28 Havers et al tested over 16,000 serum samples from 10 sites in the US for antibodies to SARS-CoV-2. The results were published in JAMA on 2020-07-21

<https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2768834> They found in most cases far more prevalence of the disease than reported cases. The summary says it well:
“*Question[:]* What proportion of persons in 10 US sites [San Francisco Bay area, California; Connecticut; south Florida; Louisiana; Minneapolis-St Paul-St Cloud metro area, Minnesota; Missouri; New York City metro area, New York; Philadelphia metro area, Pennsylvania; Utah; and western Washington State] had detectable antibodies to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from March 23 to May 12, 2020?
Findings[:] In this cross-sectional study of 16 025 residual clinical specimens, estimates of the proportion of persons with detectable SARS-CoV-2 antibodies ranged from 1.0% in the San Francisco Bay area (collected April 23-27) to 6.9% of persons in New York City (collected March 23-April 1). Six to 24 times more infections were estimated per site with seroprevalence than with coronavirus disease 2019 (COVID-19) case report data. *Meaning[:]* For most sites, it is likely that greater than 10 times more SARS-CoV-2 infections occurred than the number of reported COVID-19 cases; most persons in each site, however, likely had no detectable SARS-CoV-2 antibodies.” The editorial by Brown and Walensky comments on the importance of this work <https://jamanetwork.com/journals/jama/fullarticle/2768835>

2020-07-28 Michie and West editorialise on 2020-07-28 in the BMJ about the relative lack of knowledge about and research into behavioural, environmental, social and systems interventions to inhibit Covid-19 <https://www.bmj.com/content/370/bmj.m2982> Their subtitle is “*These critical interventions should be top not bottom of the covid-19 research agenda.*” Their examples show they are right. On the other hand, why do we still need people to continue to point this out to us? A key behavioural intervention would be to find a way to encourage political-decision makers to pay attention.

2020-07-29 Karagiannidis et al have published an observational study in The Lancet Respiratory Medicine on 2020-07-28 of some 10,000 patients admitted to 920 German hospitals with Covid-19 between February 26th and April 19th 2020 [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30316-7/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30316-7/fulltext) In-hospital mortality was 22%; without ventilation it was 16% and with ventilation 53%. 17% of patients

needed mechanical ventilation (likelihood was 12% for women and 22% for men), with a mean duration of 13.5 days (but SD of 12.1!) The significance of these numbers is that they represent cases in which everyone received standard of care – the health care system was at no time overwhelmed. In their Comment [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30312-X/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30312-X/fulltext) Becher and Frerichs point out that the high mortality rate is a function of the disease, not necessarily of the resources available. But they also note that these figures come before any specific interventions were known to be productive, as remdesivir and dexamethasone are now, and largely while experience with ventilation of Covid-19 patients was relatively lacking. We can, for example, recall the UK figures from ICNARC, which reported mortality of ICU Covid-19 patients at some two-thirds during the time period under consideration in this study, whereas the most recent ICNARC figure is below half, tending towards where it was generally before Covid-19.

2020-07-29 A news article reports on an outbreak in a hotel in the canton of Graubünden in Switzerland, in which employees using visors were infected and employees and guests using face masks were not <https://www.thelocal.ch/20200715/only-those-with-plastic-visors-were-infected-swiss-government-warns-against-face-shields> Thanks to the Risks Forum Digest 32.15 for the information.

2020-07-30 An extraordinary, but maybe ordinary, comment by the BMJ's regular commentator Helen Salisbury <https://www.bmj.com/content/370/bmj.m2907> Salisbury is a GP, who is also associated with the University of Oxford Nuffield Department of Primary Care Health Sciences. She writes regularly about general clinical practice. It is a well-written and not at all strident essay. Until her striking last paragraph: *"I'm wary of using this column for political rather than medical comment. But when the action—or more accurately, the inaction—of our government leads so directly to the suffering and death of patients in my care, it's difficult to contain my anger."* I doubt she is alone in this thinking among primary care professionals.

I think it indicates a problem for government if GPs are starting to react so strongly to government handling of Covid-19. Britons historically lose trust quickly in a government perceived to mishandle a national emergency. Covid-19 is clearly a national emergency. Everyone has a GP and most people in Britain trust them. If the profession generally opines that HMG has screwed this up, this meme will likely spread.

A comment from your family doctor is a different narrative from hearing professors on the nightly TV news talking about numbers and curves and flattening them. Doctors, nurses and teachers are the three most trusted professionals according to a survey of 1,200 workers (details such as design of survey unfortunately missing, so these are informal figures) by recruitment specialists CV-Library: doctors at 61.3%; nurses at 40% and teachers at 36.9% <https://www.cv-library.co.uk/recruitment-insight/10-least-trusted-professions-uk/> The size of the survey is given by Yahoo Finance UK <https://uk.finance.yahoo.com/news/survey-reveals-10-least-and-most-trusted-professions-in-the-uk-050000754.html> The pollster Ipsos MORI publishes a Veracity Index. In 2018, doctors, nurses and teachers were ranked as the most likely to tell the truth <https://www.ipsos.com/ipsos-mori/en-uk/advertising-execs-rank-below-politicians-britains-least-trusted-profession> In 2019, dentists pipped teachers into third place

<https://www.ipsos.com/sites/default/files/ct/news/documents/2019-11/trust-in-professions-veracity-index-2019-slides.pdf> (Politicians are, of course, amongst the least trusted, *op. cit.*, but government does not necessarily equal “politicians”. Besides, trusting people to tell the truth and trusting them to do the right thing are by no means the same.)

2020-07-30 Darwood et al look at the early spread of Covid-19 up until 2020-03-10, when the disease was declared pandemic by the WHO, in The Lancet Infectious Diseases on 2020-07-29 [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30581-8/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30581-8/fulltext) 99 countries had been affected, with 60 having experienced recent travel from China, Italy and Iran. There were 1200 cases in the study with age and gender information, with 874 /73%) “early cases” (those up to 100 reported cases). The median age was 51 years, and only 3% were children and youths under 18. 2% were health-care workers, and there were no pregnant women. They saw 101 clusters, 75% in households, mean 2.6 cases per cluster [range 2-7]; 14% in occupational settings (not health care) with mean of 4.3 cases [range 2-14]; followed by 11% in community gatherings with mean of 14.2 [range 4-36].

2020-07-30 O'Reilly et al expound in The Lancet Microbe on 2020-07-28 on the challenges of wastewater sampling, as successfully used in the almost-eradication of polio, for information about and control of Covid-19 [https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(20\)30100-2/fulltext](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(20)30100-2/fulltext)

2020-07-31 The UK Office of National Statistics (ONS) has released a Covid-19 Infection Survey Pilot report <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveyspilot/31july2020> Some results: new infections in the last week appear to be 7.8 per 100,000 (they express it per 10,000 people); seroprevalence in the general population between end April and end June is 6.2%.

2020-08-02 The UK ONS has compared all-cause mortality across European countries from January to June 2020 <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/comparisonsofallcausemortalitybetweeneuropeancountriesandregions/januarytojune2020> The excess deaths (over the 5-year average) tell us something about how the Covid-19 pandemic has affected death rates. These numbers do not, of course, tell us who has died of Covid-19. David Spiegelhalter in TheG has a brief survey of what these numbers do and do not tell us <https://www.theguardian.com/commentisfree/2020/aug/02/uk-covid-19-excess-deaths>

2020-08-03 Goldstein, Lipsitch and Cevik performed a metastudy of secondary attack rates by age <https://www.medrxiv.org/content/10.1101/2020.07.19.20157362v2.full.pdf> The most significant result seems to be that youngsters under 10 have only about half the attack rate of those aged 15-19, and those aged 15-19 do not differ significantly from adults. This leads the authors to the conclusion that it “..... supports the concept that with equivalent exposure, the risk of infection in children aged under 10y is at most 1/2 that of adults.” (end of Subsection 1). This finding underlies a concept by Levinson, Cevik and Lipsitch for opening primary schools safely in the US in Fall

2020 <https://www.nejm.org/doi/full/10.1056/NEJMms2024920>

2020-08-03 People seem to be fearing a “second wave” of Covid-19. Are there “waves” of this illness, or similar illnesses? The Centre for Evidence-Based Medicine at the University of Oxford thinks evidence for wave theory is meagre at best <https://www.cebm.net/covid-19/covid-19-epidemic-waves/>

2020-08-04 MMWR contains a report of a superspreading event at a summer camp for young people in Georgia by Szablewski et al <https://www.cdc.gov/mmwr/volumes/69/wr/mm6931e1.htm>. 258 trainees and staff members attended three days (with overnights) and were joined by some 363 campers and 3 more staff on June 21. On June 23 (after two nights), a junior staff member developed chills and left, subsequently testing positive for Covid-19. Campers started being sent home on June 24. Test results became available for 58% of attendees: 76% of these were positive. Secondary attack rates were “51% among those aged 6–10 years, 44% among those aged 11–17 years, and 33% among those aged 18–21 years.” (Age was not the only factor; others were determined.) This example does not cohere with the estimate of Goldstein, Lipsitch and Cevik above.

2020-08-05 The UK has dropped out of the JHU “top ten”. In order of numbers of infected, they are the US, Brazil, India, Russia, South Africa, Mexico, Peru, Chile, Colombia and Iran <https://coronavirus.jhu.edu/map.html>

2020-08-05 It was reported a number of days ago in German news media that researchers at the Helmholtz Centre for Infection Research in Braunschweig, the University Clinic of Hamburg-Eppendorf, and the Leibniz Institute for Experimental Virology in Hamburg have discovered that the outbreak at the Tönnies slaughterhouse was subsequent to the outbreak at the Westfleisch slaughterhouse in Dissen (some 35km north of the Tönnies slaughterhouse), and was initiated by a superspreader <https://www.ndr.de/nachrichten/hamburg/Studie-vorgelegt-Superspreader-bei-Toennies-gefunden,coronastudie104.html> I have been unable to find a scientific report, just news media reports.

2020-08-05 School opening is a big issue, everywhere. Whether to, and how to. Three weeks ago, on 2020-07-15, Harvard epidemiologist William Hanage conducted a press conference on which he talked inter alia about infection and transmission between children and in schools. <https://www.hsph.harvard.edu/news/features/coronavirus-covid-19-press-conference-with-bill-hanage-07-15-20/> It is worth reading the entire transcript because of the light shed on other things, mostly testing, data collection, and the phenomenology of infection spread. There are three points he made with regard to children. First, household studies can be misleading; here is how. Say a child is infected, transmits to a parent; the parent is somewhat more likely to become obviously symptomatic; everyone is tested and the child is positive, but you don't know who gave it to whom. It can be presumed that the child caught it from the parent, because the parent has more obvious symptoms and virus shedding for the child may be lower by the time of the test, since it is days longer since they were originally infectious. Second, he suggests that children are about half as likely to become infected as adults. This presumably refers to the Goldstein-Lipsitch-Cevik

metastudy above. Concerning transmission, kids may be a little less likely to transmit but there is no clear data point. Older children, high-schoolers are a separate cohort. He refers to comparative data from Finland and Sweden on transmission in schools in a study that is underway. The prevalence of the disease is quite different in the two countries, but he suggests concerning transmission in schools that “*there is very little difference between the two nations.*” There was a longer article about schools in AAAS Science a week before, on 2020-07-07

<https://www.sciencemag.org/news/2020/07/school-openings-across-globe-suggest-ways-keep-coronavirus-bay-despite-outbreaks> It is easy to see from this article how much has been learnt in a month. It says “*Several studies have found that overall, people under age 18 are between one-third and one-half as likely as adults to contract the virus, and the risk appears lowest for the youngest children.*” The Goldstein-Lipsitch-Cevik metastudy says the notable cutoff appears to be 10, not 18, and does not differentiate children younger than this.

2020-08-05 An addendum to the above. The Harvard T.H. Chan School of Public Health offers regular press conferences with its researchers, sometimes multiple times per week. A list may be found at <https://www.hsph.harvard.edu/news/features/>

2020-08-09 Fontanet et al studied outbreaks of Covid-19 in schools in Crépy-en-Valois and published a study on 2020-06-29
<https://www.medrxiv.org/content/medrxiv/early/2020/06/29/2020.06.25.20140178.full.pdf> There were six primary schools in the study. The results were “[t]he infection attack rate (IAR) was 45/510 (8.8%), 3/42 (7.1%), 1/28 (3.6%), 76/641 (11.9%) and 14/119 (11.8%) among primary school pupils, teachers, non-teaching staff, parents, and relatives, respectively ($P = 0.29$). Prior to school closure on February 14, three SARS-CoV-2 infected pupils attended three separate schools with no secondary cases in the following 14 days among pupils, teachers and non-teaching staff of the same schools. Familial clustering of cases was documented by the high proportion of antibodies among parents and relatives of infected pupils ($36/59 = 61.0\%$ and $4/9 = 44.4\%$, respectively). In children, disease manifestations were mild, and 24/58 (41.4%) of infected children were asymptomatic.” So parents and relatives were secondarily infected, but teachers and staff hardly at all. Other commentators have noted that half the primary schools suffered no secondary infections from the Covid-19 cases.

2020-08-09 Pujadas et al found in a large hospitalised cohort study (1145 people) that viral load at diagnosis predicts mortality [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(20\)30354-4/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30354-4/fulltext) “A Cox proportional hazards model adjusting for age, sex, asthma, atrial fibrillation, coronary artery disease, chronic kidney disease, chronic obstructive pulmonary disease, diabetes, heart failure, hypertension, stroke, and race yielded a significant independent association between viral load and mortality (hazard ratio 1.07 [95% CI 1.03–1.11],), with a 7% increase in hazard for each log transformed copy per mL. A univariate survival analysis revealed a significant difference in survival probability between those with high viral load (defined as being greater than the overall mean log₁₀ viral load of 5.6 copies per mL) and those with low viral load

2020-08-09 In what surely must be a first, Fancourt, Steptoe and Wright in The Lancet on 2020-08-06 evaluate “the Cummings effect”, namely the influence the questionable behaviour of a UK government advisor during a Covid-19 illness event had on the UK general public's confidence in HMG to handle the Covid-19 pandemic in the UK “ *New analyses of 220 755 surveys from 40 597 individuals in England, Scotland, and Wales, completed between April 24 and June 11, 2020, as part of University College London's COVID-19 Social Study, show that these events undermined confidence in the government to handle the pandemic specifically.*”
[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31690-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31690-1/fulltext) What a way to become known in the medical literature!

2020-08-09 The Lancet publishes a response by King et al at the Karolinska Institute in Stockholm [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31672-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31672-X/fulltext) to the comment by the Swedish government advisor Johan Giesecke in the Lancet on 2020-05-05 [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31035-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31035-7/fulltext) They point out that the death toll in Sweden was, at the time of Giesecke's writing, 7 times that in Finland and Norway and 3 times that in Denmark, despite these countries ostensibly starting from similar exposure points. They also note that seroprevalence studies show very different results to what Giesecke had anticipated for Sweden. Giesecke also suggested that suppression was likely futile, and the authors point to New Zealand, Taiwan, Iceland, and Vietnam as places in which suppression has succeeded. Lindahl et al at Uppsala estimate the current seroprevalence in Sweden is around 3.8% [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31674-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31674-3/fulltext), very different from what Giesecke had been anticipating. Commentary is also given by Durrheim and Baker [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31675-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31675-5/fulltext), Andrew Ewing at Gothenburg, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31676-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31676-7/fulltext) also suggests that Giesecke's projections are refuted by the facts. Keil [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31671-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31671-8/fulltext) and Ramachandran [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31673-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31673-1/fulltext) also comment. Giesecke replies [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31677-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31677-9/fulltext) without specifically addressing the points made by correspondents. He suggests that various studies have shown the seroprevalence in Stockholm to be somewhere between 10% and 15%, and data from July 2 on the disease allows the conclusion that less than 10% of the seropositive encountered significant disease. (Data points: Gangelt, centre of the first German superspreading event, tested 15% seropositive; Spain generally at 10%, Geneva at just over 5%, all reported in previous Notes). My view is that the correspondents correctly critique some of the claims made in May, and Giesecke cannot contradict those observations. He observes that “[t]he hope for the future... lies with vaccines.” Indeed so.

2020-08-09 Various views of UK government advisors are solicited by TheG to accompany an opinion article by one of the SAGE advisors, Sir Jeremy Farrar of the Wellcome Trust <https://www.theguardian.com/commentisfree/2020/aug/09/tough-choices-need-to-be-made-but-reopening-schools-is-a-priority> Farrar worries that R is near 1, and that therefore restrictions cannot reasonably be relaxed further, but on the other hand that reopening schools must be a priority. He expresses concern that TTI is not working as well as it should be in the UK. The former minister

and now Mayor of Manchester Andy Burnham says that is because of reverse incentives, and that people need financial support if they are to be expected to isolate because of a contact <https://www.theguardian.com/world/2020/aug/09/we-cant-ease-lockdown-any-more-expert-warns-as-testing-calls-grow> That is an appropriate suggestion, but the contraincentive is more basic, and I believe accounts for low uptake of TTI apps. If you have been near an infected person as noted by the app, it is most likely that you will not get the disease (that person could be one of the 10% who superspread, but is nine times more likely to be one of the 90% who don't infect anyone much further). Sealing yourself off from others for two weeks is no fun. So why subject yourself to it? Especially since you have 9 chances in 10 of no consequence. I don't see TTI working well unless it is enforced legally, and that is hard. For example, you can't make people carry smartphones with a legally requisite app around with them. It is open to buy "burner" phones for everyday use, and leave your "real phone" with the requisitely-installed app at home.

Other advisors interviewed by TheG espouse various views. Neil Ferguson agrees largely with Farrar. Carl Heneghan points out that lockdown has been eased for two months and any uptick has been relatively small, and certainly not exponential. Mark Woolhouse agrees that infections have not spread as anticipated, and that it is now clearer that some risks are low (for example, outdoor activity) and others can be contained well with hand-washing, mask-wearing and maintaining distance. David Heymann also thinks there won't be a second wave.

2020-08-09 There was some furore in Germany on Thursday and Friday last week (2020-08-06 and -07). Kindergarten have opened again. And some have been forced immediately to close. The federation-wide rule is: you get a Covid-19 case, the Kindergarten closes and everyone (kids, teachers, support staff) goes into quarantine for two weeks. And of course one or two had cases.

On 2020-08-06 there was "news" making the rounds on social media around Bielefeld that some authorities had distributed regulations that said: if your kindergarten kid is in quarantine, then they have to be isolated in a room by themselves; no or minimal contact with other household members, no shared meals; unavoidable contact only when masked. And – this is the thing – households that do not abide by this may have their children taken into state custody.

There is a day-care centre in my building. A pedagogy grad student whose daughter was in daycare here, and who is now in kindergarten, was outraged and circulated the story on Thursday. I thought it was far-fetched and speculated some fake news was involved.

Not so. Friday, there it was in the local newspaper NW as the main story, which printed the regulation distributed to parents of a closed kindergarten in the town of Bruchsal in the district of Karlsruhe (in which the city Karlsruhe also lies). Similar was said to be the regulation distributed by the district of Offenbach near Frankfurt to parents in the picturesque town of Dreieich, which has a bunch of half-timbered houses and a castle. There were even hints that the city of Hannover, up here in the north where we believe ourselves to be relatively sane, had also distributed similar written regulation.

Oh to be alive on such a blessed morn if you are a journalist! A couple of tin-eared bureaucrats

serve you up a wonderful story.

It goes further. Journalists called up the public health authority in the Karlsruhe district (presumably with some other opening line than "did you really write that?"), which authority then referred to the new infection-protection-law. They did say that separating a kid from their family could only be done "*in extreme cases*" and must be ordered by a judge. So that's all right then. They apparently didn't say "sorry for our hopelessly tin ear." It's not just one tin-eared bureaucrat, it appears to be a roomful. Others have pointed out that indeed the infection-protection law does not discriminate between adults and 3-year-old kids. But you'd think someone would have noticed "wait a minute, we're talking 3-year-olds here" and consulted a little more widely.

It also probably can't be done as written. The German constitution ("The Basic Law") requires that children be treated in the interests of their well-being, both by parents in the first instance and by the state in the second. There are myriad reasons why putting a 3-to-5-year-old into room arrest for a week is not in their best interests. The Children's Protection Organisation (Kinderschutzbund) came right out and said it would be a form of "psychological violence". Let alone taking them from their family if their family doesn't do it.

Some lawyers came right out and said the regulation is clearly unconstitutional. Others pointed out that the public health authority, the author(s) of the guidance, has no authority to separate children from their parents, which is the sole responsibility of the youth welfare authority, which is legally bound to proceed according to the well-being of the child.

It is pretty clear that any local government authority attempting to separate any kid from their parents on this basis would promptly land in court, likely to be faced by myriad child welfare experts acting pro bono to tell them "no" in concert. I doubt any public health authority is really going to try it.

2020-08-10 The BMJ has been looking into the origin of the phrase "behavioural fatigue", in an article by Elizabeth Mahase on 2020-08-07 <https://www.bmj.com/content/370/bmj.m3166> In press conferences on 9 March, the UK Chief Medical Officer Chris Whitty said, concerning behavioural measures to dampen transmission, "*if we go too early, people will understandably get fatigued and it will be difficult to sustain this over time*" and on 12 March he said "*people start off with the best of intentions, but enthusiasm at a certain point starts to flag*". Somehow the term "behavioural fatigue" got coined, but no one seems to know where it came from and the behavioural scientists disown it, saying they don't know of any such effect. There is, maybe another behavioural effect manifesting itself: delaying lockdown in the UK is now widely regarded as having been a poor move and it is not surprising that no one wants to own it.