Attempt to view in perspective the health hazard posed by the COVID-19 pandemic:
Mortality between February and the end of May 2020 in Spain
and January and the end of April in Germany
compared to the general death rate in both countries

Notes

1: "The National Center of Epidemiology clarifies to eldiario.es that, indeed, 'today we have made an important update resulting from the work we have been doing with the Ministry of Justice'. The objective is to 'recover those deaths that had not entered the MoMo System due to delays in notification during the previous three months'. (...) The Instituto de Salud Carlos III provides in its graphs the estimated average time in delay of notifications, and for these days in which the 12,032 deaths have been added, the delay is 35 days. (...)
The minimum personnel services due to the state of alarm and the increase in deaths due to the coronavirus led to a situation of collapse in several civil registries and morgues, especially the one in Barcelona and the morgue of the City of Justice of the Catalan capital. In a report from early April, the time of the peak, the Generalitat's (Catalan government's, R.W.) sub-directorate general for planning the administration of Justice revealed that the death section of the Barcelona civil registry had not been carrying out death registrations since March 17 as its minimum services are focused on issuing family books and burial licenses due to the 'high workload.'"
("Desde el Centro Nacional de Epidemiología aclaran a eldiario.es que, efectivamente, 'hoy hemos hecho una actualización importante resultante del trabajo que venimos realizando con el Ministerio de Justicia'. El objetivo es 'recuperar aquellas defunciones que no habían entrado en el Sistema MoMo por retraso en la notificación durante los tres meses anteriores'. (…) El Instituto de Salud Carlos III aporta en sus

gráficas el tiempo medio estimado en retraso de notificaciones, y para estos días en en los que se han sumado las 12.032 muertes, el retraso es de 35 días. (…)
Los servicios mínimos de personal debido al estado de alarma y el aumento de muertes por el coronavirus llevaron a una situación de colapso en varios registros civiles y depósitos de cadáveres, que sufrió especialmente el de Barcelona y el depósito de cadáveres de la Ciudad de la Justicia de la capital catalana. En un informe de principios de abril, momento del pico, la subdirección general de planificación de la administración de Justicia de la Generalitat revelaba que la sección de defunciones del registro civil de Barcelona no estaba practicando inscripciones de defunciones desde el 17 de marzo ya que sus servicios mínimos se centran en expedir libros de familia y licencias de enterramiento debido a la ’elevada carga de trabajo’."
https://m.eldiario.es/sociedad/MoMo-registro-muertes_0_1031697065.html?_ga=2.195763883.607369215.1590683111-795171950.1590683111, 27/05/2020, last accessed 05/06/2020.

2: "The excess mortality observed, according to Amparo Larrauri, epidemiologist and head of the MoMo team and scientist at the National Epidemiology Centre, ’May be due to cases with confirmed COVID-19, to cases with unconfirmed COVID-19 that surveillance systems do not identify, and to the pandemic indirectly. The latter is very important. **We have experienced a change in the social and health structure, and this has meant that many people with underlying pathologies have not gone to the doctor for a multitude of reasons, such as fear of contagion or that their consultations did not work as they usually did. And a host of reasons that are not medical, but social. Many studies suggest that the fact that a vulnerable, older person has been isolated and in confinement affects their health and evolution more than younger people. Unfortunately, we can all see such cases around us. These are deaths that are not COVID-19, but are related to this whole process.’**"
(Emphasis by R.W.)

("El exceso de mortalidad constatado, según Amparo Larrauri, epidemióloga y responsable del equipo MoMo y científica del Centro Nacional de Epidemiología, 'Puede deberse a casos con COVID-19 confirmada, a casos con COVID-19 sin confirmar y que los sistemas de vigilancia no identifican, y a la pandemia de manera indirecta. Esto último es muy importante. **Hemos vivido un cambio de estructura social y sanitaria, y eso ha provocado que muchas personas con patologías de base no se hayan acercado al médico por multitud de razones, como que temían el contagio o que sus consultas no funcionaban como lo hacían habitualmente. Y un montón de razones que no son médicas, sino sociales. Muchos estudios sugieren que el hecho de que una persona vulnerable, mayor, haya estado aislada y en confinamiento, infiere en su salud y evolución, afecta más que a personas jóvenes. Desgraciadamente, todos podemos ver casos así a nuestro alrededor. Son muertes que no son por COVID-19, pero están relacionadas con todo este proceso.'**") (Emphasis by R.W.) https://www.eldiario.es/sociedad/llegaremos-cuantas-muertes-directamente-COVID-19_0_1033797562.html?_ga=2.257052940.607369215.1590683111-795171950.1590683111, 02/06/2020, last accessed 05/06/2020.

The diagrams are taken from the European Mortality Monitoring Bulletin https://www.euromomo.eu/graphs-and-maps/, week 20/2020, last accessed 15/05/2020.

3: Instituto Nacional de Estadística (INE), https://www.ine.es/consul/serie.do?s=MNP89585&c=2&nult=50 , last accessed 30/04/2020.

4: INE data on monthly deaths in Spain from 01/2019 until 06/2019 are provisional: https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177008&idp=1254735573002&menu=resultados#!tabs-1254736195546 , last accessed 22/04/2020, published 11/12/2019. The final data for the first half of 2020 will be published in December 2020.

5: https://momo.isciii.es/public/momo/dashboard/momo_dashboard.html, updated and corrected daily. The shaded area is the normal range, as in EuroMoMo, https://www.euromomo.eu/, determined from long-term values, and only when it is exceeded does one speak of excess mortality.

"What exactly are we talking about when we say that there is an 'excess' in Spain of almost 43,000 deaths during the months of the pandemic, if the Health Ministry reports 28,000? These 43,000 deaths are the results of the daily all-cause mortality surveillance of the MoMo system, and mean the difference between the deaths we observe for a period, and the expected mortality from the historical series in Spain over the last ten years. The latter, the expected mortality, is derived from data from the National Institute of Statistics (INE), with a mathematical model of moving averages adjusted for trend and seasonality. The daily observed mortality comes from data from the Ministry of Justice from the computerised civil registers of almost 4,000 Spanish municipalities, including all the provincial capitals, which correspond to 93% of the Spanish population. This is a very important amount of information. Using the MoMo system, we have estimated an excess of deaths from all causes during the first pandemic wave of COVID-19. It is very logical to assume that part of the excess mortality corresponds directly to COVID-19. It is also logical to think that the actual deaths due to COVID-19 have been higher than the number provided by the Ministry of Health, since these are official figures from the autonomous communities that cannot cover the totality, only the microbiologically confirmed deaths. And they are all within these excesses estimated by the MoMo. This is neither abnormal nor contradictory: they are studies that do not contradict each other but complement each other in order to establish the true impact of the pandemic. The abnormal thing would be for them to be the same. Health provides the confirmed deaths by COVID-19; MoMo provides the deaths from all causes, many of them attributable to COVID-19. And it will still be some time before we definitively consolidate the true mortality of these months".
Amparo Larrauri, epidemiologist and head of the MoMo team and scientist at the National

Epidemiology Centre, https://www.eldiario.es/sociedad/llegaremos-cuantas-muertes-directamente-COVID-19_0_1033797562.html?_ga=2.257052940.607369215.1590683111-795171950.1590683111, 02/06/2020, last accessed 05/06/2020.
(„¿De qué hablamos exactamente cuando decimos que hay un ’exceso’ en España de casi 43.000 muertes durante los meses de la pandemia, si Sanidad reporta 28.000? Esas 43.000 muertes son los resultados de la vigilancia de la mortalidad diaria por todas las causas del sistema MoMo, y significan la diferencia entre las defunciones que observamos para un periodo, y la mortalidad esperada a partir de las series históricas en España de los últimos diez años. A esta última, la mortalidad esperada, llegamos a partir de datos del Instituto Nacional de Estadística (INE), con un modelo matemático de medias móviles que se ajustan por la tendencia y por la estacionalidad. La mortalidad observada diaria procede de datos del Ministerio de Justicia a partir de los registros civiles informatizados de casi 4.000 municipios españoles, entre ellos todas las capitales de provincias, que corresponden al 93% de la población española. Una cantidad de información muy importante.
Mediante el sistema MoMo hemos estimado un exceso de las muertes por todas las causas durante la primera ola pandémica de COVID-19. Es muy lógico suponer que parte de la mortalidad en exceso corresponde directamente a la COVID-19. También es lógico pensar que las defunciones reales por COVID-19 han sido un número mayor del que proporciona el Ministerio de Sanidad, puesto que son cifras oficiales procedentes de las comunidades autónomas que no pueden cubrir la totalidad, solo las defunciones confirmadas microbiológicamente. Y todas están dentro de estos excesos estimados por los MoMo. No es nada anormal, ni contradictorio: son estudios que no se contraponen sino que se complementan para establecer cuál ha sido el verdadero impacto de la pandemia. Lo anormal sería que fueran iguales. Sanidad da las defunciones confirmadas por COVID-19; el MoMo, las defunciones por todas las causas, muchas de ellas atribuibles a COVID-19. Y aún tendrá que pasar un tiempo para que

consolidemos definitivamente la verdadera mortalidad de estos meses.“
Amparo Larrauri, epidemióloga y responsable del equipo MoMo y científica del Centro Nacional de Epidemiología.)

6: https://momo.isciii.es/public/momo/dashboard/momo_dashboard.html#datos, last accessed 04/06/2020.

7: Accessed 03/04., 01/05., 27/05., 02/06. and 04/06/2020.

8: https://www.euromomo.eu/graphs-and-maps/, updated every Thursday; these are the charts for Spain and Germany respectively from the Bulletin of week 20/2020, accessed 15/05/2020.

9: A maximum of 2,466 deaths occurred on 31/03/2020. In comparison, in 2018, the last year for which the Instituto Nacional de Estadística provides definitive figures (https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177008&menu=ultiDatos&idp=1254735573002), an average of 1,172 people died every day.
I was unable to establish the daily maxima during the past flu epidemics, so I concentrate on the more easily comparable monthly values, especially since the contemplation of temporally as well as geographically very small sections tends to focus on extreme values.

10: Instituto Nacional de Estadística, https://www.ine.es/dynt3/inebase/index.htm?padre=1132&capsel=1134 , accessed 22/04/2020.

11: Centro Nacional de Epidemiología, Monitorización de la Mortalidad diaria (MoMo), https://momo.isciii.es/public/momo/dashboard/momo_dashboard.html, accessed 04/06/2020.

12: https://momo.isciii.es/public/momo/dashboard/momo_dashboard.html#nacional, accessed

04/06/2020.

13: Own calculation.

14: Excess mortality is, according to Amparo Larrauri, epidemiologist and head of the MoMo team and scientist at the National Epidemiology Centre, "... the difference between the deaths we observe for a period, and the expected mortality from the historical series in Spain over the last ten years. The latter, the expected mortality, is derived from data from the National Institute of Statistics (INE), with a mathematical model of moving averages adjusted for trend and seasonality." https://www.eldiario.es/sociedad/llegaremos-cuantas-muertes-directamente-COVID-19_0_1033797562.html?_ga=2.257052940.607369215.1590683111-795171950.1590683111, 02/06/2020, accessed 05/06/2020.

15: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Sterbefaelle-Lebenserwartung/Tabellen/sonderauswertung-sterbefaelle.html?nn=209016, accessed and downloaded 05/06/2020.

16: "When looking at the course of the year in the death statistics, the typical fluctuations during the flu season from around mid-December to mid-April should be noted. This becomes clear when looking at the figures from previous years: in March 2019, for example, around 86,400 people died; in March 2018, i.e. in a year when the flu epidemic was particularly severe, the figure was 107,100. **Even without a Corona pandemic, the death figures can therefore fluctuate greatly during the typical flu season. These fluctuations particularly affect the number of deaths in the age group 65 and older. According to the preliminary death figures, the impact of the flu wave in 2020 was very low compared to previous years. In January 2020, about 85 200 people died according to the preliminary count. In February 2020, there were 79 600 deaths. Also in March 2020, with a total of**

at least 86 800 deaths, no noticeable increase compared to previous years is discernible when viewed on a month-by-month basis. In April, however, with at least 82 600 cases, the number of deaths was clearly above the average of previous years.
Looking at the trend by calendar week, there have been increased death case numbers since the last week of March (23 to 29 March) compared to the 2016 to 2019 average. This upward deviation was greatest in the 15th calendar week (6 to 12 April). From the 16th calendar week (13 to 19 April) onwards, the number of deaths fell again significantly. In the 19th calendar week (4 to 10 May), according to the preliminary count, the number of deaths was no longer above the average of previous years. The findings on temporary excess mortality, when looking at the absolute numbers, are approximately in line with the data on confirmed COVID-19 deaths reported to the Robert Koch Institute (RKI)." (Emphasis by R.W.)
(„Bei der Betrachtung des Jahresverlaufes in der Sterbefallstatistik sind die typischen Schwankungen während der Grippezeit von ungefähr Mitte Dezember bis Mitte April zu beachten. Dies wird beim Blick auf die Zahlen aus den Vorjahren deutlich: Im März 2019 starben beispielsweise etwa 86.400 Menschen, im März 2018, also in einem Jahr, als die Grippewelle besonders heftig ausfiel, waren es 107.100. **Auch ohne Corona-Pandemie können die Sterbefallzahlen demnach in der typischen Grippezeit stark schwanken. Von diesen Schwankungen sind insbesondere die Sterbefallzahlen in der Altersgruppe ab 65 Jahren betroffen.**
Die Auswirkungen der Grippewelle im Jahr 2020 waren den vorläufigen Sterbefallzahlen zufolge im Vergleich zu den Vorjahren sehr gering ausgeprägt. Im Januar 2020 starben nach der vorläufigen Auszählung etwa 85 200 Menschen. Im Februar 2020 waren es 79 600 Personen. Auch im März 2020 mit insgesamt mindestens 86 800 Sterbefällen ist bei einer monatsweisen Betrachtung kein auffälliger Anstieg der Sterbefallzahlen im Vergleich zu den Vorjahren erkennbar. Im April lag die Zahl der Gestorbenen allerdings mit mindestens 82 600 Fällen

deutlich über dem Durchschnitt der Vorjahre.
Betrachtet man die Entwicklung nach Kalenderwochen, dann haben sich seit der letzten Märzwoche (23. bis 29. März) erhöhte Sterbefallzahlen im Vergleich zum Durchschnitt der Jahre 2016 bis 2019 gezeigt. Diese Abweichung nach oben war in der 15. Kalenderwoche (6. bis 12. April) am größten. Ab der 16. Kalenderwoche (13. bis 19. April) sind die Sterbefallzahlen wieder deutlich gefallen. In der 19. Kalenderwoche (4. bis 10. Mai) lagen die Sterbefallzahlen nach der vorläufigen Auszählung dann nicht mehr über dem Durchschnitt der Vorjahre. Die Befunde zu einer zeitweisen Übersterblichkeit decken sich bei Betrachtung der absoluten Zahlen annähernd mit den Daten zu bestätigten COVID-19-Todesfällen, die beim Robert Koch-Institut (RKI) gemeldet werden.“
(Emphasis by R.W.)
(https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Sterbefaelle-Lebenserwartung/sterbefallzahlen.html, accessed 05/06/2020)

17: https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/06/PD20_203_12621.html?nn=209016, accessed 06/05/2020.

18: Instituto Nacional de Estadística: https://www.ine.es/, accessed 29/04/2020. https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177008&menu=ultiDatos&idp=1254735573002

19: https://covid19.isciii.es/, accessed 03/05/2020

20: https://www.ine.es/jaxiT3/Tabla.htm?t=14819

21: Regarding hospital germ infections in Spain, *Informe global de España, Resumen, Análisis EPINE-EPPS 2017 (313 hospitales y 61.673 pacientes)*, 9 Noviembre 2017, concludes that between 7 and 9% of

patients become infected within the hospital. (http://hws.vhebron.net/epine/Global/EPINE-EPPS%202017%20Informe%20Global%20de%20Espa%C3%B1a%20Resumen.pdf) (Note 08/05/2021: The document can no longer be accessed. It can be viewed under "Materials" and the title *EPINE-EPPS 2017 Informe Global de España Resumen.pdf*.) The number of resulting deaths is not shown.
"According to the experts gathered at the conference, between 5% and 15% of patients admitted to hospital end up suffering from a nosocomial infection. The World Health Organisation (WHO) reminds that in Europe there are 4.5 million HCAIs (Healthcare Associated Infections, R.W.) per year, a figure that translates into 37,000 deaths and 16 million additional hospital stays."
(Emphasis mine.)
(**"Según han puesto de manifiesto los expertos reunidos en la jornada, entre un 5% y un 15% de los pacientes ingresados en un hospital acaba padeciendo una infección nosocomial. La Organización Mundial de la Salud (OMS) recuerda que en Europa se producen 4,5 millones de IRAS (Infecciones Relacionadas con la Asistencia Sanitaria, R.W.) al año, cifra que se traduce en 37.000 muertes y 16 millones de estancias hospitalarias adicionales."** (Emphasis mine.) (*Las infecciones nosocomiales más frecuentes en España son urinarias, respiratorias y del lecho quirúrgico*, Article dated 28/04/2016 in https://www.immedicohospitalario.es/noticia/8349/las-infecciones-nosocomiales-mas-frecuentes-en-espana-son-urinarias-respiratorias-y-del-lecho-quirurgico).

22: Here I take data without own verification from Ellis Huber, *The Virus, People and Life. The Corona Pandemic and Everyday Health Care*, (*Das Virus, die Menschen und das Leben. Die Corona Pandemie und die alltägliche Gesundheitsversorgung*, https://www.praeventologe.de/hauptbeitraege-nicht-loeschen/1380-informationen-zu-corona, last accessed 24/04/2020, frequently updated, .
I have asked Mr Huber, former chairman of the Berlin Medical Association and current chairman of the Association of Preventologists, for sources regarding the "background"-mortality of the current pandemic in Germany, but he has not answered me and has not expanded his internet presentation

accordingly, which I regret. (Note 08/05/2021: Now there is a detailed list of sources at the site mentioned). Because of the relatively clear situation in Germany, which does not go beyond the norm, and in order to save time, I have refrained from checking the factual assertions he has made.

23: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Fallzahlen.html, last accessed 03/05/2020.

24: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html, last accessed 03/05/2020.

25: SARS-CoV-2 Factsheet on Coronavirus-Desease-2019 [Steckbrief zur Coronavirus-Krankheit-2019 (COVID-19)], Status: 29/5/2020, https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html, last accessed 11/06/2020.

"7. incubation period and serial interval
The incubation period indicates the time from infection to the onset of the disease. It is on average (median) 5-6 days (range 1 to 14 days) (54, 137)."
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html#doc13776792bodyText7

(“7. Inkubationszeit und serielles Intervall
Die Inkubationszeit gibt die Zeit von der Ansteckung bis zum Beginn der Erkrankung an. Sie liegt im Mittel (Median) bei 5–6 Tagen (Spannweite 1 bis 14 Tage) (54, 137).”
https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html#doc13776792bodyText7)

"12. Time from onset of disease to pneumonia

In one publication (Chinese case series [n = 1,099]), this time range was four days [IQR]: 2-7 days) (23)."
"13. Time from onset to hospitalisation": 4 - 8 days.
"14. time from onset to acute respiratory distress syndrome (ARDS)": 8-9 days
"15. time from onset of illness to ICU" (intensive care unit): 5 - 10 days
"16. Time from hospitalisation to ICU
In a Chinese case series (see 13.), this time range was on average (median) one day (IQR: 0-3 days) (130)."
"22. Proportion of deceased among ICU patients".
(...) On median, deceased patients were hospitalised for nine days (49)."

(“12. Zeit von Erkrankungsbeginn bis Pneumonie
In einer Veröffentlichung (chinesische Fallserie [n = 1.099]) betrug diese Zeitspanne vier Tage [IQR]: 2–7 Tage) (23).”
“13. Zeit von Erkrankungsbeginn bis Hospitalisierung”: 4 - 8 Tage"
“14. Zeit von Erkrankungsbeginn bis zum Akuten Lungenversagen (Acute Respiratory Distress Syndrome, ARDS)”: 8 - 9 Tage
“15. Zeit von Erkrankungsbeginn bis ITS” (Intensivtherapiestation): 5 – 10 Tage
“16. Zeit von Hospitalisierung bis ITS
In einer chinesischen Fallserie (siehe 13.) betrug diese Zeitspanne im Mittel (Median) einen Tag (IQR: 0–3 Tage) (130).“
“22. Anteil Verstorbener unter den ITS-Patienten
(…) Im Median waren die Verstorbenen Patienten neun Tage hospitalisiert (49).“)

My calculation of the **period from infection to death**:

Incubation min 1 - max 14 days
Onset of illness to hospitalisation min 4 - max 8 days
Onset of illness to ICU min 5 - max 10 days
Hospitalisation to death average 9 days
Period from infection to death: **MINIMUM: 14 days MAXIMUM: 31 days**

26: Tagesspiegel, 29/05/2020: "'Without the test, this would have been detected 'only a month' later, 'when the deaths would have accumulated as in Italy, Spain and Great Britain'. That's how long it takes from infection to death in intensive care, the virologist continued. 'And that's the month we - and by that I mean my lab - put in as a lead for Germany.'"
("'Ohne den Test sei dies ‚erst einen Monat' später festgestellt worden, ‚wenn sich wie in Italien, Spanien und Großbritannien die Toten gehäuft hätten'. So lange dauere es von der Infektion bis zum Tod auf der Intensivstation, so der Virologe weiter. 'Und diesen Monat haben wir – und damit meine ich mein Labor - für Deutschland als Vorsprung eingespielt.'")
https://m.tagesspiegel.de/wissen/mein-labor-hat-deutschland-vorsprung-eingespielt-virologe-drosten-reklamiert-rettung-von-bis-zu-100-000-leben-fuer-sein-team/25871954.html??, last accessed 11/06/2020.

27: Robert-Koch-Institut, Estimate of the current development of the SARS-CoV-2 epidemic in Germany (Schätzung der aktuellen Entwicklung der SARS-CoV-2-Epidemie in Deutschland) – Nowcasting, Epidemiologisches Bulletin 17-2020, 23. April 2020, p. 14. https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2020/Ausgaben/17_20.pdf?__blob=publicationFilehttps://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2020/Ausgaben/17_20.pdf?__blob=publicationFile, downloaded 10/06/2020.

28: I am not complaining, because I was privileged: Secure income, health, little house with a garden, pleasant climate..... But I was constantly aware of what this means for people who live in a big city,

possibly with children, in a floor flat and have to worry about their income.

29: https://euromomo.eu/graphs-and-maps/, accessed and downloaded 16/05/2021.

30: Naomi Klein, *The Shock Doctrine: The Rise of Disaster Capitalism*, Metropolitan Books, Henry Holt and Company, 2007, p. 290-291.