

Pandemic Impact Graphs

Brent A. Blumenstein, PhD (www.TriArcConsulting.com)

(GRAPHS FOLLOW THIS EXPLANATION. Note: Earlier versions of graphs using this data source were reported by calendar year. Going forward the graphs report by 52 week intervals. This change is necessitated as a result of the pandemic extending into 2021.)

Attached are graphs made as an alternative to media reports of deaths attributable to COVID-19. The objective in creating these graphs was to find a way of representing the impact of the pandemic on death without depending on attribution of the cause of death.

The graphs show all reported deaths using a readily available spreadsheet from the Centers for Disease Control (CDC) (web site link in graphs). These data come from a long-established CDC data collection system based on a requirement that all deaths be reported. These graphs do not use statistical modeling.

Excess death methodology is used and compares reported deaths from all causes for a reporting week to reported deaths from all causes for the same week in other years.

The innovation in these graphs is that the cumulative deaths from reporting periods are superimposed by corresponding reporting date.

These data are not useable as a measure of current pandemic status because there is an inherent delay between the date of death and entry of data on the occurrence into the data system. Furthermore, the limitation with respect to assessing current status relative to death is compounded due to delay between the diagnosis of COVID-19 and death. Trends seen

Pandemic Impact Graphs (continued)

in these graphs are likely persistent beyond the end of the graphs, however. Finally, death counts continue to increase as death reporting becomes more complete, but slows considerably after a month or so. The graphs take into account delay by using data from report periods that are considered to be reasonably close to complete.

The attribution of a death to a specific cause is a difficult and biased process. Not all deaths associated with a true COVID-19 infection (known or not) will be reported as a COVID-19 death, and deaths associated with a COVID-19 infection not entering the health care system are less likely to be reported as a COVID-19 death. The formal process of reporting deaths requires judgement. For example, a typical report might be "heart stopped" with underlying cause of COVID-19, and therefore attribution requires a diagnosis of COVID-19 and reporting integrity.

Analysis of deaths without attribution is relevant to pandemic impact and uses a measure that is meaningful. Note in particular, in addition to increasing deaths possibly due to infection, the pandemic could cause reduction of certain types of deaths, for example, the pandemic is likely to have reduced deaths due to auto accidents as a result of less driving. Also, apparently more intervention experience has resulted in reduction in the likelihood of death for those infected.

In addition to the "all ages" graph there are graphs for mutually exclusive and exhaustive age groups. Note:

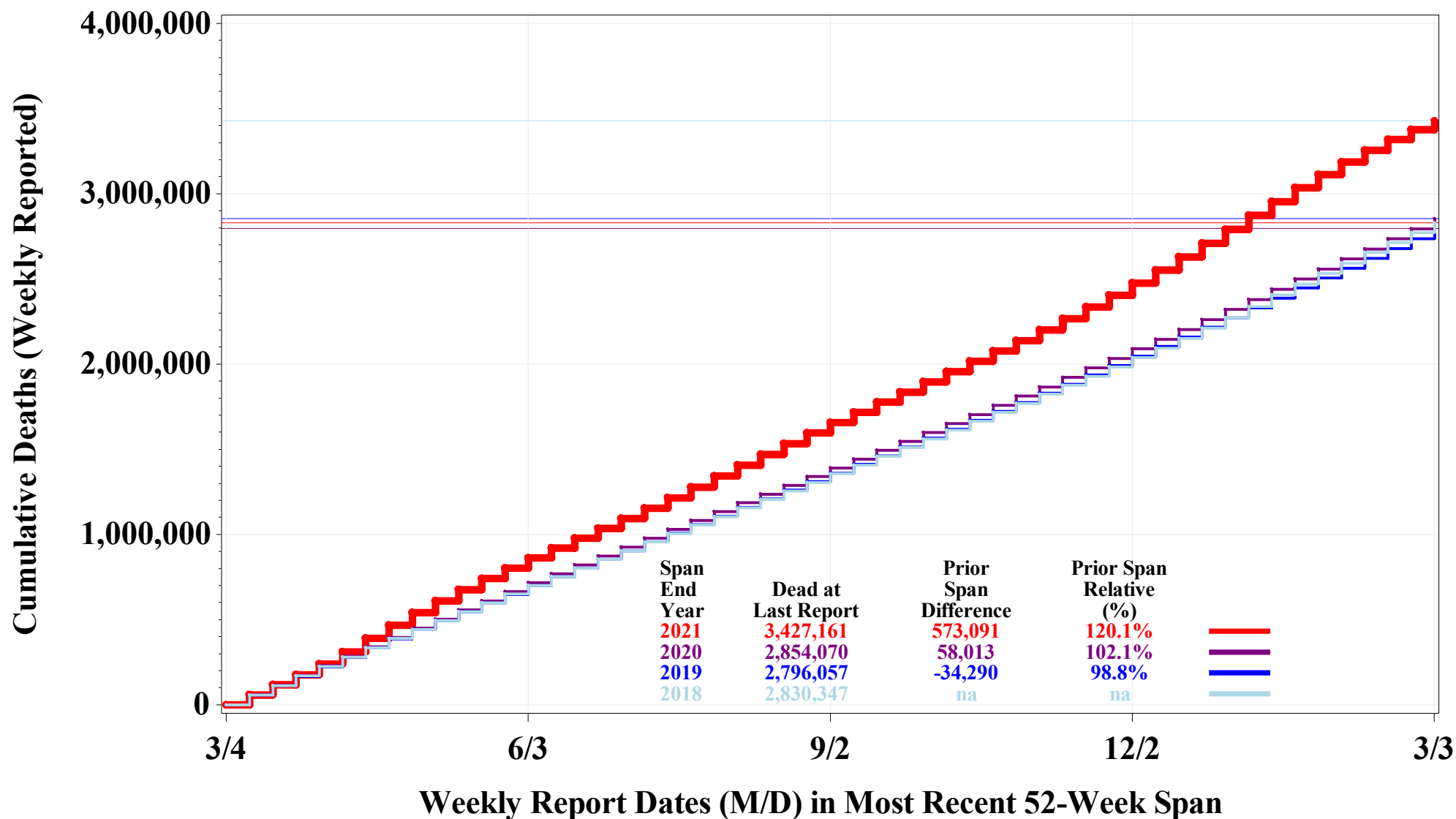
1. The impact of the pandemic is quite large relative to deaths.

Pandemic Impact Graphs (continued)

2. The corresponding cumulative death counts for non-pandemic years are essentially identical, providing evidence of the reliability of the data reporting system.
3. The 25-44 age group has the greatest increase over non-pandemic years of all age groups, generally more than 20%.
4. The 0-24 age group has smaller increases over non-pandemic reports (< 5%). Of interest is that the 2017-2018 flu season was a "bad" flu year and the young were particularly hard hit during this flu season. See:
<https://www.cdc.gov/flu/about/burden-averted/2017-2018.htm>. This 2017-2018 flu event is easily seen in these graphs in the 0-24 group. Pandemic impact is actually less than for this 2017-2018 flu event in this age group.
5. This assessment of pandemic in terms of excess deaths is incomplete if the US is looked at in isolation. Visit this link, <https://nyti.ms/34QerxA>, to get what the NYT reports across the world using excess death methodology. Excess deaths in the US appears to be materially worse when compared to reports from most other parts of the world.

Cumulative All-Cause Deaths for Superimposed 52-Week Spans

(horizontal reference lines at last reported cumulative death count for each span)



Note 1: Spans are successively defined backwards from most recent stable report and each span is identified by year of last report.

Note 2: Report dates for earlier spans are approximate. Data prior to pandemic are mostly indistinguishable across spans suggesting reporting integrity.

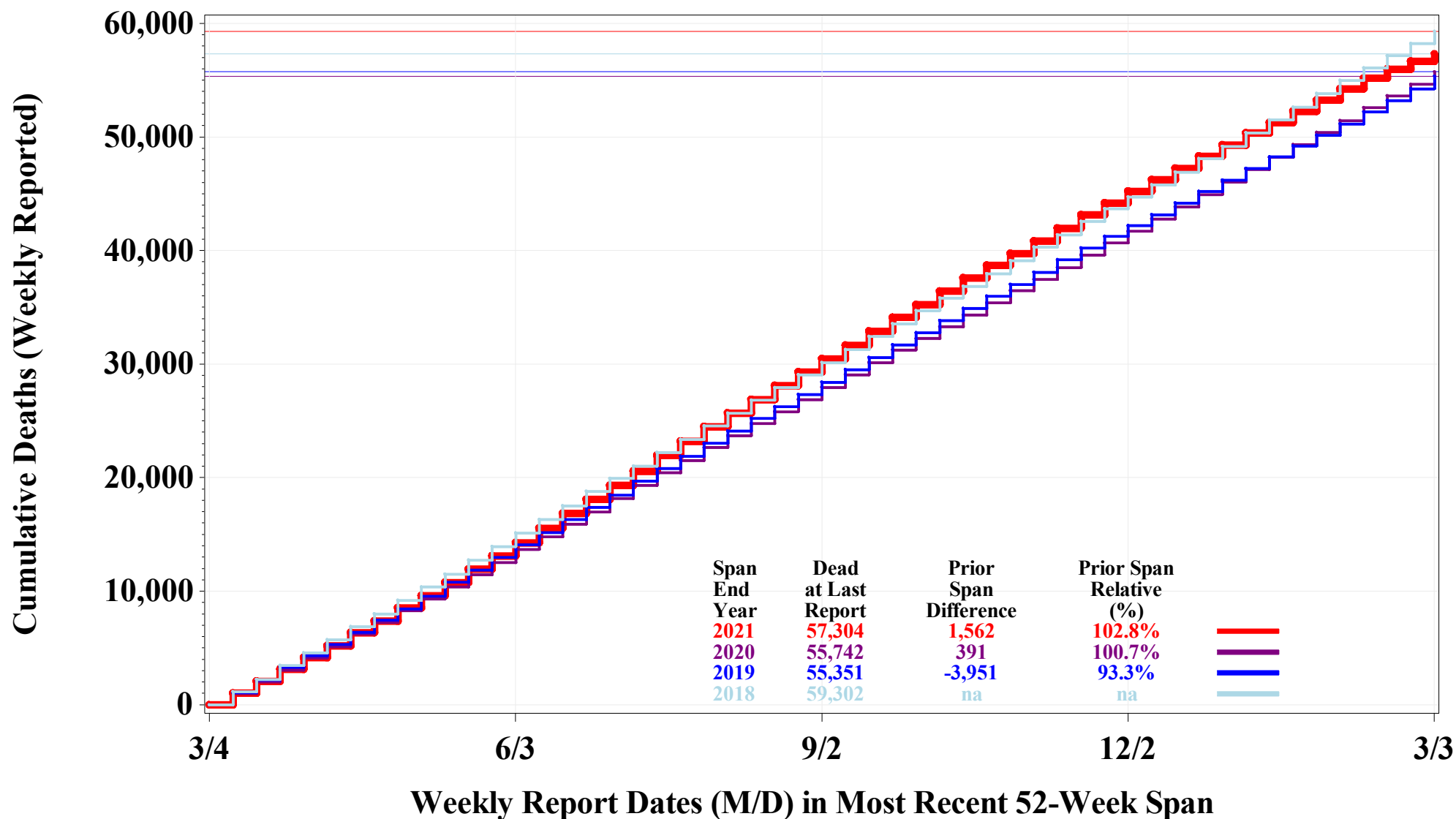
Note 3: Data from <https://data.cdc.gov/NCHS/Weekly-counts-of-deaths-by-jurisdiction-and-age-gr/y5bj-9g5w>

Note 4: Graph by Brent A. Blumenstein, PhD (www.TriArcConsulting.com)

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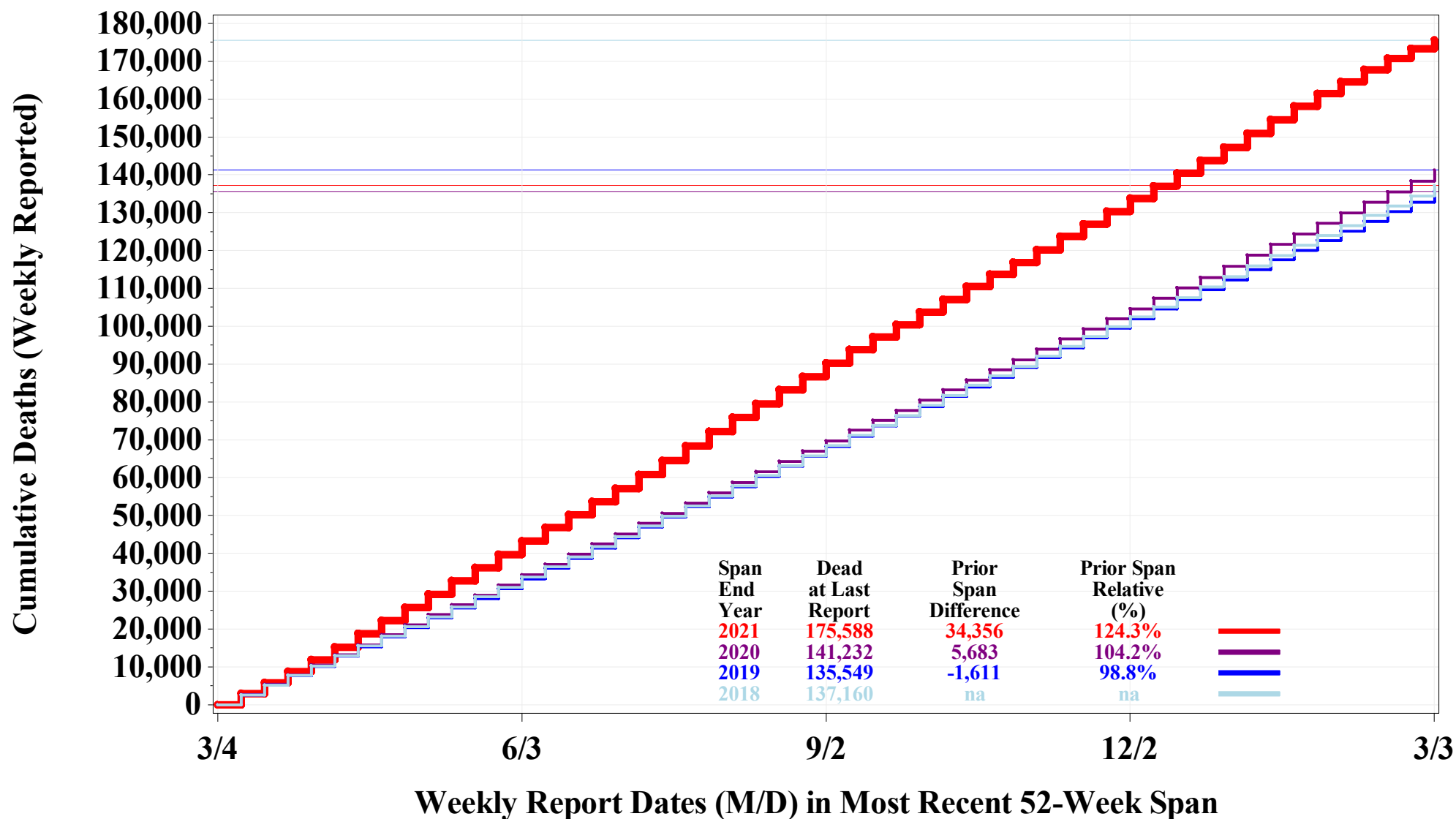
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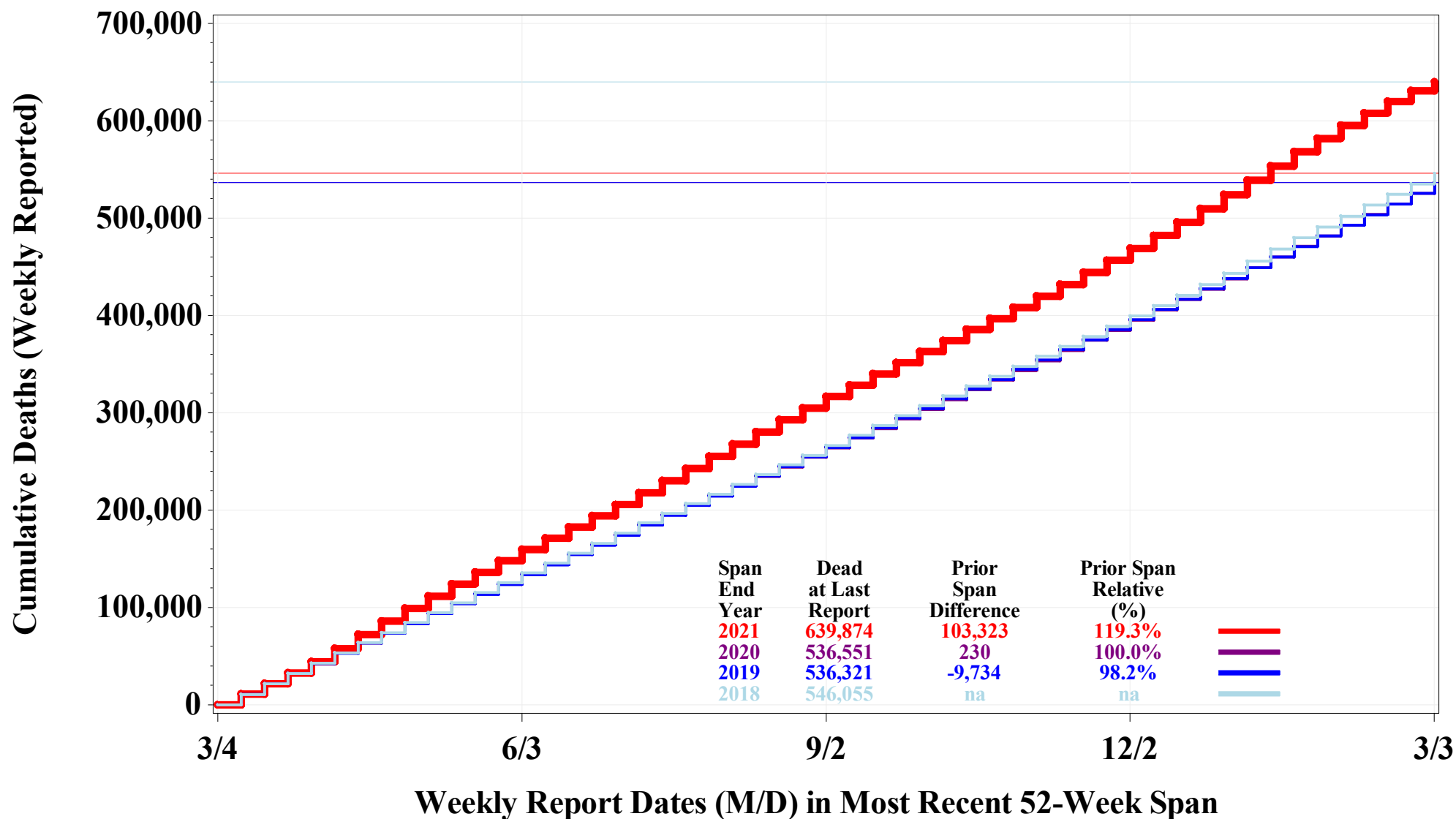
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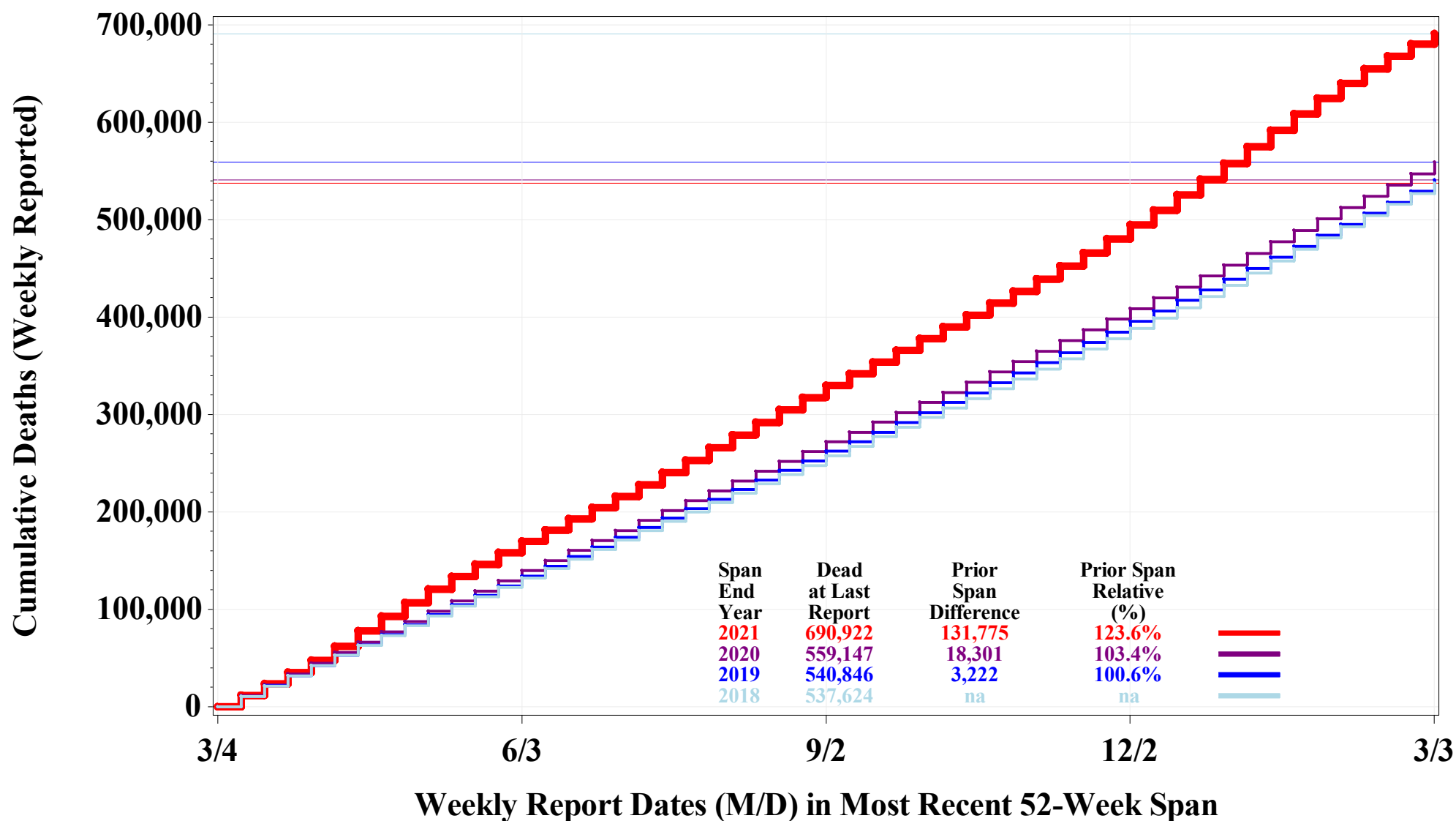
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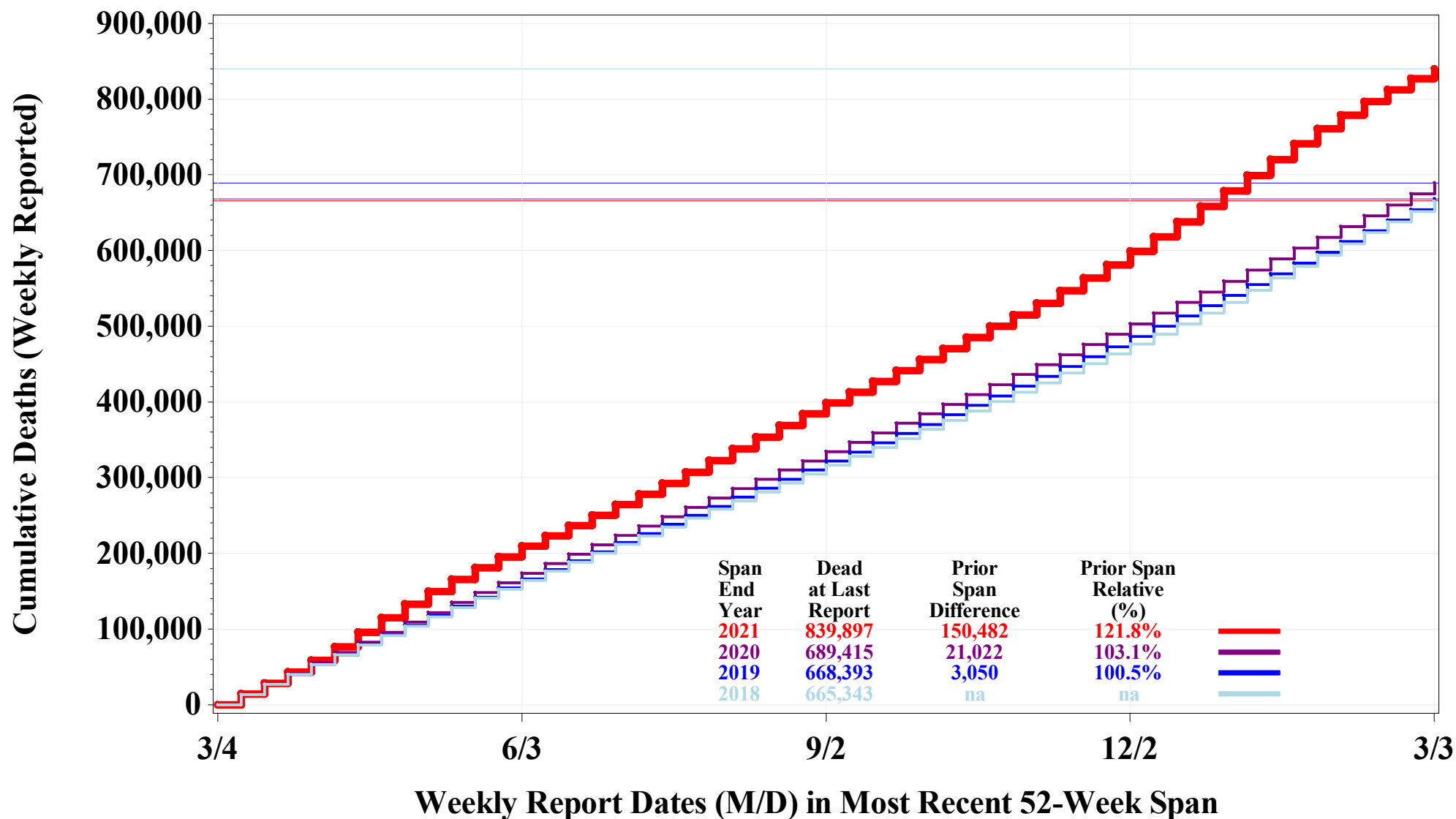
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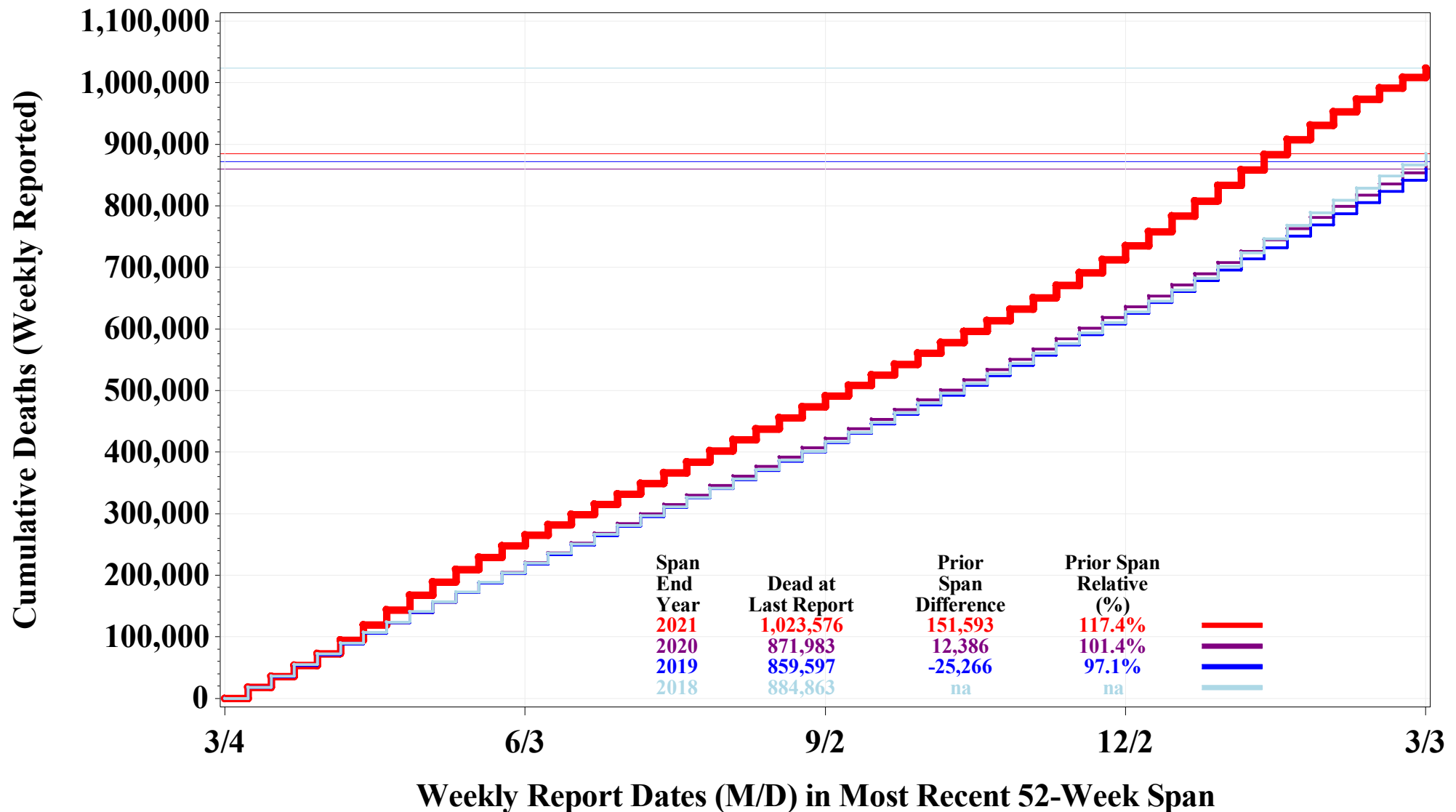
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