

Simpson's paradox in the correlations between excess mortality and covid-19 injections: a case study of iatrogenic pandemic for elderly Australians

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Abstract

Background: Conflicting findings in correlation studies between COVID-19 injections and excess deaths have been published. Negative correlations with 2021 data appear to justify the official claim that COVID-19 injections reduce illness and death and therefore should be prioritized for vulnerable elderly (over-75s) Australians. This claim needs to be reviewed including 2022 data.

Method: Simpson's Paradox is illustrated to explain how the negative correlations, supporting injection effectiveness can come from 2021 data, while positive correlations, suggesting injection ineffectiveness, have come from inclusion of 2022 data. Excess deaths of Australian elderly in the COVID pandemic are analysed in detail for their statistical significance.

Results: Negative correlations from 2021 data are refuted in this paper as false causality, because the results have insufficient temporal separation between cause and effect. Strong positive correlation (69 to 74 percent) in Australian data is confirmed when the effects of excess mortality are lagged optimally by 21 weeks after COVID-19 injections [1]. A strong statistical signal (2.5 standard deviations) is shown in this paper in the mortality of elderly Australians, who suffered the greatest relative harm from the injections, even when adjusted for age-dependent high expected mortality.

Conclusion: Earlier epidemiological evidence that COVID injections reduce illness and death is now methodologically invalidated, and the claim that the injections are beneficial for the vulnerable is refuted. The injections explain the mystery of significant numbers of non-COVID excess deaths. The Australian pandemic is shown to be iatrogenic particularly for the elderly, who have suffered disproportionate harm. Deliberately ignoring this clear evidence is tantamount to iatrogenic geronticide.

Keywords: Epidemiological evidence, COVID injections, Pandemic, Vaccines

Introduction

Early in the COVID pandemic, the stated purpose of a vaccine was to immunize against, or protect from, the infectious disease. Medicines which do not sufficiently prevent infection and transmission should not be labelled "vaccines", because only those with safe and high preventative properties should be widely used or mandated for the collective social benefit of stopping a pandemic by blocking spread.

With the pandemic continuing after more than two years of mass "vaccination", a "vaccine" has now been demoted to require merely to stimulate an immune response, rather than actually to provide immunity. A "vaccine" has been redefined as "a preparation that is used to stimulate an immune response against diseases" [2] or redefined functionally as "the most effective way to reduce deaths and severe illness from infection. The protective

benefits of vaccination far outweigh the potential risks." [3].

This mislabelling of COVID-19 injections as "vaccines" has continued to mislead most of the public to accept coercive injections for expected immunity in order to travel, keep employment, "protect grandma" and "do public good". Even though Pfizer and Moderna have still been mislabelling theirs, "preventative vaccines", the FDA has not adequately clarified [4] to the public that infection prevention is officially not needed for authorized use of the injections:

"It is important to note that *FDA's authorization and licensure standards for vaccines do not require demonstration of the prevention of infection or transmission. A vaccine can meet the licensure standard if the vaccine's benefits of protecting against disease outweigh the vaccine's risks for the licensed use.*"

Emphasis added. Vaccines now do not have to meet the immunity definition of vaccines that most of the public and the media still misguidedly assume. The COVID-19 injections, whatever their commercial-in-confidence content, are now defined by health authorities to be a therapy to mitigate the effects of infection. However, even this therapeutic benefit has not been tested or demonstrated before they were authorized for use. The COVID-19 injections were assumed axiomatically to be so beneficial that they were prioritized for the most vulnerable: the elderly Australians, as Australian policy endorses a recent CDC and WHO recommendation [5]:

“COVID-19 vaccines are safe and reduce COVID-19 mortality. The World Health Organization (WHO) recommends that countries prioritize populations at increased risk, e.g., older adults, for COVID-19 vaccination with a goal of 100% coverage with a completed primary series for populations at-risk.”

Emphasis added. What are the facts? It is the purpose of this paper to establish simple, robust, and verifiable facts to assess whether COVID-19 injections provide the said therapeutic benefit, especially for elderly Australians.

Three main sources of a priori evidence for safety and therapeutic effectiveness of COVID-19 injections in reducing severe illness and death are briefly discussed in the next section, where “real-world” epidemiological data will be established as the most valid source of evidence, being most free from data flaws and official conflicts of interest [6,7]. The main epidemiological evidence indicating therapeutic effectiveness consists of a large number of studies with 2021 data, finding negative correlation between COVID-19 injections and excess deaths [8], thus apparently supporting the effectiveness of the injections in reducing deaths.

It is a typical fallacy in medical research as seen in [8] that a meta-analysis of a large number of papers, shown to be invalid here, appears to have determined the consensus. Whilst there are far fewer publications of positive correlation between COVID-19 injections and excess deaths, the conflict of evidence is explained in section 3 by Simpson’s Paradox [9], which is resolved in section 4 in favour of the minority view of positive correlation between COVID-19 injections and Australian excess deaths. The resolution is based on the important requirement of temporality of correlation to imply valid causality – i.e., the cause must precede the effect by a reasonable amount of time.

If COVID-19 injections actually caused excess deaths, then why should they be prioritized for vulnerable elderly Australians? This policy could be rational only if the positive correlation found for the whole Australian population does not somehow apply to the elderly subpopulation, as an exceptional case of Simpson’s Paradox [9]. That is, could the elderly subpopulation exhibit negative correlations between injections and deaths, due to unknown confounding factors, even though the whole population exhibits positive correlation? This possibility is refuted in section 5.

While sudden deaths among the young and healthy have attracted worldwide attention, less recognized is the blight of elderly who have borne the brunt of most Australian excess mortality. Section 6 provides an analysis of the statistical significance of excess mortality by age-group and shows that elderly Australians have suffered disproportionate harm from COVID-19 injections, suggesting geronticide.

Section 7 summarizes the strong evidence for the iatrogenesis of the COVID-19 pandemic for elderly Australians, thus contra-indicating the official assumption that the COVID-19 injections are beneficial for the vulnerable. The concluding section indicates the need to investigate the possibility of iatrogenic geronticide.

Safety and Therapeutic Effectiveness

A priori evidence for COVID-19 safety and effectiveness in reducing severe illness and death may come potentially from three data sources: (1) clinical trials (2) surveillance reports of health authorities and (3) epidemiological data of statistical agencies.

The double-blind clinical trials, on which emergency use authorization (EUA) was granted, were unblinded within weeks after EUA and full safety investigation of the COVID-19 injections was never possible. Moreover, recently the interim datasets accompanying the EUA process were independently re-analysed [10] for serious adverse events of special interest (AESI). From the analysis [10], Pfizer and Moderna injections were found to have excess risk of serious AESI compared to placebo.

Similarly, Australian TGA recently released, under Freedom of Information (FOI) requests, a nonclinical evaluation report [11] submitted by Pfizer Australia as a part of its application for approval. The report admitted no human studies were done on most types of toxicity and that in animal models the toxic lipid nanoparticles were not localized at the site of injection, but were slowly and significantly distributed to major organs, particularly to the liver.

Therefore, to date, clinical studies and laboratory experiments have only raised serious safety concerns and have only provided worrying evidence of increased safety risk of the COVID-19 injections, casting doubt on their therapeutic benefit.

After rollout of the “vaccines”, safety and effectiveness have been monitored through weekly and monthly surveillance reports of health authorities which provided numbers on COVID cases, hospitalizations, ICU admissions and deaths, and selective comparisons based on “vaccination status”. Unfortunately, these reports are misleading because they are based on flawed COVID data, which were not collected for scientific accuracy, but for managing public perception [12].

Flaws in official COVID data originate from two main fundamental defects. Firstly, PCR test does not detect the presence of the SARS-CoV-2 virus, the attributed pathogen of the COVID disease. It is unclear whether a COVID infection or other infection is

even detected by a positive PCR result, which itself depends on arbitrary numbers of amplification cycles. A PCR-defined COVID infection merely indicate the fragmentary presence of any number of unknown RNA strands [13,14], but not necessarily presence of any virus of the COVID disease or of any actual infection or disease. Even whole genome sequencing of the SARS-CoV-2 virus in faecal samples of a few positive PCR subjects [15] have not established an association with the disease.

It is clear that certification of deaths during COVID is not an exact science, as the guidance for reporting and financial incentives leave room for bias and subjective judgement in the raw data, as discussed in [1]. For example, a person without COVID symptoms could go to a hospital with a heart attack, while there get a false positive PCR test result and when dying a day later then be declared a COVID death. In some cases, to declare a COVID death, a positive PCR test is not even necessary for registration by CDC [16]:

“Ideally, testing for COVID-19 should be conducted, but it is acceptable to report COVID-19 on a death certificate without this confirmation if the circumstances are compelling within a reasonable degree of certainty”.

Emphasis added. Therefore the distinction between COVID and non-COVID deaths would be inaccurate and COVID data on the numbers of cases, deaths etc. were likely inaccurate measurements of the pandemic.

Secondly, on data defects, attributions of COVID deaths according to “vaccination status” were also likely to be inaccurate, because “vaccination status” is not a precise record of the number of injections someone had at a particular date. The recorded status depends on the number of days since last injection [17]. For example, if someone had their first injection less than 14 days ago, they are recorded as “unvaccinated”. Should the person die in less than 14 days, it is counted as the death of an “unvaccinated” person. Generally, death numbers of “vaccinated” and “unvaccinated” are confused.

Therefore, reports of lower COVID death rates among the “vaccinated” than “unvaccinated”, using official COVID data, have been shown [7] to be misleading evidence of the therapeutic effectiveness of COVID injections. Independent replication of results of surveillance reports to discover the exact sources of errors in the Australian databases has been made extremely difficult because the raw data have not been collected accurately in databases, as discussed in the Appendix. Australian COVID data being flawed do not, and cannot, show correctly the therapeutic effectiveness of COVID injections.

In summary, based on official admissions, neither clinical trials nor surveillance reports can be relied upon to provide accurate raw data to support the therapeutic effectiveness of the COVID-19 injections. There remains only epidemiological data which might provide the needed real-world evidence. The mortality data

collected by national statistical agencies are data which are more difficult to manipulate to justify government policies and their public pronouncements. Therefore, epidemiological data are the most legitimate source to assess the therapeutic effectiveness of COVID-19 injections.

Simpson’s Paradox in Epidemiology

Epidemiological data used for Australian all-cause mortality are published by the Australian Bureau of Statistics (ABS) since 2015 [18]. Obviously excess mortality data depend on how the baseline is calculated. The ABS has arbitrarily excluded 2020 as a low mortality year for calculating 2022 excess mortality, thus including only 2017-2019 and 2021 in its baseline.

Other methods of calculating the baseline include that of Actuaries Institute Australia [19] which used extrapolation of linear regression models fitted to standardized death rates. The main adjustments of this baseline are demographic changes in ageing and population. The need to adjust for two years of demographic changes is unclear and the method renders the replication of the calculated results unnecessarily complicated and difficult to use for a variety of analytical purposes.

Computer models of excess mortality are not about statistical facts, but are theoretical models hypothesized to estimate or predict excess mortality based on assumed causes of mortality [20]; their usefulness depends on the assumptions they make [21,22]. In contrast, our excess mortality is a calculated statistic to quantify deviations from expectation, to indicate anomalous statistical signals.

To investigate the COVID era, excess mortality is calculated in this paper from the average of five years from 2015 to 2019, as the baseline of the pre-COVID era, which is used throughout our analysis. Therefore, the excess mortality data in this paper, are slightly different from those published by the ABS which has an ad-hoc baseline stated above [18].

The main methodological strength of the current study is its economical use of data of the highest quality and integrity; essentially only two variables are used. The new insightful contributions, which are largely statistical, will come from a more rigorous and thorough analysis of limited data. Conclusions will be fewer, but will be more robust and trustworthy. No direct contribution is made about the underlying science of the COVID virology or vaccinology.

Apart from all-cause mortality data, the only other variable used is the total numbers of doses of COVID-19 injections over time in Australia [23]. The two variables have data collected independently by two separate agencies which are largely free from any known conflicts of interests. The relationships between these two variables have not been investigated together or reported by the health authorities, thus allowing new and unbiased findings to be discovered.

Currently, the number of research publications finding negative correlations between COVID-19 injections and COVID deaths have far exceeded the number finding positive correlations, which have only started to appear since 2023. The reason for this imbalance will be explained below. Our recent paper [1] found strong positive correlations in Australia data, which imply probable causality based on Bradford Hill analysis. This is only one peer-reviewed paper with positive correlation against a large number of other peer-reviewed papers with negative correlations. Health authorities would conclude that the numerical consensus sides with negative correlations and therefore the overall evidence supports therapeutic effectiveness of COVID-19 injections. This fallacy is explained by Simpson's Paradox in this section.

Simpson first discovered [9] a paradox in the interpretation of (2 x 2 x 2) contingency tables for the association between two

variables. Generally, the paradox is a statistical phenomenon where an association between two variables in a population may be different from, and possibly contradictory to, those of its subpopulations. The implication is: statistical associations cannot be generalized from one data sample to others without a proper understanding and interpretation of the results. This is illustrated in our current epidemiological context. It is the duty of science to falsify formally any contradictory evidence or at least reconcile with it to establish true scientific consensus.

Our previous paper [1] found strong positive correlation for the whole dataset only when the COVID injection cause leads the excess mortality effect by five months. Virtually all journal-published papers [8] have ignored this temporality, making causal inference likely invalid. If temporality is ignored, then the weekly data (rather than monthly data) is shown in Figure 1.

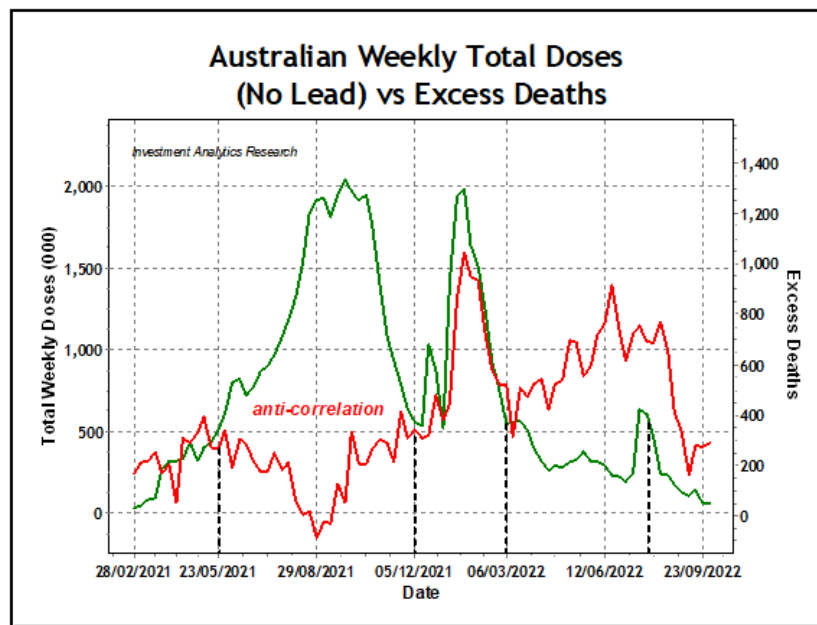


Figure 1: Australian Weekly Doses of COVID Injections versus Excess Deaths.

Visually, it is easy to see (green: doses; red: excess deaths) that there were alternating periods of positive and negative correlation in the Australian data. For the first few months of mass injection till end of May 2021, there was positive correlation and excess deaths which were largely attributed to ‘unvaccinated’ deaths, because the sick elderly in nursing homes died too soon after injection to be considered ‘vaccinated’. The sudden rise in elderly deaths was considered coincidental, unrelated to ‘vaccination’.

For the three months to the end of August 2021, strong negative correlations were attributed to the ‘vaccines reducing illness and death’, but when excess deaths started to rise again from September 2021, the concept of ‘waning’ was invented. By the end of 2021, more than 50 studies from different countries were published showing that the injections [8] ‘were associated with a favourable effectiveness against SARS-CoV2 incidence rate, hospitalization, and

mortality rate in the first and second doses in different populations’.

However, the correlation turned strongly positive from December 2021 to March 2022, with the advent of the first boosters, but by then, about five months after the initial ‘vaccination’ drive, ‘vaccine effectiveness’ was considered established beyond doubt and the new data emerging were considered with suspicion, as misinformation, not ‘peer reviewed’ research. After March 2022, ‘vaccine hesitancy’ increased understandably and the rates of injections declined while excess deaths continued to rise. In this period, the correlation turned from positive to negative again.

A scatter plot of Figure 1 is shown in Figure 2, where first and last periods of anti-correlation are shown as red points and fuchsia points respectively, while positive correlation periods are shown as green points.

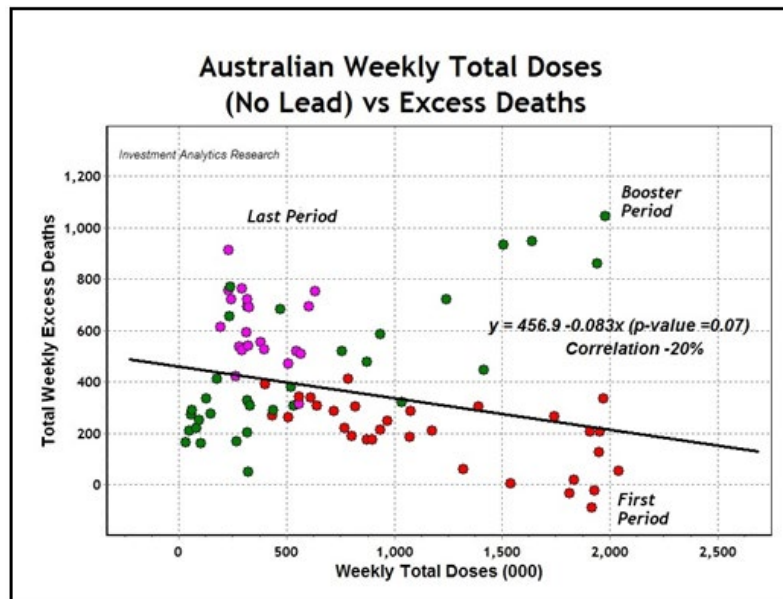


Figure 2: Total Excess Deaths vs Doses of COVID Injections in Australia.

Therefore, depending on which data period is selected to obtain the correlation between COVID-19 injections and excess deaths, it is possible to obtain statistically significant positive or negative correlation, as shown in Table 1, in an illustration of Simpson’s Paradox.

Period Start	Period End	Sample (Weeks)	Correlation (%)	Slope (Deaths/Doses)	p-value
23 May 2021	5 Dec 2021	29	-60.5	-0.143	0.001
5 Dec 2021	6 Mar 2022	14	84.6	0.415	0.000
6 Mar 2022	24 Jul 2022	21	-31.7	-0.317	0.161
28 Feb 2021	30 Sep 2022	83	-20.0	-0.083	0.07

Table 1: Correlation and Regression of Selected Periods.

Colours refer to the data points for each period in Figure 2 and Table 1. The total data sample of 83 points shows (bottom row) a negative correlation of -20 percent with moderate statistical significance (p-value 0.07). However, subsamples (top row, red) have higher negative correlation of -60.5 percent with higher statistical significance (p-value 0.001) with 29 data points in the first period and have highest positive correlation of +84.6 percent (second row, green) with highest significance (p-value 0.000), but with only 14 data points in the second period.

Most research for the first period were published in “peer reviewed” journals [8, 24, 25], which favoured the official narrative that “vaccines” were therapeutically effective. This evidence was assumed universally valid. Later research [26,27] including 2022 data from the second period (Figure 1) effectively exposed some of the lagged effects of the injections. Their findings contradict those of the earlier published papers and would likely be rejected for journal publication because they do not suit the official narrative. This has created a bias in the literature. Who is right? Should the result of the total Australian data sample be taken as the correct result for the population? Or, should it be the common practice in medical research of reaching a conclusion from a meta-analysis, averaging all results?

Existence of Simpson’s Paradox suggests there may be one or more confounding factors important in interpreting and validating the results. Conflicting results have been shown, which require science rather than authorities (or the law courts) to resolve. This paper resolves this Simpson’s Paradox by showing that causality requires temporality of correlation due to inherent time delays for medical treatments to cause observable therapeutic effects.

Temporality of Correlation

If a healthy youth without medical conditions dies immediately after a COVID-19 injection, it could be caused by an anaphylactic reaction. Or, if the youth dies one day or two later, the injection would still be the likely cause, and can be confirmed by finding spike proteins in affected organs from an autopsy. In these cases, the immediate adverse events are most likely reported and recorded in databases, but others are unlikely to be reported and therefore appear rare, because CDC data reporting convention [17] assumes the injection does not take effect until after 14 days.

On the other hand, for the sick elderly who are close to death, the additional challenge of a synthetic infection from the injections could immediately push them over the edge. The cause of death would be attributed to one or more of their existing comorbidities.

From March to May 2021 (Figure 1), a positive correlation was seen between injections and non-COVID deaths.

Situations with pre-conditions are where COVID injections could have an immediate impact on mortality. Except for the elderly, existence of pre-conditions is relatively uncommon, where, for most people of average health, the COVID injection takes time to affect metabolic processes of pathogenesis.

The lipid nanoparticles (LNP) of the mRNA injections, observed from studies with animal models [11], take 48 hours to spread to most parts of the body, particularly to the major organs. From those sites, the LNPs have to transfect into body cells to deliver the genetic material into the cytoplasm, which then initiate processes to manufacture the SARS-CoV-2 spike proteins, the antigen, when expressed from the cell, provoke the production of antibodies.

Pathologies originate from how the spike proteins, manufactured or acquired from infection, normally interact with antibodies and body tissues over weeks and months. If the COVID injection were to cause severe illness and death, through acquired immune

dysfunction, then it would also normally take weeks and months, potentially through down-regulation [31, 32], to see pathology manifested. Even the convention of 14-day delay in reporting “vaccination status” tacitly acknowledges the requirement of temporality.

Therefore, many studies reporting negative correlations between COVID injections and deaths from 2021 data have misleadingly inferred immediate therapeutic effectiveness in preventing death (e.g., the first period in Table 1). The inferred causality violates temporality with insufficient lag between cause and effect, which needs 2022 data to be included. That is, those research publications should not be used by the health authorities to infer therapeutic effectiveness of the injections in reducing severe illness and death. The opposite conclusion is the case, by correct statistical analysis with more data, as shown in the previous paper [1].

Complementing monthly data analysis [1], weekly data of Figure 1 are shifted optimally with doses of injection temporally leading excess deaths by 21 weeks, are shown in Figure 3.

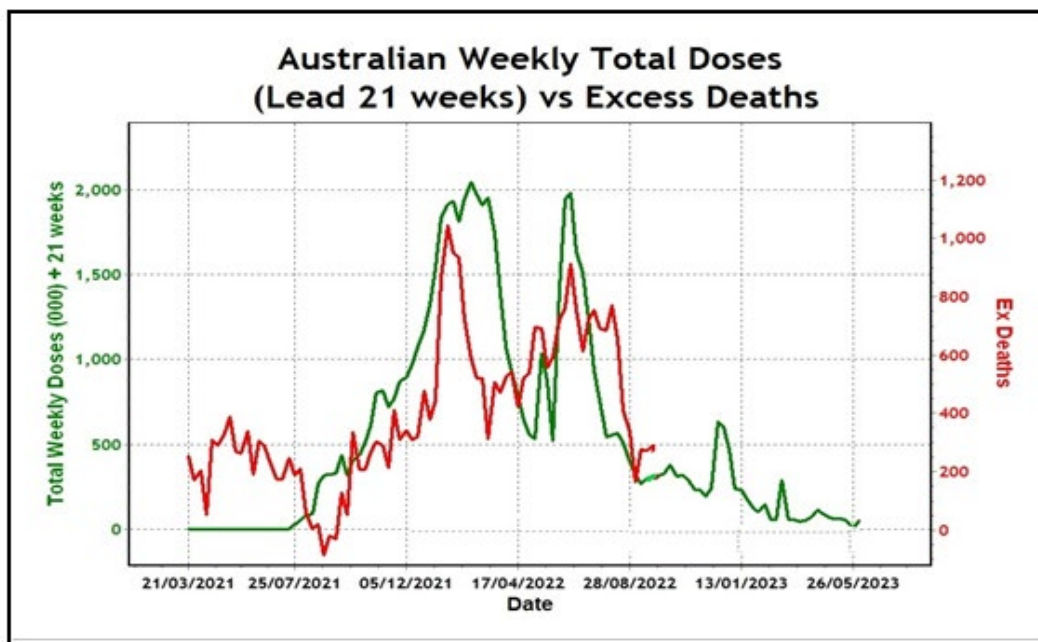


Figure 3: Australian Weekly Total Doses (Lead 21 Weeks) versus Excess Deaths.

From the whole dataset, the overlap period with temporal shift was from August 2021 to November 2022. The peaks in excess deaths coincided approximately with two booster peaks which were five to six months apart. Over this period the correlations between COVID injections and Australian excess deaths are consistently high as seen in Figure 4.

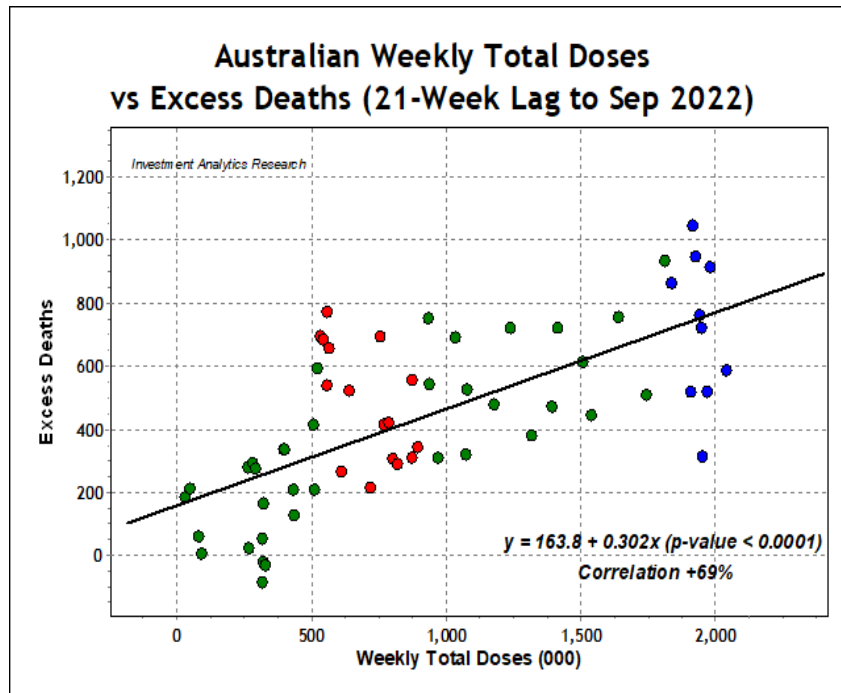


Figure 4: Total Doses versus Excess deaths in Australia (Week-21 Lag to Sep 2022).

The linear regression is statistically significant with p-value essentially zero and a positive correlation of +69 percent. On average, one million doses administered in a week would lead to 460 weekly excess deaths 21 weeks later. The correlation of the whole dataset is largely free from Simpson’s Paradox, because only very small subpopulations show any sign of negative correlation, as indicated by data points in red and blue.

The temporal separation between COVID injections and observed deaths, five months or 21 weeks later, as distribution peaks, has been suggested from simple observations and anecdotes from US and European data [28].

Age-Group Therapeutic Effect

While Australian data show the COVID injections have a detrimental therapeutic effect on the whole population, increasing excess deaths, it may be possible a priori that the COVID injections have a beneficial therapeutic effect on subpopulations, such as the elderly, as another example of the Simpson’s Paradox.

For the whole Australian population, it has been shown that COVID-19 injections increase, not decrease as claimed, severe illness and death. Yet, COVID-19 injections have continued to be recommended by health authorities for the elderly and the vulnerable. Could Simpson’s Paradox provide a rational explanation to justify the counter-factual claim that COVID-19 injections reduce severe illness and death specifically for the vulnerable elderly?

That is, theoretically, one way the elderly Australians could statistically escape the conclusion of iatrogenic excess deaths observed in the total Australian population is for that subpopulation to exhibit Simpson’s Paradox by having a negative correlation between doses of injection and excess deaths. This possibility is examined here.

The ABS monthly all-cause mortality data stratified by age-groups since 2015 is shown in Figure 5.

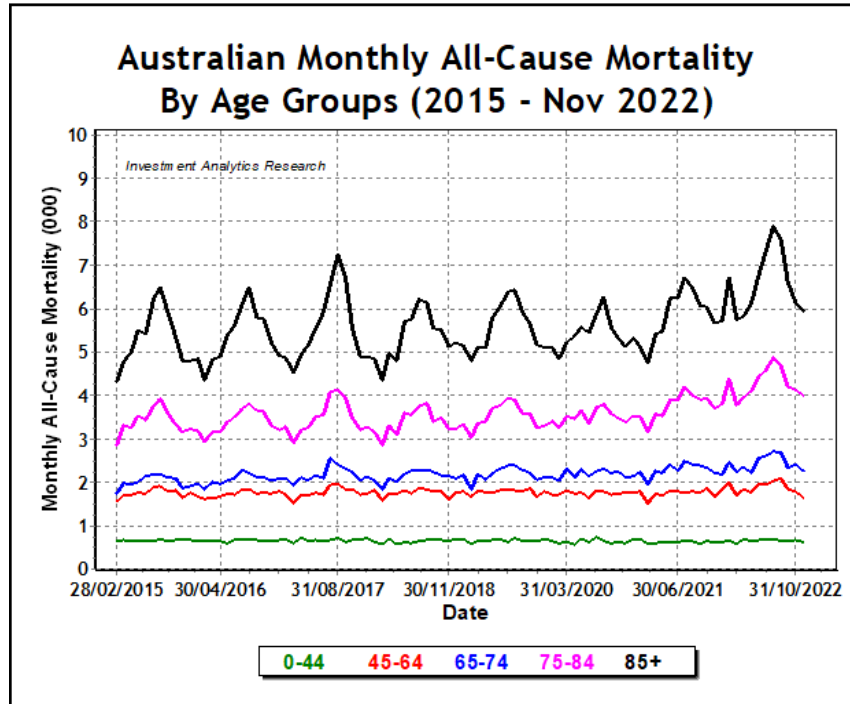


Figure 5: Australian Monthly All-Cause Mortality by Age Groups (2015-Nov 2022).

As expected, mortality increases strongly and monotonically with age. Visually, from Figure 5, it is evident that significant increases in all-cause deaths above expectation in the older age-groups have occurred since 2021, when mass injections started. Is this statistically significant?

Age-standardized mortality statistics used in most published studies mask information on different impacts of COVID-19 injections on different age-groups, because the data are standardized to fixed age distributions. Consistent with our aim of clearly exposing the impact of the COVID era, excess deaths for each age-group are calculated from their own baselines using their own respective averages of the years 2015-2019, of the pre-COVID era. To simplify discussion, the elderly are defined by an over-75 or 75+ age-group by aggregating the 75-84 age-group and the 85+ age-

group. The rest of the Australian population is referred to as the under-75 or 75- age-group.

Whether Simpson's Paradox occurs with the 75+ age-group depends empirically on the correlation between the doses injected into that age-group and the resulting excess deaths. Accurate dose-statistics for different age-groups are not available in Australia, as explained in the Appendix. Therefore, total national dose-statistics are used as proxy, since their variations are expected to closely reflect the variations of the 75+ and 75- age-groups.

The relationship between monthly total doses and monthly excess mortality for the 75+ age-group is shown in Figure 6, which closely resembles Figure 8 of the previous paper [1] and is consistent with the weekly version in Figure 3 above.

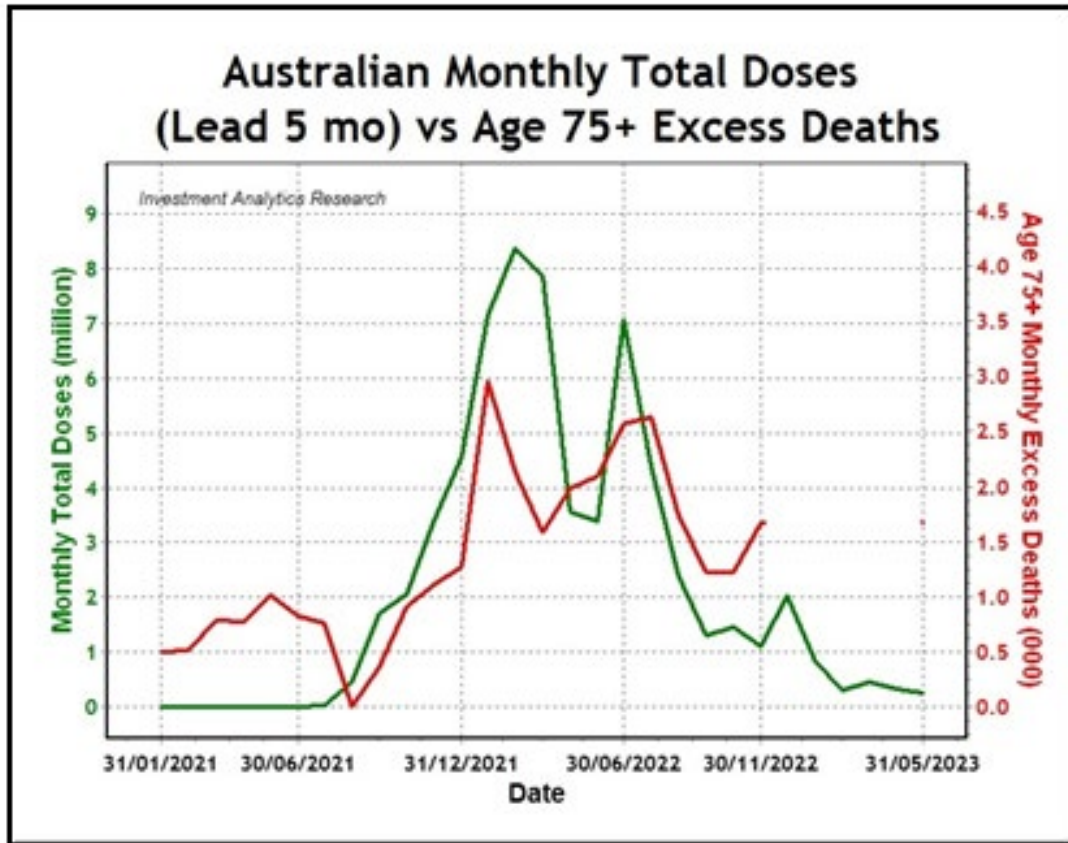


Figure 6: Australia Monthly Total Doses with 5-month lead on Excess Deaths of 75+ Age Group.

The first peak in excess deaths in January 2022 is particularly anomalous because it was during the height of the Australian antipodean summer, when fewer elderly normally die from respiratory diseases. The second peak in July and August may appear seasonally more normal, but it too is anomalous because registered deaths from influenza and pneumonia were unusually low relative to pre-pandemic averages. Eliminating natural causes at those peaks suggests that the excess deaths in the elderly were likely caused by COVID-19 injections administered five months earlier, given the Bradford Hill analysis in the previous paper [1].

A similar conclusion is reached for the under-75 age-group with the same Bradford Hill analysis. Therefore, in the current dataset, Simpson's Paradox has been eliminated for the elderly and it has

been verified that COVID injections do not reduce, but increase, excess deaths for the elderly, as well as for the whole population.

The remaining question is: are the elderly excess deaths caused by the injections statistically significant? What is their relative harm compared to other age-groups?

Age-Group Comparison

In the COVID era, the annual excess deaths as percentages of baseline expectations for various age-groups are shown in Figure 7, where it is evident that the Australian pandemic as defined by excess deaths only started in 2021, with the advent of mass injections.

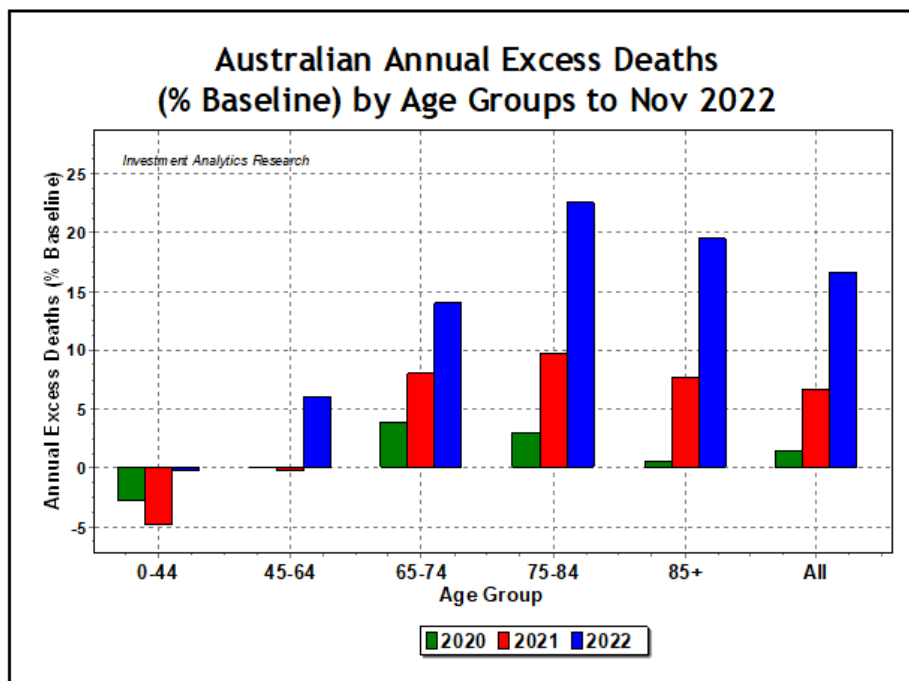


Figure 7: Australian Annual Excess Deaths by Age Groups to Nov 2022.

In the next three months after the data analysed in this paper, monthly total Australian deaths have been 15,300, 14,500 and 12,700 to February 2023, with baseline expected mortality of 12,800, 12,600 and 11,500 giving respectively excess death tolls of 2,540, 1,950 and 1,270 or 19.9, 15.5, and 10.4 percent above expectation. These statistics (rounded for ease of reading) have similar magnitudes to those to November 2022 in Figure 7 (last group), suggesting still significant excess deaths.

The previous paper [1] showed that 2020 was pre-pandemic in

Australia, because there was no evidence of significant excess deaths to warrant calling a pandemic, according to traditional WHO definitions. This applies to all age-groups.

As shown in Table 2 below, the percentages of excess deaths for all age-groups compared to baseline expectations are all less than four percent (column 5), substantially less than historical fluctuations, resulting in low sigmas (units of standard deviation). That is, there were no statistically significant signals for a pandemic for any age-group in Australia in 2020.

Group	All-Cause Baseline	All-cause 2020	Excess 2020	Excess % 2020	Excess % Volatility	Sigma
0-44	8,000	7,770	-230	-2.88	12.5	-0.23
45-64	21,200	21,100	-60	-0.28	8.4	-0.03
65-74	25,400	26,400	937	3.69	13.0	0.28
75-84	41,200	42,300	1,070	2.60	9.7	0.27
85+	65,100	60,100	-30	-0.05	12.2	0.00
All	161,000	158,000	1,690	1.05	6.9	0.15

Table 2: Pre-Pandemic 2020 Age-Group Excess Deaths.

The second last column shows that annualized volatility of percentage excess deaths and the last column shows sigmas (standard deviations) less than 0.3 percent, indicating statistical insignificance.

For those over 65-years, the 65+ age-group excess deaths (1,980) account for more than 100 percent of excess deaths (1,690) in 2020 (column 4, shaded), because the youngest age-groups had lower

deaths than expectation. This resulted in higher COVID-19 deaths attributed to the elderly, giving the misleading impression that the elderly were particularly vulnerable to COVID-19 mortality, which was false because of statistical insignificance.

The situation changed markedly after 2021 with mass COVID injections, excess mortality climbed substantially particularly in the elderly. Australian COVID injection drives generally lagged

the rest of the world by a few months, partly due to global health directives and partly due to ordering and supplying issues, as seen in Figure 8.

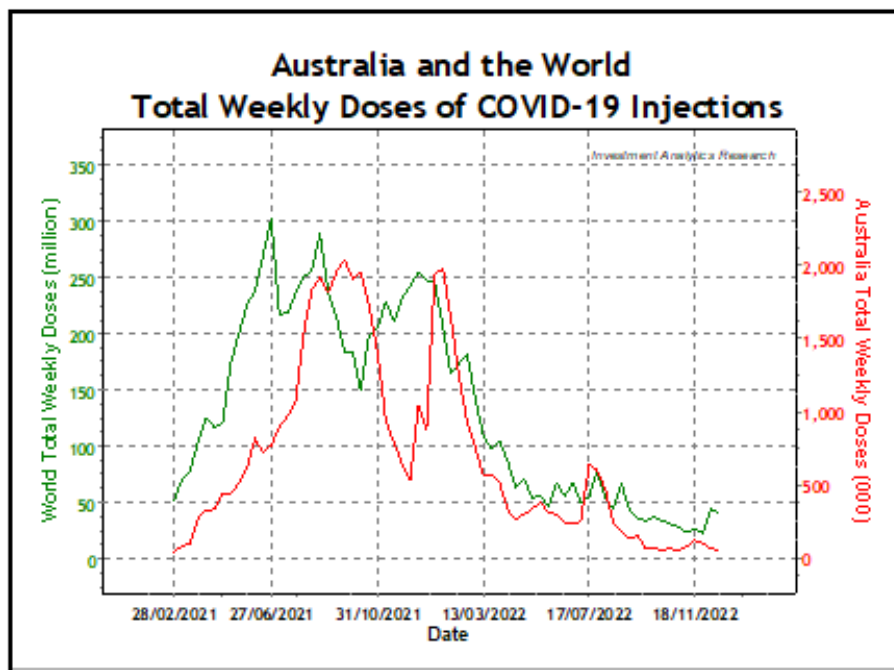


Figure 8: Total Weekly Doses of COVID-19 injections (Australia and World).

The temporal separation between cause and effect shown above, meant that the impact of COVID-19 injections was not fully felt until 2022 in Australia, at least a few months after completing mass injections of the primary series in the Australian population. Moreover, the injections appeared to have a cumulative effect on the immune system with the first booster campaign early in January 2022 having a devastating effect in Australia [1].

On account of Australian injections lagging other countries such as the US and UK, Australian deaths would lag the rest of the world, making Australian relative 2022/2021 death tolls higher than most other countries, which had more injections and deaths earlier. The Australian excess deaths to November 2022 by age-groups are shown in Table 3.

Group	Population (m)	Pop (%)	All-Cause Baseline	All-cause 2022	Excess 2022	Excess % 2022	Excess % Volatility	Sigma
0-44	14.8	58.2	7,300	7,270	-29	-0.4	12.5	0.0
45-64	6.26	24.6	19,400	20,700	1,290	6.6	8.4	0.8
65-74	2.46	9.7	23,400	26,900	3,570	15.3	13.0	1.2
75-84	1.38	5.4	37,900	47,200	9,240	24.4	9.7	2.5
85+	0.54	2.1	60,100	72,700	12,500	20.8	12.2	1.7
All	25.4	100	148,000	175,000	26,600	18.0	6.9	2.6

Table 3: Age-Group Excess Deaths to Nov 2022.

All numbers have been rounded to three significant figures, for ease of reading and adjusted for 11 months of data for 2022. Before the excess mortality of the elderly is discussed which is one of the main focus of this paper, the surprisingly low 2022 excess mortality (first row) of the youngest group needs to be discussed to allay any fears about the quality and integrity of the data.

The current focus of most research has been generally on the young who normally have very low rates of mortality, but are now

appearing to die at higher rates (Figure 7). With dramatic statistical signals and with many years of lifespan at risk for every young person, it is reasonable to investigate urgently into diagnosis, causes and treatments.

Young and fit athletes collapsing and dying suddenly during training or in sports events in front of crowds of spectators provide visually powerful evidence of unexpected deaths. Most of these deaths have been shrugged off as rare, perhaps due to asymptomatic COVID infections, but statistically insignificant, as

seen above. The contradiction between anecdotes and mortality data needs explanation.

In the youngest age-group (0-44), deaths from medical causes are normally rare (about 0.014 percent p.a. see Table 4). This makes any sudden rise in medically-caused deaths from a very small to a larger number, highly conspicuous. That is, sudden rises in cardiac arrests, strokes, etc. relative to their virtual absence normally have raised statistical alarms. However, in absolute terms, those deaths may not have overall significance on total excess mortality

in Australia's youngest age-group, due to large numbers of non-medical deaths.

For the youngest age-group (0-44), broad categories of causes of deaths are shown for different age subgroups in Table 4. Top-10 medical causes mainly include neonatal deaths, malignant cancers, cerebral palsy, with heart disease and strokes only starting to occur after 25 years. Top-10 non-medical causes, exceed medical causes, leading by intentional self-harm, followed by accidents which involve misadventure, car, motorcycle and other transports.

Cause/Age (Years)	< 1	1 to 14	15 to 24	25 to 34	35 to 44	Total
Population (million)		4.64	3.04	3.62	3.49	14.8
Top-10 Medical	801	113	69	216	944	2,140
Top-10 Non-medical		108	739	1,050	971	2,870
Intentional Self-harm		32	402	581	567	1,580
Accidental Harm		76	337	473	404	1,290
Top-10 Total	801	221	808	1,270	1,920	5,020
All-cause Total	1,010	425	1,170	1,950	3,250	7,740

Table 4: Causes of Death in Youngest Age-Groups.

That is, statistical signals in the rise of medically-caused deaths in the youngest age-group, may be masked by a significantly larger number of non-medical deaths, as seen in the above table (see rows 2 and 3). For example, lockdowns during the pandemic, particularly before 2022, may have had an unintended consequence of reducing traffic and other accidents in the young (e.g., ages 15 to 34). Reduced traffic accidents alone may have more than compensated for any rise in medically-caused deaths.

Over the short-term, the aggregate data have not shown significant increased mortality in the youngest age-group, though 2022 has faintly hinted at an emerging upward trend. The long-term impact of COVID injections on future mortality on the mostly healthy young age-group is as yet unpredictable from published data.

Returning to the main concern of this paper, which is the bulk of excess deaths in the elderly over-75 age group. Table 3 shows Australian elderly (75+ years) are nearly two million, or 7.5 percent of the population (third column, shaded). Normally they are responsible for about 66 percent of baseline all-cause mortality of the Australian population (fourth column). Yet they represented 82 percent excess deaths year to Nov 2022 (sixth column, shaded).

The excess deaths for 75-84 age group and the 85+ group were 24.4 percent and 20.8 percent above expectation (seventh column). Such percentages of increase in excess deaths are statistically significant, because when measured against historic volatilities of percentages of excess deaths (eighth column), their sigmas (or z-scores) were 2.5 and 1.7 (last column) or p-values of 0.006 and 0.045 respectively, indicating chance is improbable. Volatilities are

calculated based on scaling of percentage monthly excess deaths over 2015-2019.

Note that the statistical significance of excess deaths is even higher with a sigma of 2.6 (p-value of 0.005) for the whole Australian population, because the overall volatility of percentage excess deaths is lower for a larger sample. The statistical significance is greatest for the nation as a whole, which is another example of Simpson's Paradox. Each age group may have confounding factors adding "noise" to affect their dose-response relationship. With different idiosyncrasies of each age group having been "washed out", the main factor affecting all groups becomes clearer statistically.

The high statistical significance of the 2022 excess deaths in the Australian elderly is very clear, even without population adjustments. The Australian economy grows by around one percent per annum simply due to immigration. It may appear that demographic changes could affect our interpretation of the data on excess mortality of the elderly. However, Australian immigration is heavily biased in favour of the young due to skill shortages in various sectors and the need to fill high levels of job vacancies. Immigration would have little numerical impact on the elderly population.

The fact that COVID-19 injections have significantly accelerated the mortality rates of the Australian elderly can be shown clearly and precisely in monthly percentage excess mortality data since 2015 in Figure 9, which eliminates seasonal fluctuations (not usually done).

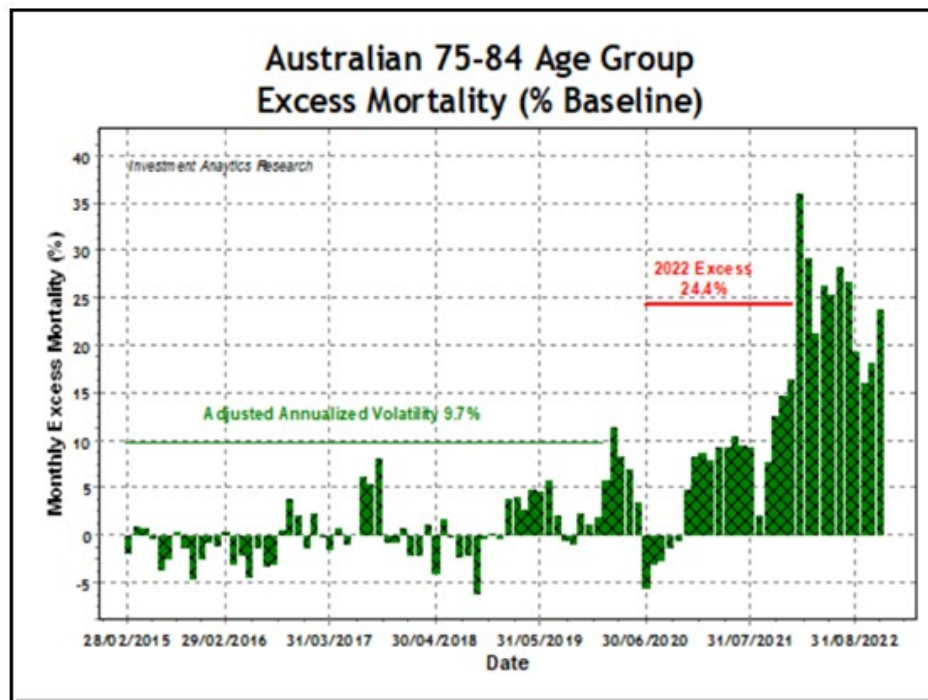


Figure 9: Australian Excess Mortality by 75-84 Age-Group.

Between 2015-2019 of the baseline, the monthly excess mortality of the 75-84 age-group rarely exceeded plus or minus five percent of the baseline, with an annualized volatility of 9.7 percent, shown by the horizontal green line in Figure 9. In 2022, the monthly excess deaths were well in excess of 15 percent (as high as 36 percent), about three times (as high as seven times) the baseline. On an annual-average basis, 2022 was 24.4 percent above baseline compared to 9.7 percent annualized volatility of the baseline. The statistical signal for high excess deaths in the Australian elderly is very strong, suggesting the presence of a potent cause.

Obviously, excess deaths have potentially many different a priori causes and are unlikely to be caused entirely by a single factor such as COVID-19 injections, which may statistically provide 70 percent of the causality. For example, it is difficult to dismiss the direct evidence from an autopsy of a 76-year-old man [29] who had an unnatural death from improbable simultaneous multiple organ failures linked to injection-associated spike proteins.

Unless there is another explanation which has better causal credentials, then from the mortality data of this paper, the strong association between excess deaths and COVID-19 injections would suggest probable causality, given that other aspects of Bradford Hill analysis [1] are also supportive. Therefore, this probable causality warrants serious attention and further investigation to justify continued COVID injections.

Summary & Discussion

This paper has examined the Australian official claim that COVID “vaccines” reduce severe illness and death. After eliminating the empirical evidence from other methods, which suffer from poor-

quality source data [3,6,7], this paper has used more reliable real-world epidemiological data to analyse in detail whether the official claim could be justified. Many published papers supporting this claim were also based on epidemiological data, but have been shown to be invalid in their interpretation mainly due to Simpson’s Paradox. Their supposed causal associations would wrongly fluctuated randomly between positive and negative effects over different time periods. The correlations of those studies are therefore temporally inconsistent, due to incorrect temporal separation between cause and effect to attribute consistent medical causality – they are examples of “correlation not being causation”.

A temporal separation of 21 weeks or five months between the COVID injections to cause the mortality effect has been proposed [1] as necessary to explain consistently the Australian data. This suggests clinical trials needed, but did not provide, at least five months to observe serious adverse effects. As the temporal separation from Australia data is consistent with those observed in other datasets from many countries [28], it may reflect a genuine scientific fact: the time required for as-yet-unknown processes of pathogenesis to cause most of the deaths. Therefore, the observed temporality warrants further pathological investigation [31,32].

Of course, there may also be other processes and temporalities which result in death, but these have yet to be observed as empirical facts. Indeed, the lethality of the injections could have a long tail, judging anecdotally by reported instances of heart disease, cancer, neuropathy, etc many months following the COVID injections, particularly in the younger age-groups. Data need to be accurately and systematically collected for future research.

This paper has provided further proof to confirm the previous hypothesis [1] that the COVID injections are the main cause of excess deaths reaching pandemic levels in Australia. The injections explain the mystery of significant numbers of non-COVID deaths. This finding falsifies and contradicts the sole rationale of current official recommendation for the injections which are purported to reduce severe illness and death. On the contrary, this paper has shown clearly that empirically the COVID injections significantly increase deaths, particularly in the elderly. Therefore, COVID-19 injections do more harm than good for the vulnerable.

While these serious findings may not be surprising to those who read widely the available research, it is important to have established formally and scientifically the occurrence of statistically significant iatrogenic excess mortality, which should not be dismissed as misinformation.

Conclusion

Earlier epidemiological evidence that COVID injections reduce illness and death has been refuted as an example of Simpson's Paradox; instead, the evidence has shown increased iatrogenic deaths. Without taking the precaution of investigating the abnormally high excess deaths, Australia has continued to prioritize the elderly for COVID injections which the elderly cannot usually refuse if they are in residential aged-care facilities.

The longer the authorities delay stopping widespread injections to conduct a thorough investigation into the causes of excess deaths in Australia, the stronger is the implication that the excess deaths in the elderly are deliberate policy, which is in effect iatrogenic geronticide. Geronticide is a serious violation of human rights, because it is a morally reprehensible criminal act to target intentionally older adults based on their age.

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Appendix: Official Data Flaws

Among Australian health authorities, there is an absence of raw-data-download facilities available to the public for COVID research. The published data in weekly and monthly surveillance reports are based on selections of flawed COVID data [6,7] which are unprofessionally assembled. Inconsistent reports which have misled the public cannot be corrected and resolved without accurate raw data. A few examples of problematic official “vaccination” data are given here.

Official data on COVID-19 “vaccination” are assembled by the Department of Health and Aged Care [30] collated from the data of eight state and territories health departments. The data are made available to the public in approximately 170 separate, individually named weekly EXCEL files.

Those EXCEL files do not satisfy the basic requirements of data tables according to basic principles of data science because they are two-column or three-column tables (since April 2023) consisting of arbitrary lists of descriptive items with their associated numerical values, without data structure.

There are insurmountable problems to extract data reliably and accurately from the source. For example, to get the weekly time series of a particular item, say, cumulative total adult doses administered, one would have to open individually about 170 files and lookup the values for the item. Even this theoretically simple task is impossible because item descriptors are inconsistent, as Table 5 shows.

Date	Measure Name	Value
31/07/2022	National - Number of people 16 and over with 1 dose	20,160,781
31/08/2022	National - Number of people 16 and over who have received at least 1 dose	20,203,639
28/02/2022	Age group - 75-79 - Number of people with 1 dose	836,978
28/02/2022	Age group - 75-79 - Number of people fully vaccinated	827,310
28/02/2022	Age group - 75-79 - Population	773,742
28/02/2023	Age group - 75-79 - Number of people who have received at least 1 dose	890,892
28/02/2023	Age group - 75-79 - Number of people who have received at least 2 doses	885,026
28/02/2023	Age group - 75-79 - Population	807,195

Table 5: Sample of Official Data on “Vaccination”.

In Table 5, the first column is the date, which specifies the filename, e.g. “covid-19-vaccination-vaccination-data-31-July-2022.xlsx”, for the data in the second and third column of the first row. The second and third columns of Table 5 are the contents from data files specified in the first column.

The first two rows of Table 5 are from two data files one month apart, the field descriptor has changed from adults “with 1 dose” to adults “who have received at least 1 dose”, without any notification or explanation. It is highly probable they are the same data with their item names arbitrarily changed, since only one or the other item exists in each data file. Such inconsistencies prevent meaningful data extraction.

The next three data rows in Table 5 show the numbers of people vaccinated is greater than the population, which is nonsensical. Moreover, it is unclear what “fully vaccinated” means-e.g., do they include the first boosters?

The last three data rows in Table 5 also show the numbers of people vaccinated is greater than the population, which is nonsensical. In the 75-79 age-group, the number “with 1 dose” is 836,978 and the number “who have received at least 1 dose” is 890,892. Do we conclude that 53,914 have two or more doses? Is this number included in those “who have received at least 2 doses”? These simple questions cannot be answered from the data provided. It is possible that the person entering the data also did not know.

There are many more examples of ambiguity and inconsistency in the data provided by the national health authority. For example, the data entry convention of 14-day lag to register injection would imply inconsistencies [7] in the raw data between persons dosed and total doses administered. From what has been provided, it is impossible to reconstruct a proper relational database which satisfies professional standards of data consistency and integrity.

Extraction of valid data from what is available would be a very hazardous and tedious exercise, prone to errors and inconsistencies. Having to interpret dodgy data leads inevitably to making up data, opening the door to data manipulation and fabrication. This may explain the poor quality of official surveillance data and reports-“garbage in, garbage out”. Importantly, deliberate data fraud in reports cannot be easily proved or ruled out [6,7].

Suffice to say, government agencies collecting data to support and justify government policies [12] has inherent conflicts of interests, which can only be managed if strict measures are in place to ensure data integrity. This has not been the case for Australian COVID-19 data, which have serious flaws due to inaccurate data collection and which are not organized in professional databases, making impossible the extraction of reliable data.

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