



The Silent Toll: Highlighting the Surge in Non-Covid Excess Mortality Amongst the Young and Exploring Potential Causes

March 2024



INTRODUCTION

Imagine if the city of Oxford in England, with a population of about 171,400 people (World Population Review 2024), disappeared from the UK over the course of four years. The UK's own public health data show something very much like this did happen – over 171,000 people more people died than expected between March 2020, and December 2023.

Most of those deaths can be explained by the impact of the COVID-19 Pandemic. However, over 10,000 people died in 2023, with no real explanation – and a worrying number of these are young people, particularly young males, who should be in prime health.

Since July 2020, the UK government, through Public Health England (PHE), has kept track of deaths in excess of historical 5-year averages (Public Health England 2024). The available data have shown thousands of deaths in England and Wales above historical norms (also known as *Excess Mortality*) across 2020 to 2023, even after taking into account the deaths caused by the COVID-19 Pandemic between January 2020 and April 2021.



As of May 2023, the World Health Organisation (WHO) no longer considers COVID-19 to be a public health emergency (World Health Organisation 2023). As such, we would typically expect overall excess mortality to be **negative** after the Pandemic, due to the harsh and unfortunate reality that the oldest, most sick, and most vulnerable, had already succumbed to the disease. But that is not the case. Excess mortality remains stubbornly above zero, and high, even as of the end of 2023.

Recent UK media reports have made much of the fact that excess mortality continues to be above historical averages and have speculated on the causes behind this problem (Jones 2023). Other media reports have trumpeted a change in the methodology for the most recent (and final) PHE Excess Mortality report, that greatly reduced the number of excess deaths registered between March 2020 and December 2023 (P. A. Media 2024).

However, these headlines do not provide any illustration of the true scale and depth of the problem. Our analysis shows serious and unexplained increases in **Non-COVID Excess Mortality (NCEM)** – that is to say, excess deaths not attributable to COVID-19 – across age groups, sexes, and causes of death, in the UK.

Though we confine the scope of our research to UK data, available data from OECD countries show this issue prevails across many developed and developing nations around the world (OECD 2023; Gabel and Knox 2024; Heuveline 2023).

We present the findings of our analysis of UK data here, using only government-released data to analyse trends in NCEM in England and Wales, and argue the nature and scale of the issue urgently warrants further research.

CORE MOTIVATIONS

We are publishing this article because some of the UK's largest life and medical insurance specialists are our core clients in the Healthcare and Financial Services sectors. Our clients rely on mortality models to predict and manage their cash flows from premiums and claims. We also work extensively with providers of healthcare services, who see direct impacts from the rise in demand for access to medical diagnostics and treatments post-Pandemic. Therefore, their business models depend on understanding the root cause of higher-than-expected Excess Mortality for their service planning, cash flow measurements, and operational controls.

As trusted advisors to our clients, we believe we have a duty to highlight such issues, and call for action to understand them better.

METHODOLOGY & DATA

Here, we will take a purely analytical, data-driven approach to point out key trends in NCEM, using only government data. Our source is a publicly available data file (Office for Health Improvement & Disparities 2024), which anyone can download and use to replicate our analyses. We have made no alterations to the core data – our analysis assumes the validity, veracity, and reliability of PHE’s source file – and we are using the latest dataset, as of Feb 20, 2024.

Our file computes NCEM by subtracting the number of deaths with COVID-19 listed as the Cause of Death (CoD) on the death certificate, from the total number of excess deaths (that is to say, the difference between Registered and Expected deaths).

We then divide this number by the total number of expected deaths in any given week. The latter number is from PHE’s own statistical models – we do not compute this. This gives us the NCEM percentage (NCEM %), the key metric for our analysis.

As the data from PHE is on a weekly basis, whereas we seek to analyse the data on a monthly and yearly basis, we then compute weights for each row in the original data sets by calculating the number of expected deaths in any given week, as a percentage of the total expected deaths for that month.

For example, in the week ending 23 April 2021, for Males aged 0-24 years old, PHE’s model expected 62 deaths. For the whole of April 2021, for that sex and age group, PHE’s model expected 298 deaths. Therefore, the weight attached to NCEM in the week ending 23 April 2021, is $62 / 298 = 20.8\%$ of the total expected deaths for that sex and age for all of April 2021.

We repeat this same weighting method for annualised expected deaths, in which we compute the number of expected deaths in the year and divide the number of expected deaths for each explanatory variable by that number.

By applying these weights to the NCEM % data for every week, we sum across these values to calculate total monthly and annual NCEM rates. Using these final computed variables, we then craft a heatmap in Excel, via a Pivot Table with conditional formatting.

“The 2023 figures to date do not compare well with 2019. Mortality to date is about 5.5% higher than it was for the same period in 2019.”

Veena Raleigh, Senior Fellow at the King’s Fund
(O’Dowd 2023)

We go a step further by putting the same core data and calculations into Power BI, to produce the charts shown below. All relevant data and files are freely available by written request.

KEY FINDINGS

Figure 1 shows NCEM % was highest during the Pandemic years (2020-2021) in the middle cohorts (ages 25-49 and 60-84) across both genders. It also shows NCEM % was particularly high among males across all age cohorts in early 2020.

As the UK passed through the Pandemic, and moved into 2022-2023, we see NCEM % spikes across all age groups – but particularly among men, and alarmingly so among men in the 0-24 and 50-64 age brackets.

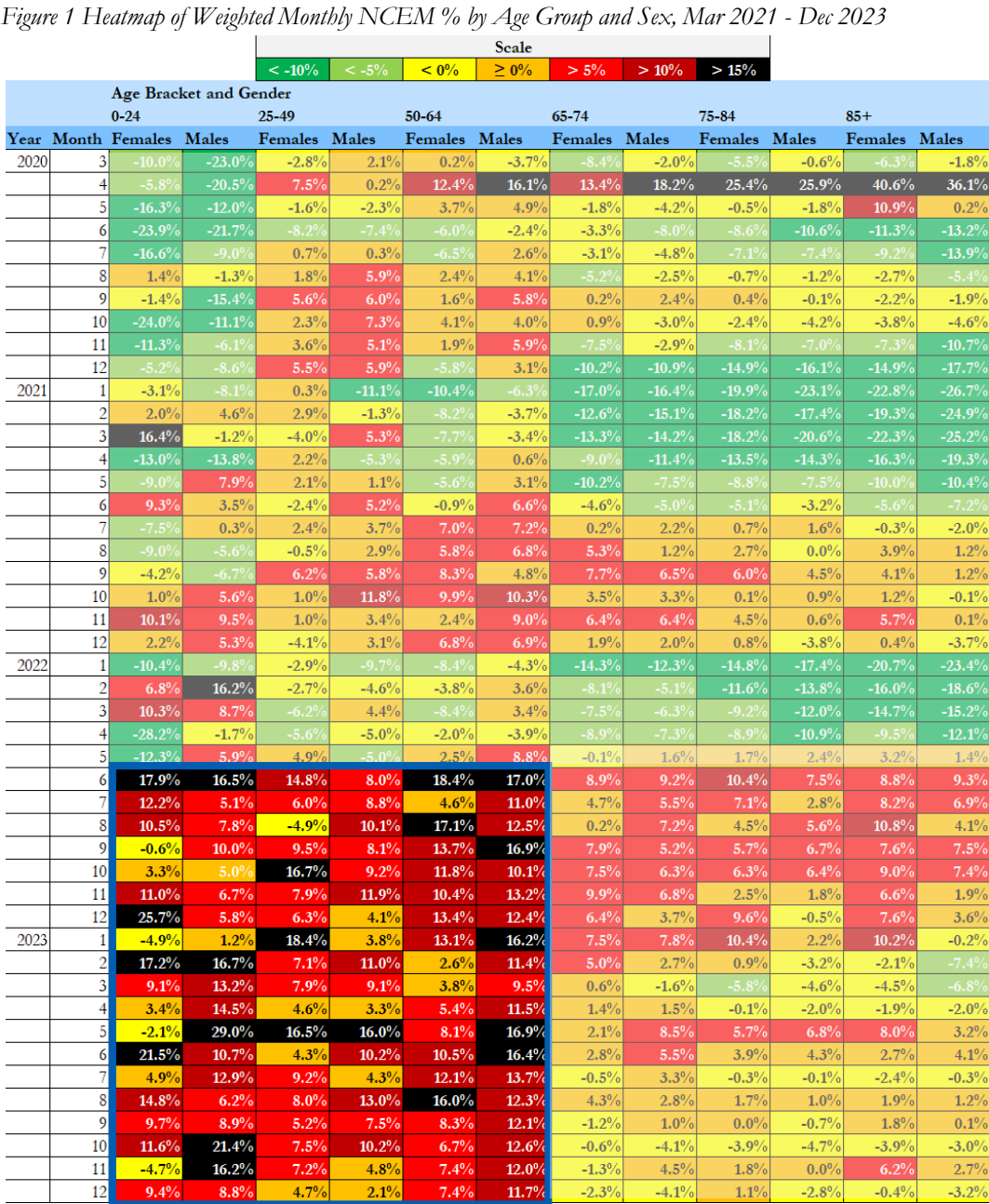
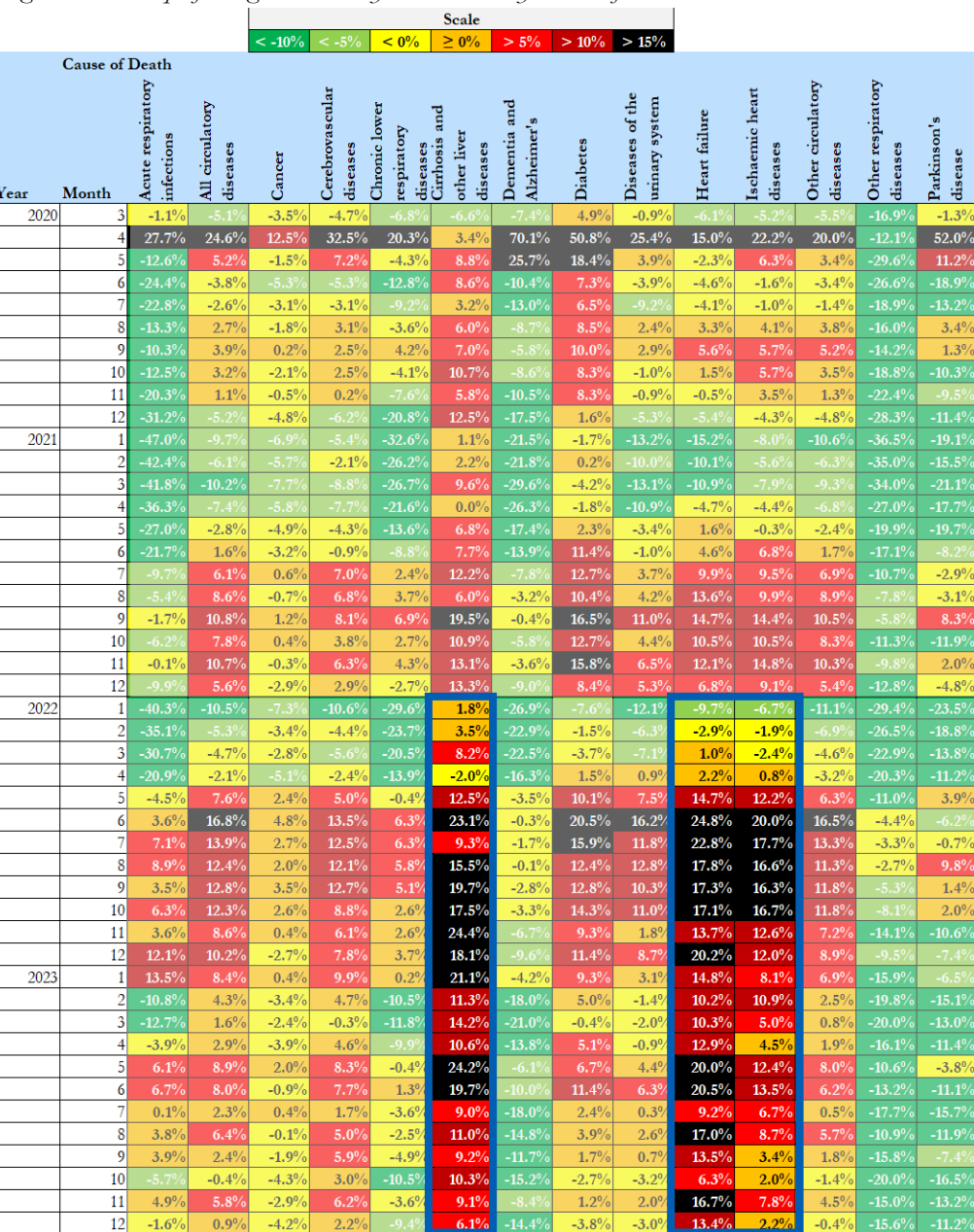


Figure 2 Heatmap of Weighted Monthly NCEM % by Cause of Death, Mar 2021 - Dec 2023

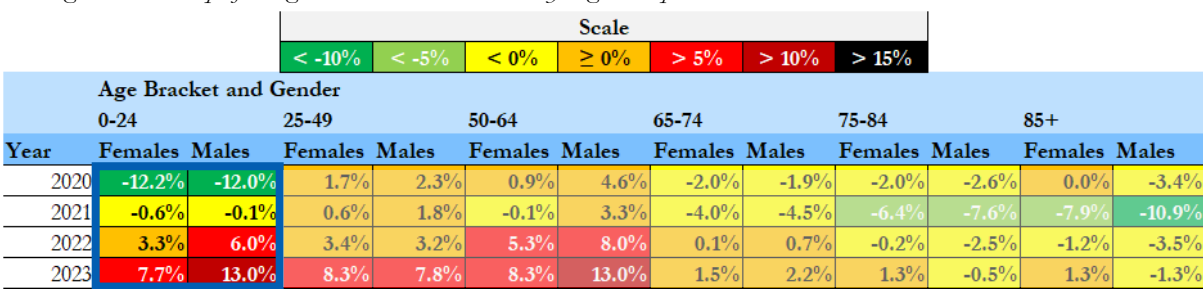


Turning to our heatmaps of Cause of Death (CoD), we see substantial NCEM % increases in heart failure, ischaemic heart disease, and cirrhosis and other liver diseases, from 2022 onward in Figure 2.

Other CoDs appear to have relatively benign NCEM %, particularly acute and other respiratory diseases, cancer, and Parkinson's – indicating excess mortality rates are at or below expectations for these causes.

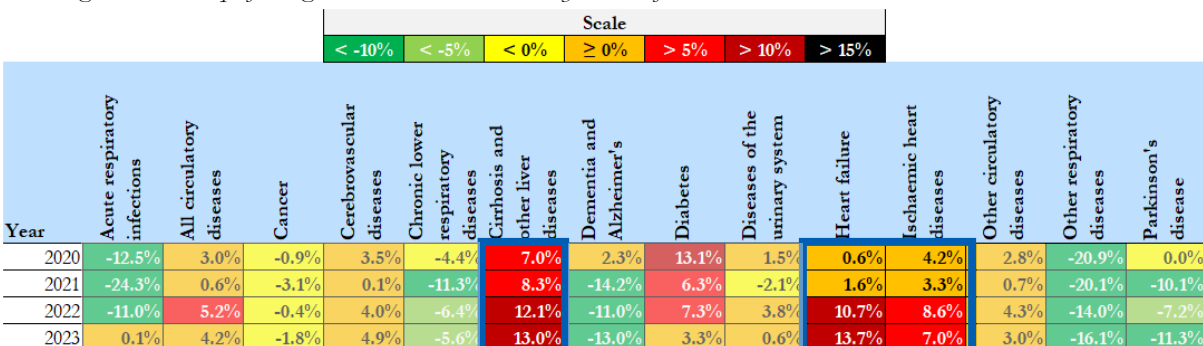
Annualised data bear out the same trends. The annualised view in Figure 3 shows NCEM % among older cohorts is relatively stable for both sexes, and is actually fairly benign across 2020-2023 – but NCEM % among younger cohorts has spiked significantly, without clear explanation, in 2022-2023.

Figure 3 Heatmap of Weighted Annual NCEM % by Age Group and Sex, Mar 2021 – Dec 2023



For CoD data, the annualised view in Figure 4 show heart disease and cirrhosis NCEM % well in excess of historical norms, while other causes are more benign.

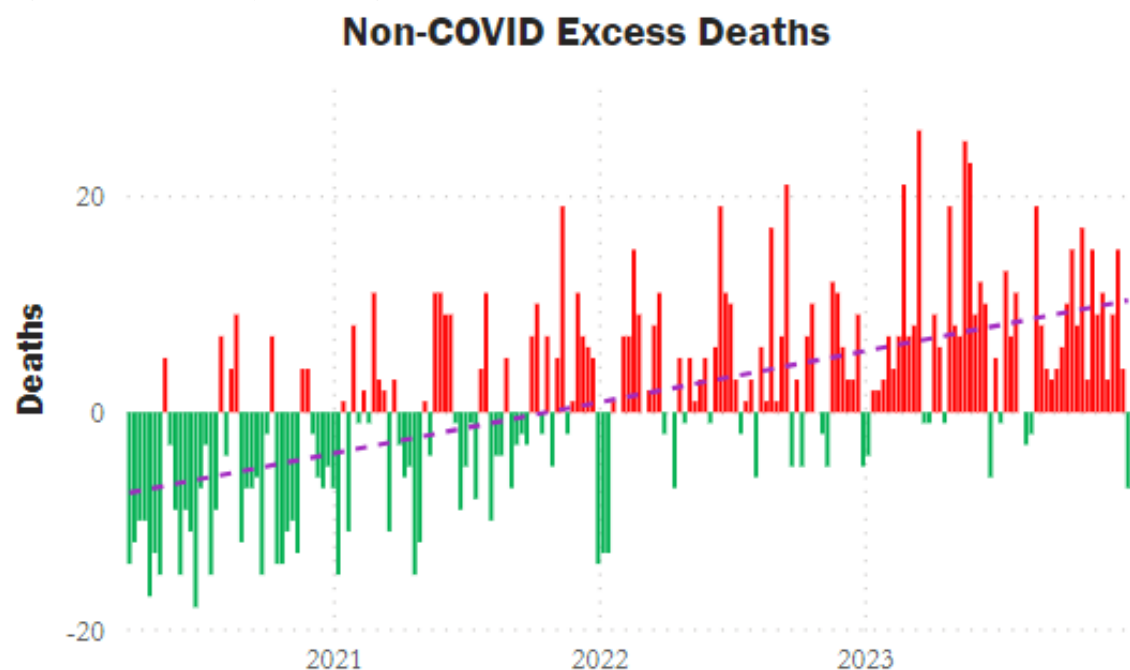
Figure 4 Heatmap of Weighted Annual NCEM % by Cause of Death, Mar 2021 - Dec 2023



Given our analysis, we are able to draw particular attention to the situation with Males in the 0-24 age bracket.

Figure 5 shows NCEM % has trended upward dramatically over time, from an average of -7.1 non-COVID excess deaths in 2020, to +7.5 in 2023.

Figure 5 Actual NCEM for Males Aged 0-24, Mar 2020 - Dec 2023



A SENSE OF SCALE

As percentages can be misleading without context, it is worth putting the total NCEM numbers, rather than percentages, into historical perspective. Over 43,000 people died during the 9 months of the Blitz, with the single biggest attack raid on 10-11 May, 1941, killing 1,436 civilians (Imperial War Museum 2024). By comparison, PHE data show 10,320 more people of all ages and sexes died than expected, for reasons that cannot be attributed to COVID, in 2023.

That is the equivalent of more than 7 repetitions of the single worst night of the Blitz, over the course of a year, in England and Wales alone, due to NCEM.

Looking deeper at the data, the total NCEM for Males aged 0-24 in 2023 was 388 boys and men. By comparison, the total number of deaths from the Boeing 737 MAX 8 crashes of Lion Air Flight 610 in October 2018, and Ethiopian Air Flight 302 in March 2019, was 346 people (Gelles 2019).

Again, in just 2023 alone, England and Wales have experienced a loss directly comparable to the destruction wrought by two of the worst air disasters in recent history – combined. And all of the dead in this particular case are very young males – who should theoretically be in excellent health.

The peculiarity of high and rising NCEM among males in the 0-24 and 50-64 cohorts may come from a wide variety of causal factors, as we outline below. The high and persistent rates of cirrhosis-related NCEM % may indicate substantial increases in alcohol and substance abuse across England and Wales – we have not undertaken any research into this point.

POSSIBLE DRIVERS OF EXCESS MORTALITY

The data we have are limited only to general causes, and we do not seek to step outside the boundaries imposed by these data limitations to come to conclusions not supported by evidence. As such, we restrict ourselves here to pointing out possible causal factors of NCEM. We take no position on their likelihood or veracity, and leave it to the reader to decide which cause(s) contribute the most to NCEM in the UK, particularly among young males. We simply present the arguments, and counterarguments where available, and leave it to the reader to decide which explanations are the most valid.



Public figures have attributed high Excess Mortality rates to a wide variety of causes. These include, but are not limited to:

- **Hypothesis 1 - Long and growing NHS waiting lists:** the NHS is under severe operational pressures, with substantially increased waiting times for ambulances, and record waiting times for non-critical care (Jones 2023; Long 2023). However, to the best of our ability to determine the facts, there is no firm consensus on exactly how much of the NCEM is attributable to NHS issues. Furthermore, the natural rebuttal to this point is that NCEM is higher than expected across the world, including in the USA (Heuveline 2023), which has a privately-led healthcare system and very different demographics. As such, the problems confronting the NHS are unlikely to be the only, or dominant, explanation.
- **Hypothesis 2 - Lifestyle factors such as recent changes to diet and exercise:** there is an argument among some cardiologists that higher rates of consumption of ultra-processed food and sedentary lifestyles have led to higher incidences of heart disease in young people (Cleveland Clinic 2023). A natural counterargument is that poor lifestyle choices, such as bad diet and little exercise, take years to manifest into cardiovascular issues, and the highest ten-year absolute risk for atherosclerotic cardiovascular disease (ASCVD) are in men aged 65-69 years with poor diets and histories of smoking (Kjeldsen et al. 2022). The UK NCEM data, by contrast, show declining NCEM in UK males in that age bracket, and increasing NCEM among young people.
- **Hypothesis 3 - Lingering unknown effects from the COVID-19 virus:** the peculiar nature of the SARS-CoV-2 virus can result in attacks on multiple organs and leaves long-term damage, even among young, low-risk patients (Iacobucci 2020; Silva Andrade et al. 2021). It is possible that NCEM among very young and middle-aged men, may coincide with high NCEM from heart disease, **provided** the deceased were infected with COVID at some point. However, it is also possible that NCEM in the young is a function of the extreme reductions in cardiovascular diagnostic testing caused by the Pandemic (Einstein et al. 2021), which significantly backlogged and delayed early detection and prevention of heart disease.
- **Hypothesis 4 - Long-term impacts of medical interventions during the Pandemic:** there is a possibility that wide-scale medical interventions in 2020 and 2021, had, and continue to have, a major impact on public health. A peer-reviewed study published in the *Journal of the American Heart Association* in 2022 pointed out “[the US] CDC and Food and Drug Administration have determined a causal link is likely between the mRNA vaccines (ie, Pfizer-BioNTech, Moderna) and myocarditis” (Sandeep et al. 2022). Further, a February 2024 peer-reviewed study in *Vaccine* journal of 99 million patients across 10 countries demonstrated clear evidence for statistically significant health risks of at least 50% higher-than-expected observed incidences of myocarditis and pericarditis from both mRNA- and adenovirus-vector vaccines (Faksova et al. 2024).

In fact, the same study shows risks of myocarditis at 6.1 times higher than expected after the second dose of the Moderna mRNA-based vaccine, and a risk of pericarditis of 6.9 times higher than expected after the third dose of the AstraZeneca adenovirus-vector vaccine. The counterargument comes from the authors of that same study, who stated the findings support the view that “the complications of COVID-19 infection far outstrip the complications of having one of these adverse events from a vaccine” (Jiang 2024).

- **Hypothesis 5 - Long-term impacts on health and wellbeing from social interventions:** there is an emerging argument that the lockdowns and other interventions during the Pandemic were costly and ineffective at slowing or stopping the spread of the disease (Bendavid et al. 2021; Herby et al. 2023), and these studies argue the negative effects of these interventions far outweighed the benefits. However, we do not yet have any definitive understanding of the impacts on mental health, drug use, suicides, and other factors resulting from the widespread lockdowns during the Pandemic, that affect overall health (Office of National Statistics 2022).

CONCLUSIONS & CALLS TO ACTION

The UK Government’s own data point to high and persistent NCEM, particularly among very young and middle-aged men, which cannot be easily explained, and must not be quickly dismissed. These trends demand an urgent investigation into the root causes, as well as the correlations involved. We recommend and urge an impartial and substantive investigation into NCEM among young people, and into the rise in NCEM due to heart and liver disease.

This issue is national in scope – the families and loved ones of those who have died suddenly and unexpectedly, from causes not attributable to COVID-19, deserve thorough, thoughtful, and careful answers.

“We cannot definitively say that all – or any – of these issues have contributed to the rise in excess deaths, but what they do reflect is a health system that is not functioning properly.

Increasingly, it is the whole system that is in need of intensive care to ensure this shocking figure does not rise again next year... [each death] represents an individual person with a family and loved ones... [It is] heartbreaking to think that any one could have been avoided.”

Dr. Adrian Boyle, President of the Royal College of Emergency Medicine
(Searles and Butcher 2024)

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Chetan holds over 30 years' experience in private acute healthcare consultancy in the UK and abroad. For the past 20 years, he has supported healthcare payers, providers, and medical devices companies on strategy, operational improvement, and digital transformation projects across the UK, EMEA, US, and Canada. He is deeply passionate about improving health outcomes, safety, and quality of life for patients with chronic diseases.



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