# UK Death Rate Trends for Malignant Neoplasms: Without Specification of Site (Turbo Cancers?)

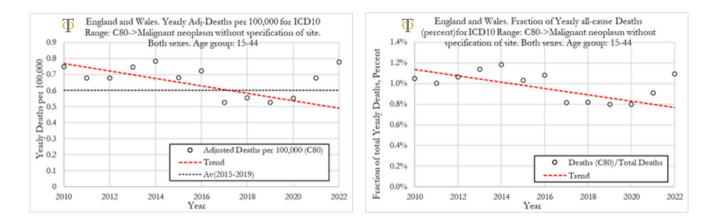
Data Sources: UK Office of National Statistics (ONS) Time Period: Yearly Data, 2010 - 2022



In this Project Brief, we investigate the trends in death rates for ICD10 code C80 (Malignant neoplasm without specification of site), which represents 4.1% of all malignant neoplasm deaths in 2019 for 15 to 44 year-olds in the UK. This analysis investigates the absolute trends in adjusted deaths for a single ICD10 code. We also investigate the fraction of deaths attributable to ICD10 code C80 versus deaths from all other causes.

### Adjusted Death Rates & Deaths from Malignant Neoplasms Without Specification of Site

The Figures below show yearly adjusted deaths for malignant neoplasms without specification of site in England and Wales. The red dashed line shows the average from 2010 to 2019. The dotted line shows the 2015-2019 average death rate. Left: Adj-Deaths per 100,000. Right: Adj-Deaths (number).



#### Summary:

- We can observe that death rates per year from malignant neoplasms without specification of site have been trending lower from 2010 to 2019, with a significant downward slope. In 2010 the deaths rate was about 0.75 per 100,000, in 2019 it was around 0.52 per 100,000, a 30.7% reduction.
- The death rate in 2020 remained almost unchanged at 0.55 per 100,000.
- In 2021 the death rate from malignant neoplasms without specification of site rose to close to 0.7 per 100,000.
- In 2022 the death rate increased again to about 0.79 per 100,000, a level higher than that of 2010.

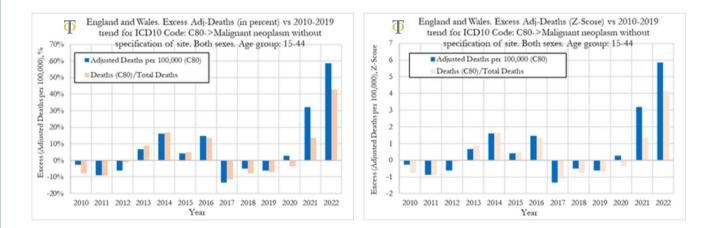


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### Analysis of Excess Adjusted Death Rates from Malignant Neoplasms Without Specification of Site

In the Figure (left) below we can observe that the excess deaths rates from malignant neoplasms without specification of site were close to zero in 2020, then rose to about +32% in 2021 and about +59% in 2022. In terms of statistical significance of the excess deaths, we observe from the Figure (right) below that for cancers without specification of site, in 2020 the Z-score for adjusted death rates was low, which point to low statistical significance. In 2021 the Z-score was about 3.1, which is a strong signal in statistical terms. In 2022 the Z-score was close to 6, which is a very strong signal and indicates that the excess deaths from these cancers are statistically significant deviations from the 2010-2019 trend.

When looking at changes in the fraction of all deaths attributed to cancers without specification of site, we observe that the fraction of deaths from these cancers were slightly below trend in 2020 and at 13% above trend for 2021 (with low statistical significance). In 2022 however, the fraction of deaths for these cancers jumped about 42%, with a Z-score of above 4, indicating very high statistical significance. It appears that deaths from cancers without specification of site as a fraction of all deaths deviated significantly from prior trends in 2022.



#### Summary:

- Our analysis shows that the excess deaths rates from malignant neoplasms without specification of site were close to zero in 2020, then rose to about +32% in 2021 and about +59% in 2022.
- The excess mortality from malignant neoplasm without specification of site in 2021 and 2022 are highly statistically significant with Z-scores of 3.1 and close to 6, respectively. These are very strong signals, in particular for 2022.
- These signals are corroborated by similar findings when measuring rises in the fraction of deaths from malignant neoplasms without specification of site relative to all other deaths with classified causes.

## Support Team Humanity

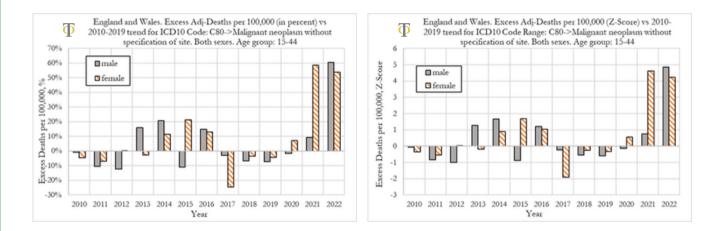
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### Analysis of Excess Adjusted Death Rates from Malignant Neoplasms Without Specification of Site for Males and Females

We now compare excess deaths rates from malignant neoplasms without site specification for males and females aged 15-44, as shown in the Figure below.

We observe that in 2020, both males and females showed no noticeable excess mortality, with respective Z-scores close to zero (low statistical significance). However, in 2021 women suffered much worse outcomes than men, with women experiencing about 60% deviation from trend, compared to about 10% for men. In 2021, the signal strength for men was weak (with a Z-score below 1) but for women the deviation from trend had very high statistical significance (with a Z-score close to 5), as shown in the Figure (right).

In 2022, the signal strengths for both women and men were very strong (with a Z-score of above 4), with the deviation from trend of being 55% for women and 60% for men.



#### Summary:

- When comparing outcomes for men and women, we observe that both had no significant rise in deaths from malignant neoplasms witout specification of site in 2020.
- In 2021, women suffered worse outcomes than men, with men experiencing a 10% deviation from trend, compared to about 60% for women.
- In 2022, both men and women suffered significant rises in these types of cancer, with men experiencing a 60% deviation from trend, compared to about 55% for women.
- Malignant neoplasms of the without specification of site appear to have accelerated in 2022 for both males and females. However, an interesting observation is that these cancers also exploded earlier in 2021 for women, which we believe should also be subject to further research by medical doctors.
- Malignant neoplasms without specification of site are also interesting to investigate because they could be associated with turbo cancers that once identified are already metastasized over different body systems. Notice that these are younger individuals (15-44) that do not undergo routine cancer screenings.