UK Death Rate Trends for Malignant Neoplasms: Breast

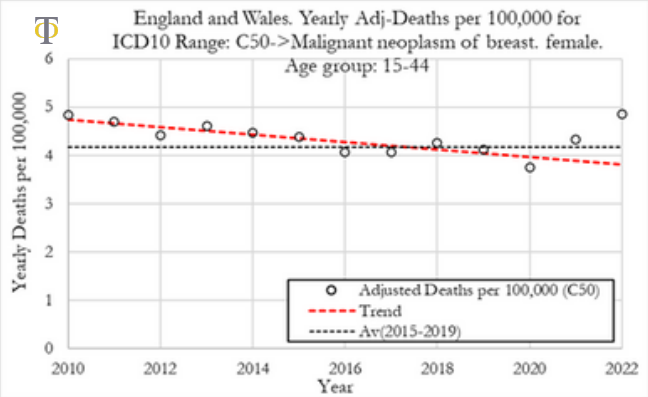
Data Sources: UK Office of National Statistics (ONS)
Time Period: Yearly Data, 2010 - 2022

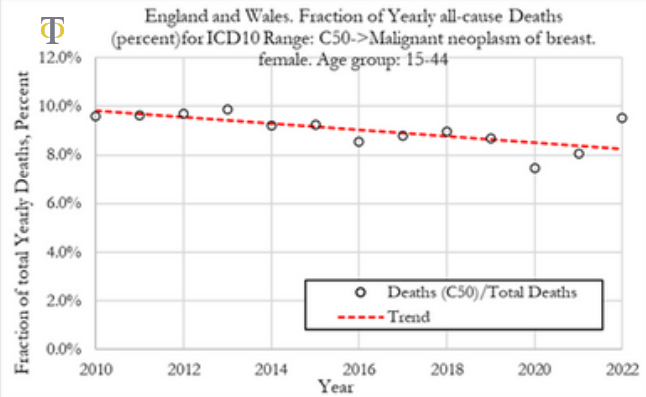
Project Website Full Report

In this Project Brief, we investigate the trends in death rates for ICD10 code C50 (malignant neoplasm of breast), which represents 17.2% 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 C50 versus deaths from all other causes.

Adjusted Death Rates & Deaths from Malignant Neoplasms of the Breast

The Figures below show yearly adjusted deaths for malignant neoplasms of the breast for females 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 of the breast have been trending lower from 2010 to 2019, with a significant downward slope. In 2010 the deaths rate was 4.9 per 100,000, in 2019 it was around 4 per 100,000, a 18.4% drop.
- The death rate dropped in 2020 to about 3.8 per 100,000 and then rose to 4.2 per 100,000 in 2021.
- In 2022 the death rate increased again to about 4.9 per 100,000, a level that is similar to that observed in 2010.
- The death rate in 2022 was about 0.9 deaths per 100,000 above the death rate in 2019.

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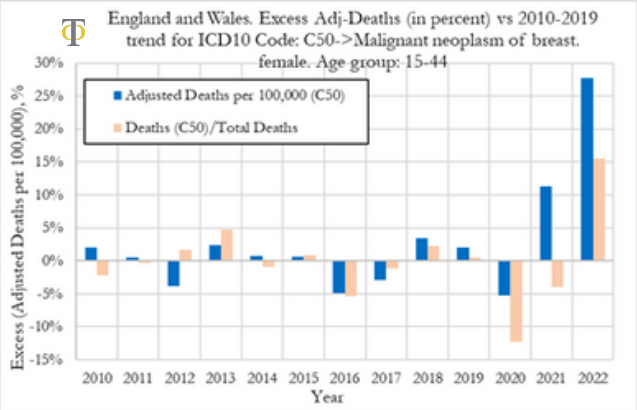
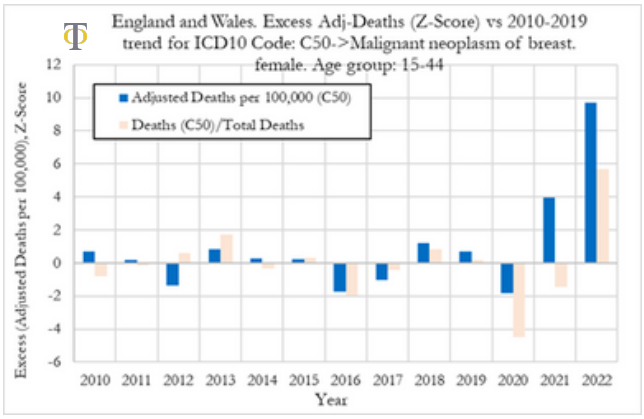
Analysis of Excess Adjusted Death Rates from Malignant Neoplasms of the Breast

In the Figure (left) below we can observe that the excess deaths rates from malignant neoplasms of the breast were -5% in 2020, then rose to about 12% in 2021 and about 28% in 2022.

In terms of statistical significance of the excess deaths, we observe from the Figure (right) that for breast cancers, the Z-score in 2020 was only about -2, which is not a strong negative signal but perhaps something worth investigating in further detail. We speculate that perhaps the Covid-19 pandemic measures, lifestyle changes or misclassification of breast cancer deaths as Covid-19 deaths led to fewer breast cancer deaths.

When looking at changes in the fraction of all deaths attributed to breast cancers, we observe that breast cancer rates were about 12% lower, with a -4 Z-score which points to a strong effect and corroborates the previous observations.





Summary:

- Our analysis shows that the excess deaths rates from malignant breast neoplasms were -5% in 2020, then rose to about +12% in 2021 and about +28% in 2022.
- In 2021, the Z-score for adjusted death rates was close to 4.0 which is a strong signal. In 2022 the Z-score rose to about 9.8, which is a very strong signal and indicates that the excess deaths from breast cancers are statistically significant deviations from the 2010-2019 trend.
- These signals are corroborated by similar findings when measuring rises in the fraction of deaths from malignant neoplasms of the breast relative to all other deaths with classified causes (see full report).

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