Premature Mortality from Cancer in Lincolnshire

Summary

1. According to the Office for National Statistics (ONS), nationally the three most common cancers for men in 2011 remained prostate (25.6%), lung (13.8%) and colorectal (13.6%)\(^1\).
2. The three most common cancers for women in 2011 remained breast (30.7%), lung (11.6%) and colorectal (11.2%)\(^1\).
3. In 2010-12 under 75 mortality rates from all cancers in Lincolnshire were lower than the national rates for males and higher than the national rates for females. Those differences were not statistically significant\(^2\).
4. In the 3 year period 2010-12, cancers were a cause of 42.2% deaths of people aged under 75 in Lincolnshire\(^2\).

**Fig.1 Deaths from all cancers as a percentage of all deaths of people aged under 75, 2010-12 pooled data**

5. Lincolnshire's mortality rates from breast, lung, colorectal and prostate cancers were similar to or lower than the national rates and are declining.
6. There are differences in the mortality rates from the four examined cancers between Lincolnshire’s Clinical Commissioning Group, but those are not statistically significant.

Methodology

In this report we have used Directly Standardized Mortality per 100,000 European Standard Population for people aged under 75 as a measure of premature mortality. Using the standardized rates allowed us to eliminate the effect of differences in age structures when comparing different population sub-groups. Clinical Commissioning Group (CCG) measures are based on the GP registered population regardless of a place of residence.

When examining mortality rates at a CCG level we use 95% confidence intervals as a guide to the interpretation of statistical significance. This is important because the variability increases when smaller numbers in the population are measured. To further eliminate the confounding effect of small numbers we have examined 3 years average rates.
When comparing two rates we only consider a difference to be statistically significant if the confidence intervals of the two rates do not overlap at all.

National, regional and county level data were extracted from the HSCIC indicator portal. CCG rates were calculated by Lincolnshire County Council Public Health Intelligence Team using the Office for National Statistics Primary Care Mortality Database data.

**Breast Cancer**

According to national statistics 1,422 women aged under 75 in Lincolnshire were diagnosed with breast cancer in years 2009-11. In the same period 240 people had died prematurely from the disease\(^3\).

Mortality from breast cancer in Lincolnshire in recent years remained below the national and regional rates and it was decreasing with a similar pace as the rate for England and Wales.

**Fig. 2  Mortality from breast cancer (ICD10 C50), directly aged standardized rates per 100,000 population aged under 75, females, 3 year pooled data**

The directly age standardized mortality rates were the lowest among patients registered with the Lincolnshire West CCG and the highest among patients of South Lincolnshire CCG. The differences between the Lincolnshire CCGs and Lincolnshire and England and Wales were not statistically significant.
Fig. 3 Mortality from breast cancer (ICD10 C50), directly aged standardized rates per 100,000 population aged under 75, females, 2010-12 pooled data


Prostate Cancer

According to national statistics there were 1,258 men aged under 75 in Lincolnshire diagnosed with prostate cancer in years 2009-11. In the same period 131 people had died prematurely from the disease. In recent years the mortality rates from prostate cancer in Lincolnshire remained similar to the national and regional levels. A decreasing trend in mortality rates in Lincolnshire was sharper than observed nationally and regionally.

Fig. 4 Mortality from the prostate cancer (ICD10 61), directly aged standardized rates per 100,000 male population aged under 75, 3 year pooled data

Source: HSCIC Indicator Portal, https://indicators.ic.nhs.uk/
The directly age standardized mortality rates from prostate cancer in 2010-12 were the highest in South Lincolnshire CCG and the lowest among patients registered with the South West Lincolnshire CCG. The differences between all the areas were not statistically significant.

**Fig. 5 Mortality from prostate cancer (ICD10 C61), directly aged standardized rates per 100,000 male population aged under 75, 2010-12 pooled data**

![Mortality from prostate cancer](image)

**Source:** HSCIC Indicator Portal, [https://indicators.ic.nhs.uk](https://indicators.ic.nhs.uk) & PCMD Database

**Lung cancer**

Between 2009 and 2011 893 people aged under 75 in Lincolnshire were diagnosed with lung cancer. During the same time period 662 people had died prematurely from the disease. Rates of premature mortality from lung cancer have been lower in Lincolnshire than in the East Midlands region or England and Wales. A declining trend of mortality has been faster in Lincolnshire than observed nationally and in 2010-12 the mortality rate in Lincolnshire was significantly lower than in England and Wales.
The directly standardized mortality rates from lung cancer were lowest for South Lincolnshire CCG. Those rates were significantly lower than Lincolnshire and national levels as well as Lincolnshire East CCG’s rate.

Colorectal cancer

Between 2009 and 2011, 1,063 people aged under 75 in Lincolnshire were diagnosed with colorectal cancer. During the same time period, 308 people died prematurely from the disease. The mortality rates from colorectal cancer amongst the population of people aged under 75 has been at a very similar level in Lincolnshire compared to national and regional rates.
The directly standardized mortality rates from colorectal cancer were lowest for patients registered with South Lincolnshire CCG and the highest for patients registered with Lincolnshire West CCG. The differences among the CCGs or each CCG and Lincolnshire or England and Wales were not statistically significant.

According to national statistics there were 8679 people aged under 75 in Lincolnshire diagnosed with all types of cancers between 2009 and 2011. In the same period 3035 people had died prematurely from the disease. The rates of premature mortality from all cancers in Lincolnshire were very similar to the national and regional rates and are showing the same slight declining trend as observed nationally.
The directly standardized mortality rates from all cancers were lowest for patients registered with South Lincolnshire CCG and highest for patients registered with Lincolnshire East CCG. The differences among the CCGs or each CCG and Lincolnshire or England and Wales were not statistically significant.

Source: HSCIC Indicator Portal, [https://indicators.ic.nhs.uk/](https://indicators.ic.nhs.uk/) & PCMD Database
Correlation

In order to investigate the link between premature mortality from cancer and obesity we have used the latest national adult obesity prevalence data for local authorities⁸ and the mortality from all cancers data from the Health and Social Care Indicator portal.

It was found that nationally, there is a positive statistically significant correlation between mortality from cancer (under 75, all cancers) and the estimated prevalence of obesity at Local Authority (LA) level. This correlation is not as strong as one between premature mortality from cancer and deprivation measured by an average IMD score at local authority level⁹. A higher IMD score indicates a higher level of deprivation, based on a number of factors such as employment, level of education, health and levels of crime within an area.

Nationally, premature mortality from lung cancer shows the strongest correlation with deprivation at a LA level, this may be due to higher smoking rates being traditionally much higher in poorer, more deprived areas. On the other hand, mortality form breast and prostate cancer show no correlation with the deprivation levels. These are findings which could be looked at further in future research.

Conclusions

- Under 75 mortality from cancer in Lincolnshire is generally at a similar level to the national and regional rate.
- Mortality from lung cancer in 2010-12 was significantly lower in Lincolnshire than nationally.
- The differences in mortality rates among the Lincolnshire CCGs are not statistically significant; however there is some evidence that the mortality from lung cancer in South Lincolnshire CCG is lower than the county average rate.
- Nationally there is a strong correlation between mortality form cancer and the level of deprivation, but the strength and existence of this association varies depending on the specific disease types.

References

2. HSCIC Indicator Portal, https://indicators.ic.nhs.uk/, Indicators P00342 and P00376
4. HSCIC Indicator Portal, https://indicators.ic.nhs.uk/, Indicators P00619 and P00626
5. HSCIC Indicator Portal, https://indicators.ic.nhs.uk/, Indicators P00503 and P00510

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