

# EXPLORING PATTERNS OF DEPRIVATION FOR PEOPLE LIVING WITH CANCER

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**Public Health England**

## 20-year cancer prevalence in the UK

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### Background

An estimated 2.5 million people are living with cancer in the UK which is predicted to rise to four million by 2030.<sup>1</sup> The Macmillan-NCIN UK Cancer Prevalence Project aims to provide the most granular understanding of the cancer population – here we explore variations by deprivation.

The Marmot review highlighted how social inequalities and deprivation often determine health inequalities in later life.<sup>2</sup> Cancer incidence is higher in the most

deprived group for many cancers (such as lung, cervical, stomach and bladder cancers). However, it is higher for the least deprived groups for certain cancers such as skin and breast cancer.<sup>3</sup>

Although patient needs and experiences vary over time, people from the most deprived groups are more likely to feel the economic burden of a cancer diagnosis. They are more likely to be younger, economically inactive, less skilled or from lone-parent or single households.<sup>4</sup>

### Methods

We used anonymised datasets provided by each of the four national cancer registries in the UK to the National Cancer Data Repository, hosted by Public Health England. We identified people diagnosed with cancer between 1991 and 2010<sup>5</sup> and who were still alive on 31 December 2010.

Counts are based on the first diagnosis of a specific cancer within the 20-year period.<sup>5</sup> Deprivation groups refer to population-based quintiles based on a person's postcode at the time of diagnosis.<sup>6,7</sup>

### Results

#### (i) People living with cancer from the most and least deprived groups

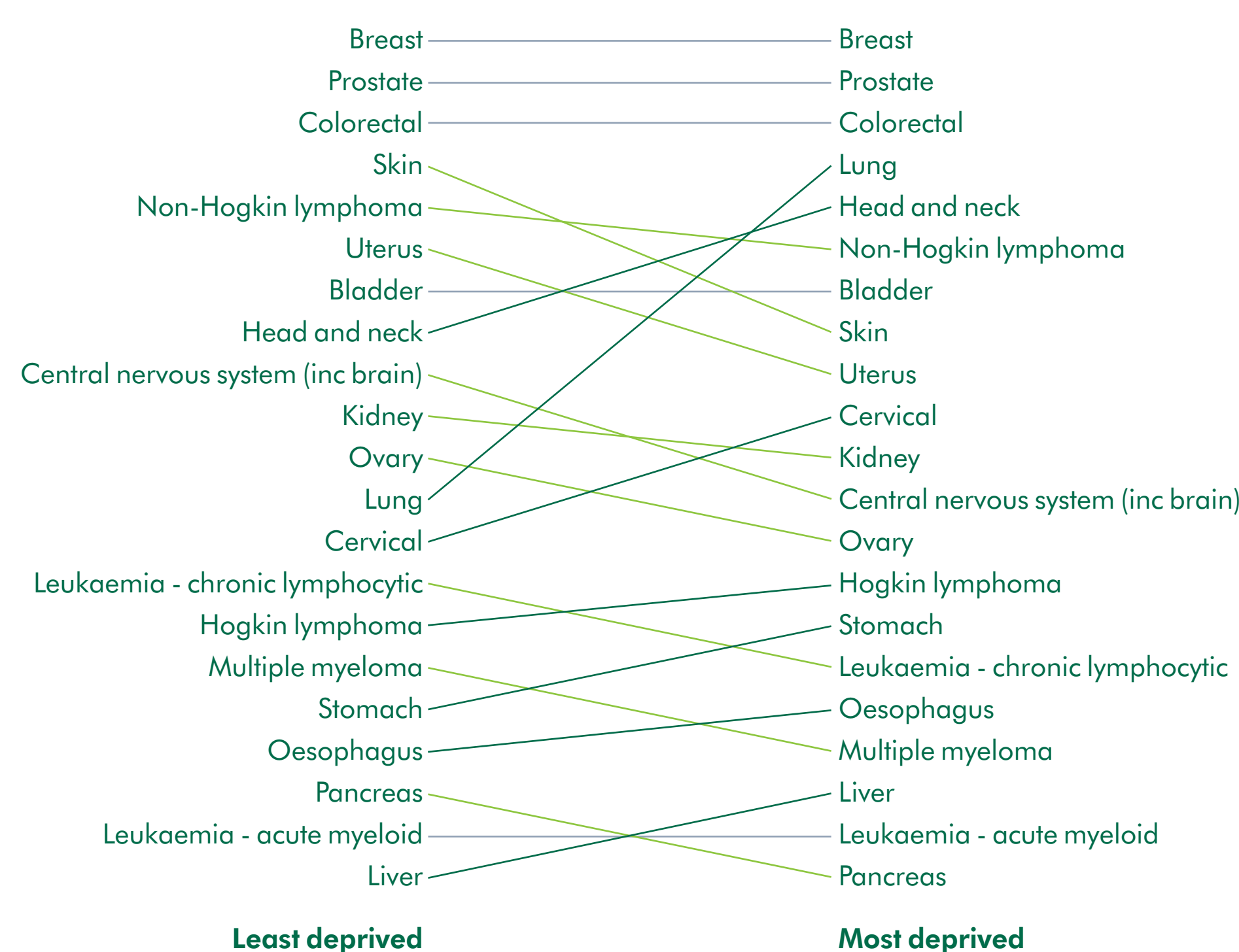
In each of the UK nations, it is the least deprived group that constitutes the highest proportion of cancer survivors for the 20-year period across most cancer types.<sup>8</sup> This is likely because this group has a higher incidence of better-prognosis cancers such as breast and skin cancer (malignant melanoma)<sup>9</sup>, and the most deprived group has a higher incidence of poorer-prognosis cancers.

The most prevalent cancers for all people – and for the least deprived group – in England, Scotland and Northern Ireland are breast, prostate, colorectal and skin cancer<sup>10</sup> (except in Wales where bladder cancer instead of skin cancer is in the top four<sup>11</sup>).

However, for the most deprived group, lung cancer is the fourth most prevalent cancer while skin cancer becomes the eighth most prevalent (figure 1).

#### Figure 1

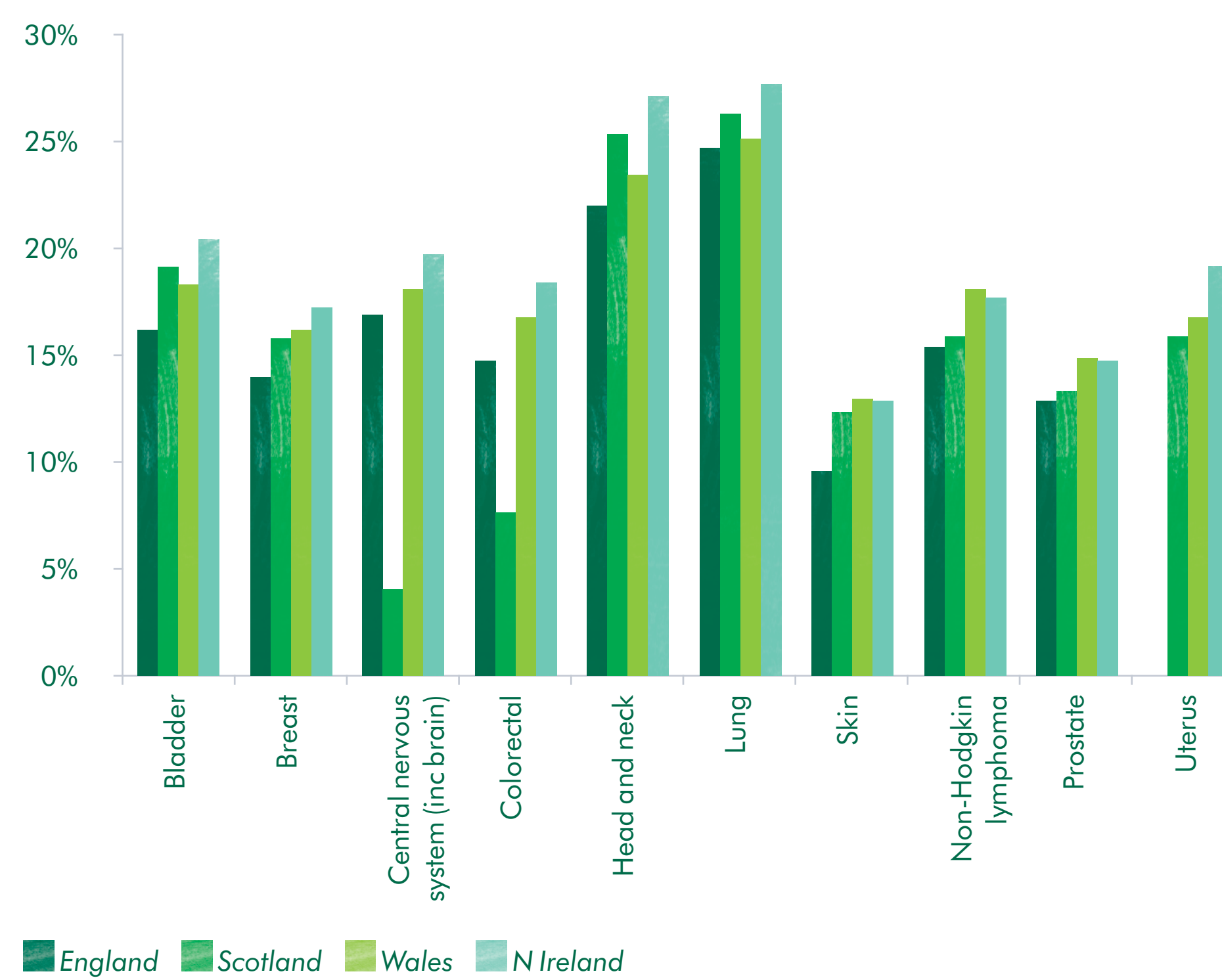
The most common cancer sites in the UK diagnosed in the least deprived and most deprived groups for people living with cancer, ranked by number of people, 2010



about twice as likely to come from the most deprived group than those living with skin cancer.

#### Figure 2

Proportion of people living with cancer in the most deprived group by common cancer type for the 10 most prevalent cancers, for England, Scotland, Wales and Northern Ireland, 2010



As expected, cancers that had the highest proportion of survivors from the most deprived group (such as lung cancer) correlate to the cancers often most associated with higher deprivation at diagnosis<sup>3</sup>, although there was some variation by UK nation.

#### (ii) Short-term and long-term survivors (England, Northern Ireland and Wales only<sup>7</sup>)

In England and Wales, long-term survivors of eight of the UK's 10 most prevalent cancers are more likely to be from the least deprived than most deprived group. (Long-term survivors here are counted as being between 10 and 20 years from diagnosis.) In Northern Ireland, long-term survivors of six of the UK's 10 most prevalent cancers are more likely to be from the least deprived than most deprived group.

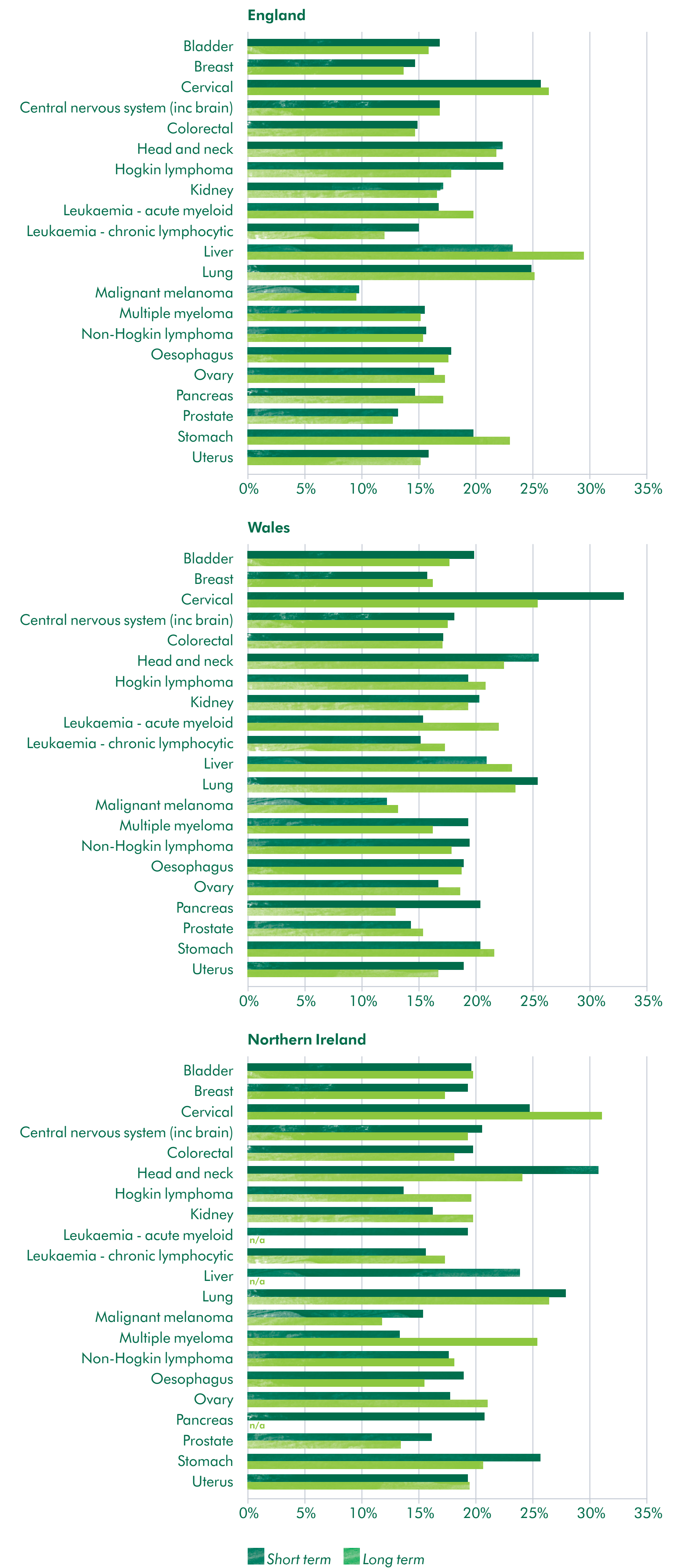
Long-term survivors with lung or head and neck cancers (generally poorer prognosis cancers) were more likely to be from the most deprived group in England and Wales. This reflects the higher incidence of these cancers among the most deprived group.<sup>3</sup> In addition to these cancers, in Northern Ireland, long-term survivors with cancer of the bladder or central nervous system (including brain) were more likely to be from the most deprived group.

For most cancer types, the proportion of survivors from the most deprived group decreases slightly from short-term survivors (between zero and two years since diagnosis) to long-term survivors. Though for a few cancers in England and Wales (such as liver, stomach and ovary cancers, and acute myeloid leukaemia) the proportion of most deprived survivors is actually higher in long-term survivors (figure 3). However, this does vary between each nation and by cancer type.

Poor survival is often associated with the most deprived group. Despite this, in England, Wales and Northern Ireland there are more long-term lung cancer survivors from the most deprived group (1,531 survivors in England, 83 in Wales and 53 in Northern Ireland) than the least deprived group (1,008 survivors in England, 55 in Wales and 32 in Northern Ireland). This is largely due to a higher historic incidence of lung cancer in the most deprived group.

#### Figure 3

Proportion of short-term and long-term survivors in England, Wales and Northern Ireland from the most deprived group by nation, 2010



People living with skin cancer are approximately two to three times more likely to be in the least deprived than the most deprived group. In England, 25,369 people with skin cancer were from the least deprived group while the figure for Wales was 1,334, Scotland 2,008<sup>7</sup> and Northern Ireland 773. The figures for the most deprived group were 8,761 in England, 662 in Wales, 943 in Scotland and 365 in Northern Ireland.

In the most deprived areas across England, Wales, Scotland and Northern Ireland, there are about 68,000 women living with breast cancer. In addition, there are 36,000 men living with prostate cancer, 30,000 people living with colorectal cancer and approximately 14,000 people living with lung cancer.

There are variations in cancer prevalence by deprivation quintile across the UK. However, those living with head and neck cancer or lung cancer were most likely to come from the most deprived group (figure 2).

In England, people living with cervical, liver or lung cancers are almost three times as likely to come from the most deprived group compared to those living with skin cancer. People living with head and neck, Hodgkin lymphoma or stomach cancers are twice as likely to be from the most deprived group as those with skin cancer.

In Scotland<sup>7</sup> and Northern Ireland people living with cervical, head and neck, or lung cancers are about twice as likely to come from the most deprived group than those with skin cancer. In Wales, people living with cervical or lung cancer are

### Conclusions

While this analysis highlights variation by deprivation, caution should be applied when looking at some patterns. This is due to small numbers, especially relating to long-term survivors of some poor prognosis cancers. The figures presented are based on a first-specific tumour count. This means that some people, who have had more than one cancer diagnosis of a different site within the 20-year period, could be counted more than once. Caution should be taken when comparing deprivation between nations due to differences in methodology across each nation's deprivation

measure. It should also be remembered that deprivation is an area-based measure allocated at the time of diagnosis, and there could be scope for misclassification over time. This means that it does not necessarily account for patient movement between geographical areas that takes place after their cancer diagnosis.

Despite this, the analysis highlights that there are substantial numbers of people with a cancer diagnosis living in some of the most deprived areas in England, Scotland, Wales and Northern Ireland.

Deprivation variations between those living with cancer are reflective of incidence and survival trends among the most and least deprived groups. This analysis also shows that for cancers such as lung and stomach cancers, the number of long-term survivors from the most deprived group is higher than those from the least deprived group. It is these people who may struggle to cope with the economic burden of cancer, perhaps years after diagnosis.

#### Acknowledgements

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#### References

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- National Cancer Intelligence Network. *Cancer by Deprivation in England Incidence, 1996-2010*.
- Based on internal analysis of the English Indices of Deprivation 2010 (Income Domain)
- Except for Northern Ireland which is based on those diagnosed between 1993 and 2010
- England is based on Income Domain of the Index of Multiple Deprivation 2000, 2004, 2007 and 2010 (Source: DCLG). Wales is based on Income Domain of the Welsh Index of Multiple Deprivation 2000, 2005, 2008 and 2011 (Source: Welsh Government). Scotland is based on Overall Scottish Index of Multiple Deprivation 2004, 2006 and 2009 (Source: The Scottish Government). Northern Ireland Deprivation is based on Income Domain of the Northern Ireland Multiple Deprivation Measure 2010 (Source: Northern Ireland Statistics & Research Agency).
- In Scotland, those diagnosed more than 10 years before 2010 could not always be assigned a

- deprivation quintile. The Carstairs and Morris Index is recommended for more historic analyses. Deprivation analysis presented for Scotland is for 10-year prevalence only and is therefore not suitable for long-term survivors' analysis.
- The Macmillan-NCIN Work Plan: UK Cancer Prevalence Project. Outputs including national data briefings for England, Scotland, Wales and Northern Ireland. June 2015.
- Breast cancer figures relate to females only. Skin cancer here refers to malignant melanoma.
- The Macmillan-NCIN Work Plan: UK Cancer Prevalence Project. 20-year cancer prevalence in the UK: An increasingly granular understanding of the cancer population. June 2015.
- Bladder figures for Wales will include some uncertain behaviour (D41.4) and in-situ bladders (D09.0) pre-2007. Other registries implemented this coding change earlier than Wales, hence the higher number of cases compared to other UK countries.

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