THREE CANCER GROUPS

Explaining the different complexity, intensity and longevity of broad clinical needs

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Background

In July, recommendations were laid out in the Cancer Strategy for England[1] which included Macmillan's exploratory work framing three groups of cancer. It aimed to generalise the 200+ cancers into groups to facilitate service design. We have now further developed our work in this area to present an updated model.

Methods

Following on from McConnell et al[2], we reviewed data on prevalence (2010 with 20-year follow up), incidence (2013), survival, staging and mortality (2013), representing the UK. There is little historical staging data. So prevalence by stage is crudely described based on stage at diagnosis, survival rates, and comparison of prevalence to cancer types with similar survival profiles.

We also analysed cancer-related inpatient hospital episodes from Macmillan's *Routes from Diagnosis* (RfD) programme.[3] The first investigation was into people who survive one to five years after breast cancer diagnosis (19% of the breast cancer cohort). The second was for men who survive one to seven years after prostate cancer diagnosis (32% of the prostate cancer cohort). These cancers were selected as the RfD data includes patients in more than one of our three groups.

Results

We describe the three groups using survival rates for different cancers (figure 1).

- The longer-term survival group includes cancers where 90% or more people live one year or more after a cancer diagnosis. More than 80% go on to live five years or more and many go on to live at least a decade.
- The shorter-term survival group includes cancers where fewer than 50% of people survive a year.
- The intermediate group experience moderate survival (one-year survival is over 50% but less than 90%).

Figure 1
*Variation in survival rates between the three cancer groups*

One-year survival: Higher confidence / Lower confidence
Five-year survival: Higher confidence / Lower confidence
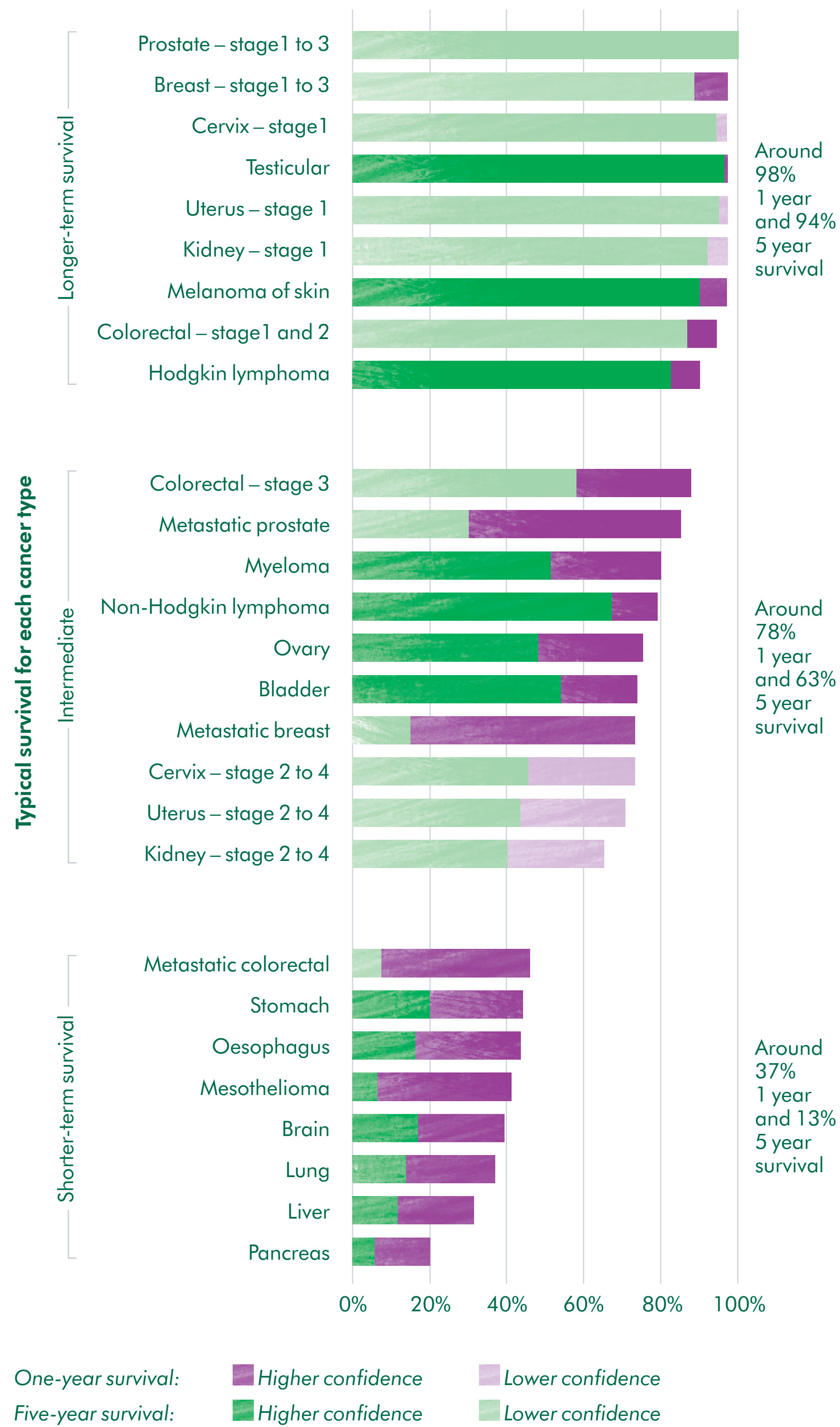
We have higher confidence when the survival rates are based on England-level official statistics[4] or England-level data from 2012[5]. We have lower confidence when the data is based on smaller populations (Northern Ireland[6] or the former Anglia Cancer Network[7] or for kidney cancer when it is based on renal cell cancer only[8]).

Figure 2 shows the sizes of the groups. We classify that the majority of people living with cancer have a cancer type in the longer-term survival group, but significant minorities of people have cancer types in the shorter-term survival and the intermediate survival groups (around 10% and 20% respectively).

Figure 2
Proportion of people in each of the three cancer groups, estimates for the UK
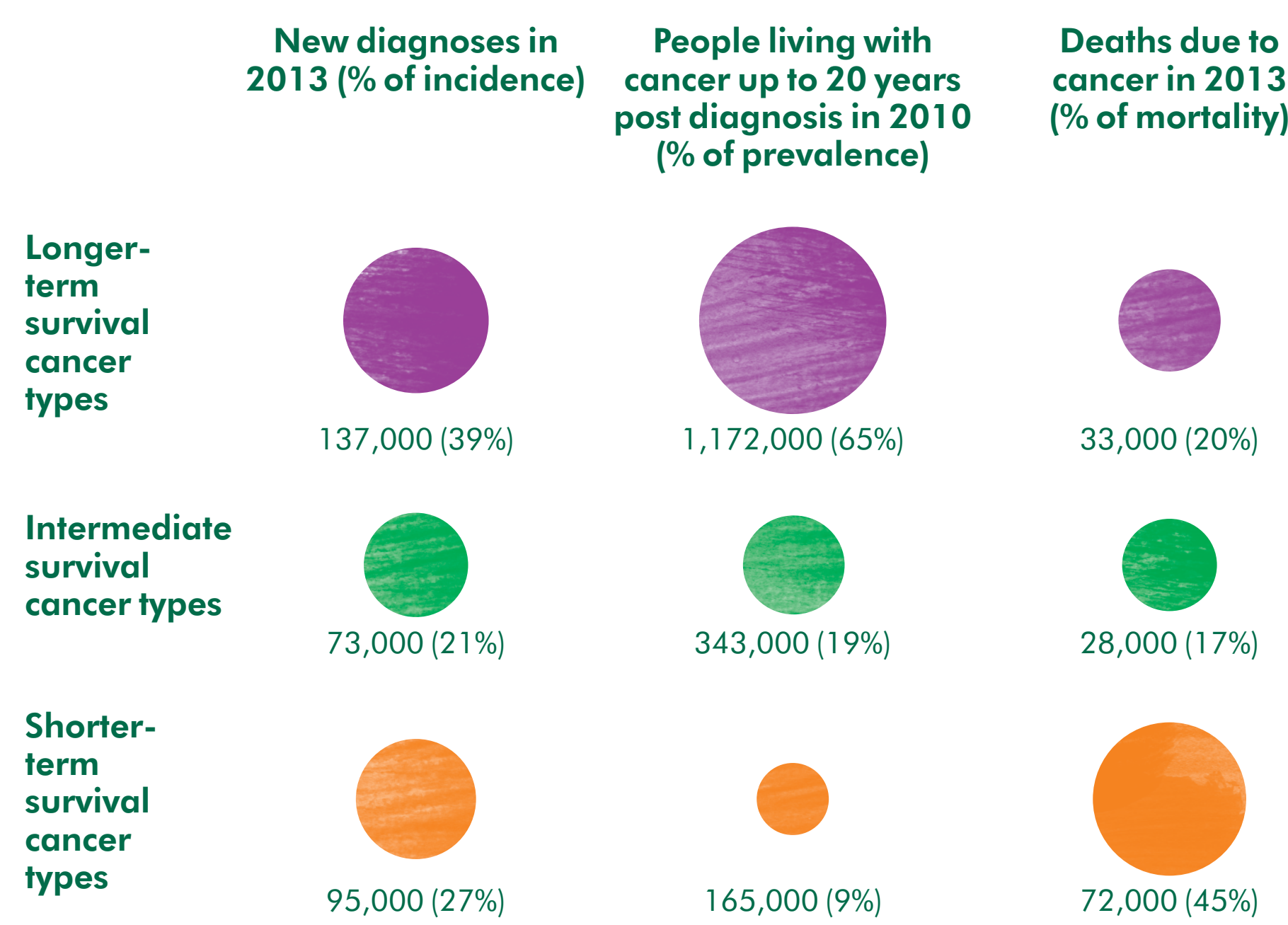
Numbers do not add up to 100% as we have excluded leukaemia, head and neck cancer, ill-defined and some rarer cancers in the categories as the highly diverse cancer pathways makes them difficult to stratify. These excluded cancers made up 13% of incidence, 7% of prevalence and 18% of mortality.

Figure 3
Inpatient cancer-related episodes for those surviving between one and five years after a breast cancer diagnosis in 2004 in England
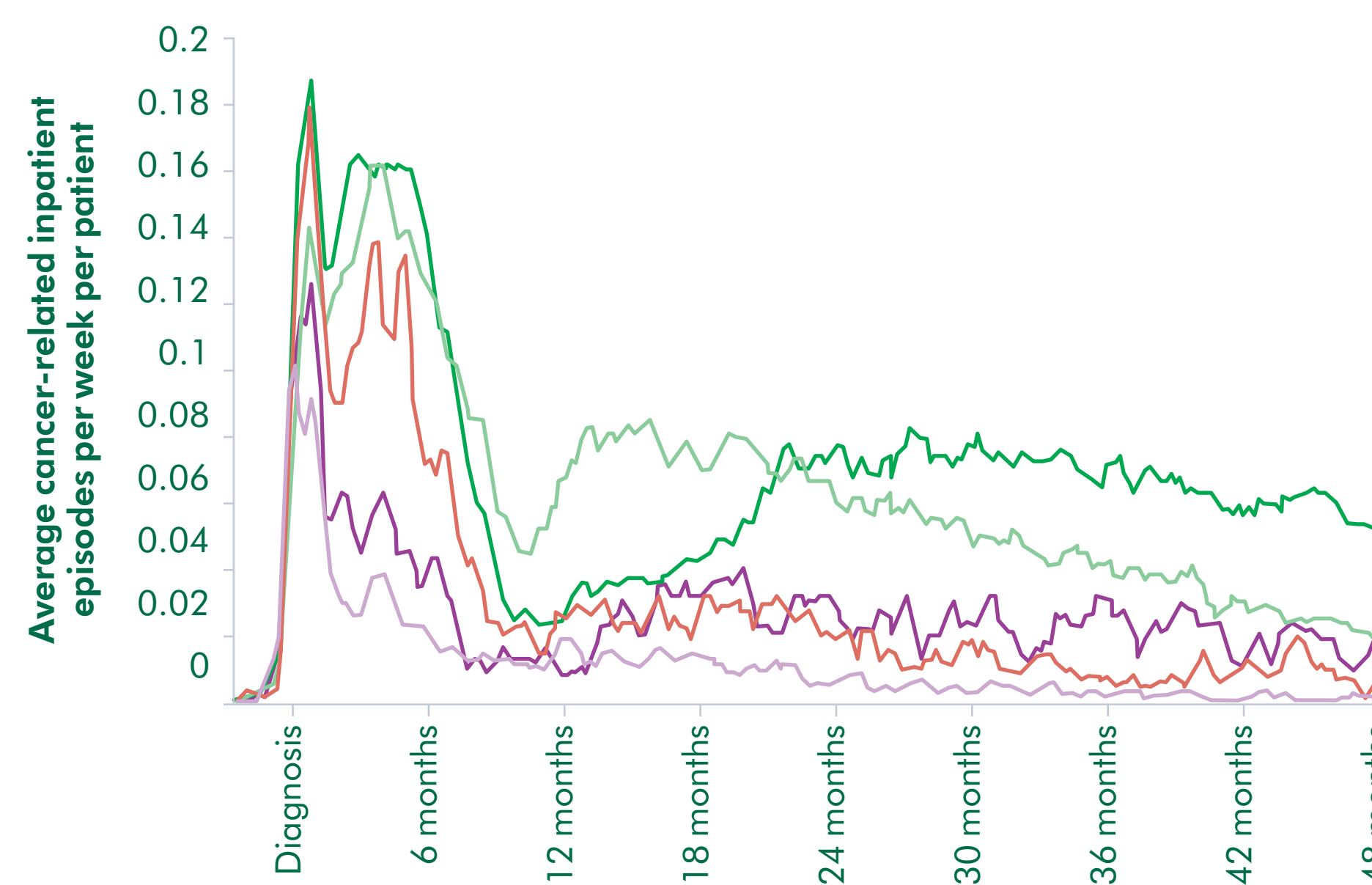
— Distant and non-lymph node metastases and other cancer complications
 (diagnosis n=1,416, 24 months n=1,185, 48 months n=393)
— Distant and non-lymph node metastases and no other cancer complications
 (diagnosis n=1,544, 24 months n=960, 48 months n=236)
— Axillary and upper limb metastasis (diagnosis n=352, 24 months n=241, 48 months n=76)
— No metastases but other cancer complications
 (diagnosis n=413, 24 months n=308, 48 months n=104)
— No metastases and no other cancer complications
 (diagnosis n=1,279, 24 months n=881, 48 months n=266)

Figure 4
Inpatient cancer-related episodes for those surviving between one and seven years after a prostate cancer diagnosis in 2004 in England
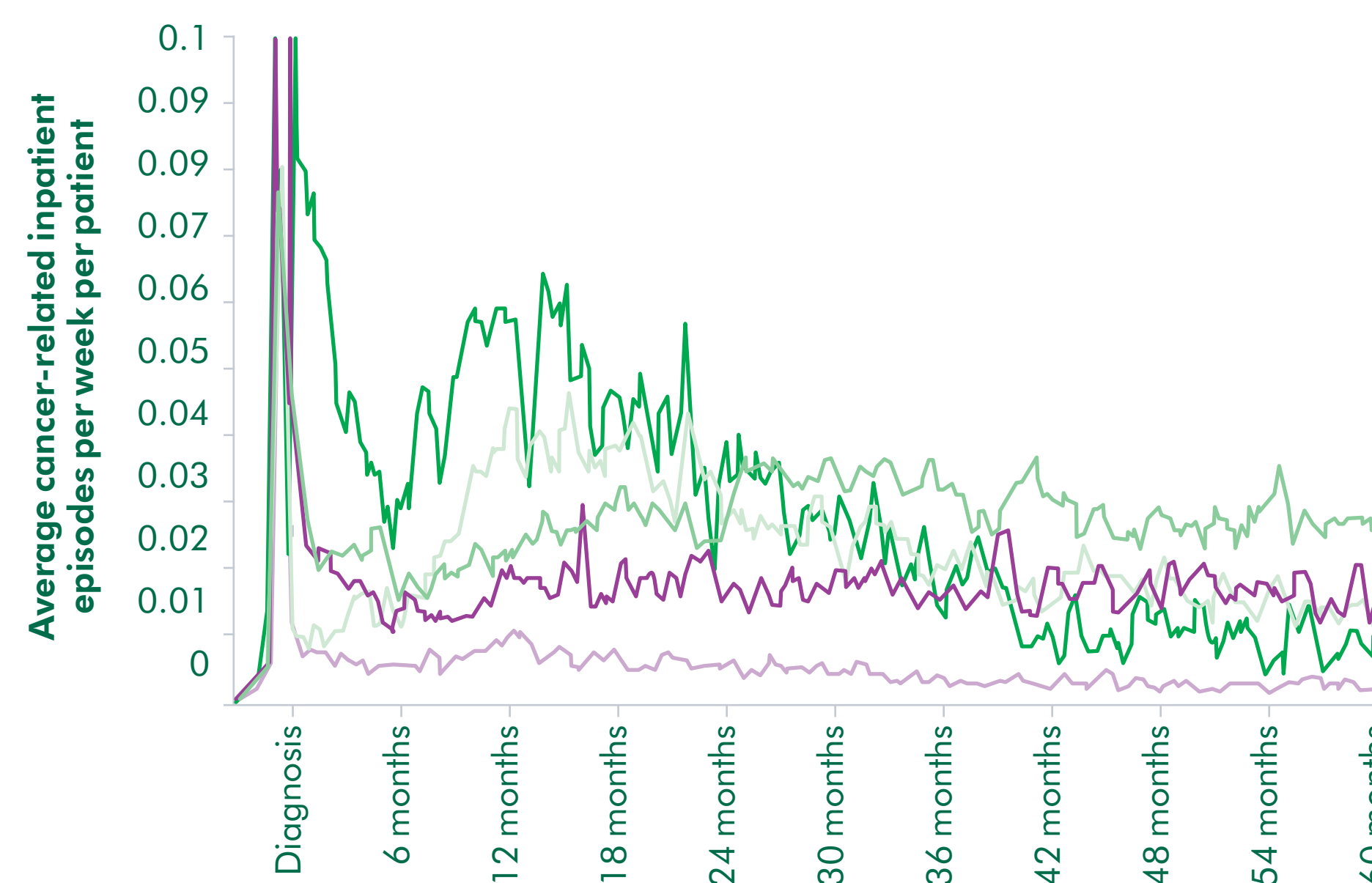
— Metastases presented (diagnosis n=462, 24 months n=249, 60 months n=46)
— Metastases developed and other cancer complications
 (diagnosis n=1,885, 24 months n=1,601, 60 months n=557)
— Metastases developed and no other cancer complications
 (diagnosis n=1,381, 24 months n=854, 60 months n=211)
— No metastases but other cancer complications
 (diagnosis n=1,818, 24 months n=1,595, 60 months n=661)
— No metastases and non-cancer complications
 (diagnosis n=3,270, 24 months n=2,461, 60 months n=815)

The chart focuses on the first 48 months post diagnosis for breast cancer and the first 60 months for prostate cancer. This is because, after this point, there were not enough people alive in each cohort to robustly calculate an average number of episodes for each living patient.

For full descriptions and definitions of the survival groups, please see the Routes from Diagnosis report.[3]

Figure 3 shows the hospital activity for people with breast cancer. We present this as one aspect of clinical need. There is an initial spike of inpatient treatment post diagnosis for everyone. After this period, those with distant and non-lymph node metastases, who generally fall into the intermediate group (shown in green) have consistently elevated hospital activity. This is higher than those with no metastases (shown in mauve) or only axillary and upper-limb metastasis (shown in red), who are classified into the longer-term survival group. This suggests the intermediate group generally experience more sustained hospital activity than the longer-term survival group.

Prostate is another example – again there is a concentration of activity around diagnosis. However, after this period, for some groups of patients there is a tail of hospital activity continuing over a number of years (figure 4). Those with metastases within 90 days of diagnosis (presented) or subsequently (developed), who generally fall into the intermediate group (shown in green), have elevated hospital activity in the first two years after diagnosis. After this point it becomes more complicated. Those who have a recurrence or second primary cancer (cancer complications) also have as high a level of sustained cancer related activity (shown in dark mauve). However, this is despite their falling into the longer-term survival group.

Conclusions

The cancer group a patient is in influences their hospital activity. We believe this is indicative of a wider picture where people with intermediate cancers often experience relapse or recurrence. This can mean that they face an especially uncertain future with what appears to be often ongoing complex care needs. This group may need a balance of acute intervention, self management and chronic illness management.

Those in the longer-term survival group may have fewer hospital admissions directly related to their cancer but many are still living with the consequences of cancer and its treatment. Some still face recurrence or second primary cancer years after primary treatment. This means self management with appropriate support can be important, alongside a focus on impact of recovery and late effects, and reducing unnecessary over-treatment.

Early diagnosis and good treatment or palliative care is essential in supporting people with shorter-term survival cancer types.

Survival is improving but 30% of cancer incidence is still in cancers with typically poor survival and 20% in intermediate survival cancers. However, the differences are not just about length of life but differences in needs. Here we have explored hospital activity as a key aspect of need, which has more readily available data. That said, needs for people living with cancer go well beyond acute care. It is important to understand the full extent of the needs of people living with cancer and how care can be coordinated to best meet these. If we are to do this, we require more information on outpatient activity as well as activity across primary care, social care and community sectors.

Every person with cancer is different and support should be tailored to individual needs. However, we believe the three groups provide a broad framework and narrative to explain the complexity, intensity and longevity of needs for people with different cancer types.

References
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