PATIENTS DIAGNOSED WITH METASTATIC BREAST, LUNG AND PROSTATE CANCERS ON PRESENTATION

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Background

'Routes from Diagnosis' (RfD) links and analyses routinely collected cancer registry and HES data to map out the cancer journey for whole cohorts of patients up to 7 years after diagnosis. This approach brings together information on survival, morbidities, activity, cost and demographics, painting a detailed picture of survivorship.

Applying these methods to the three most common cancers – breast, lung and prostate – we aimed to investigate the characteristics of patients presenting with metastases at diagnosis.

Method

Clinical experts and data analysts collaborated to map out cancer journeys for patients diagnosed with breast (n = 26,926), lung (21,634) and prostate (27,213) cancers in England in 2004.

Coding of stage (and therefore metastases) at diagnosis was poor, with only 67.3%, 23.1% and 20.6% coverage of NCDR stage variables for breast, prostate and lung cancer respectively in the RfD data set. As it is common for metastases to be coded as new primary tumours, rather than using only 'metastatic' ICD-10 codes to identify metastases, all instances of ICD-10 codes C77-79 (malignant neoplasms of ill-defined, secondary and unspecified sites) and tumours coded at common metastatic sites for breast, prostate and lung cancer (lungs (C34), liver (C22), bones (C40-41), adrenal gland (C74) and brain (C70-72)) were coded in the RfD dataset as metastases where patients already had a primary breast, prostate or lung tumour in NCDR. HES data is used for the coding of metastases and captures significantly more metastases than using NCDR stage at diagnosis.

The team identified a distinction between patients presenting with and subsequently developing metastases, based upon the point in time at which a diagnosis of metastatic cancer was recorded. A patient is defined as presenting with metastases if their first metastatic event occurs with 90 days of their cancer diagnosis date.

All activity in inpatient HES was costed using HRG codes. This included all episodes of admitted care including elective, non-elective, day cases and regular attendances.

Results

8,725 patients (11.5%) presented with metastatic cancer at the time of diagnosis, of whom 1,880 (21.5%) survived for at least one year after diagnosis.

30.0%, 4.6% and 3.7% of lung, prostate and breast cancer patients respectively presented with metastatic cancer at diagnosis. Survival rates among these groups were far lower than among patients who had no metastases (Figure 1).

Breast and prostate cancer patients with metastases at diagnosis were more likely than the average for each cancer type to be aged 75+ (Figure 2), and 32.7% and 18.2% more likely than average to be among the most deprived quintile. However, lung cancer patients presenting with metastases at diagnosis did not follow this trend.

RfD can also be used to investigate activity and resource usage. Patients presenting with metastases at diagnosis were much more likely to have an emergency admission within ±10 days of diagnosis than those with no metastases recorded at presentation (Figure 3).

Average total inpatient cost per patient (from diagnosis until death or up to 7 years post-diagnosis) were also higher for patients presenting with metastases than for those without metastases (Figure 4). However, the highest costs were for patients who developed metastases more than 90 days after diagnosis, perhaps due to longer survival.

Figure 4: Average total inpatient cost per patient, by tumour group and presence or subsequent development of metastases

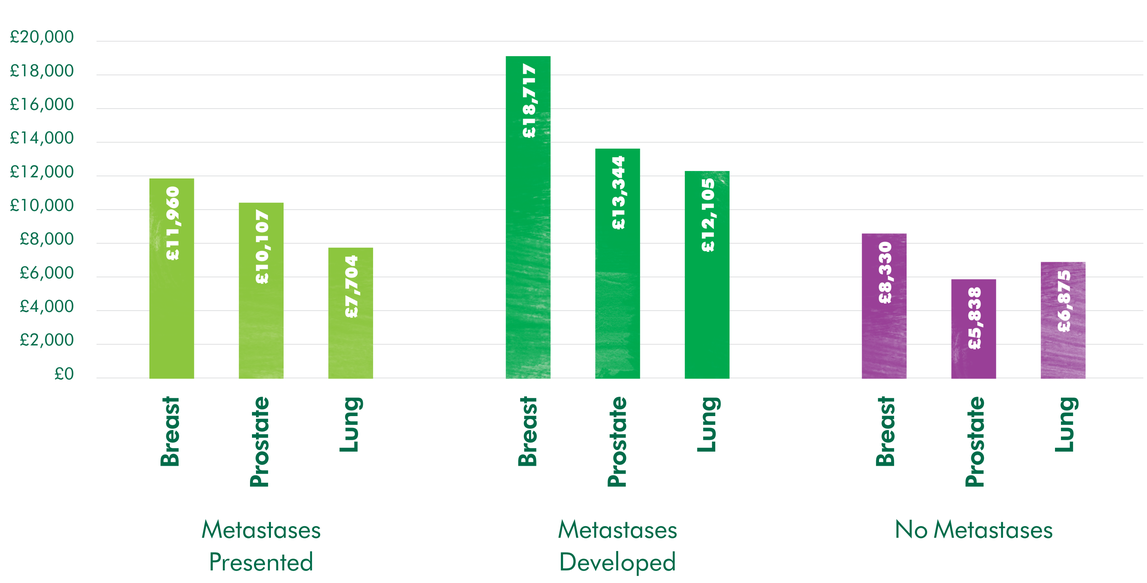


Figure 1: 1-year survival rates by tumour group and presence or subsequent development of metastases

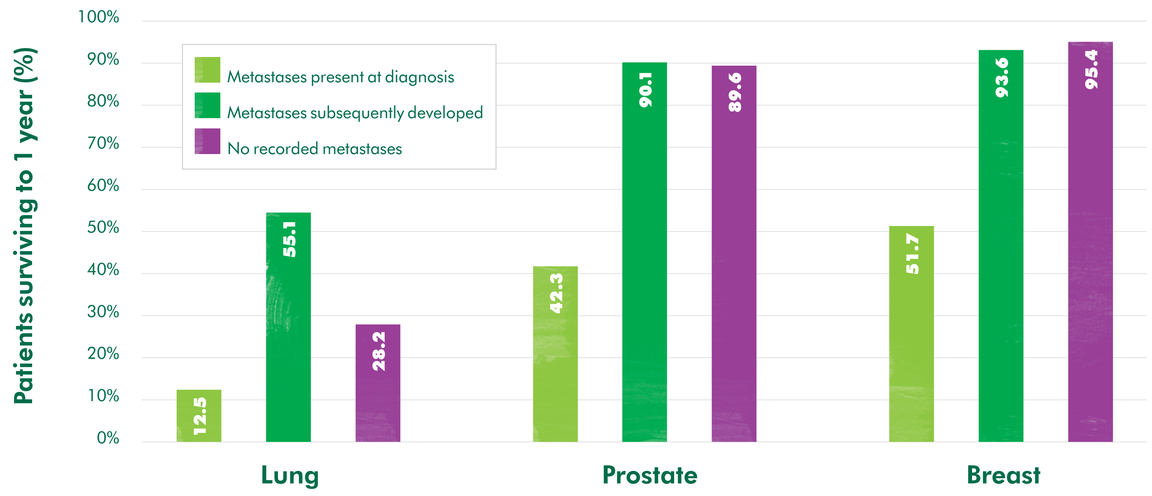


Figure 2: Proportion of patients aged over 75, by tumour group and presence of metastases at diagnosis

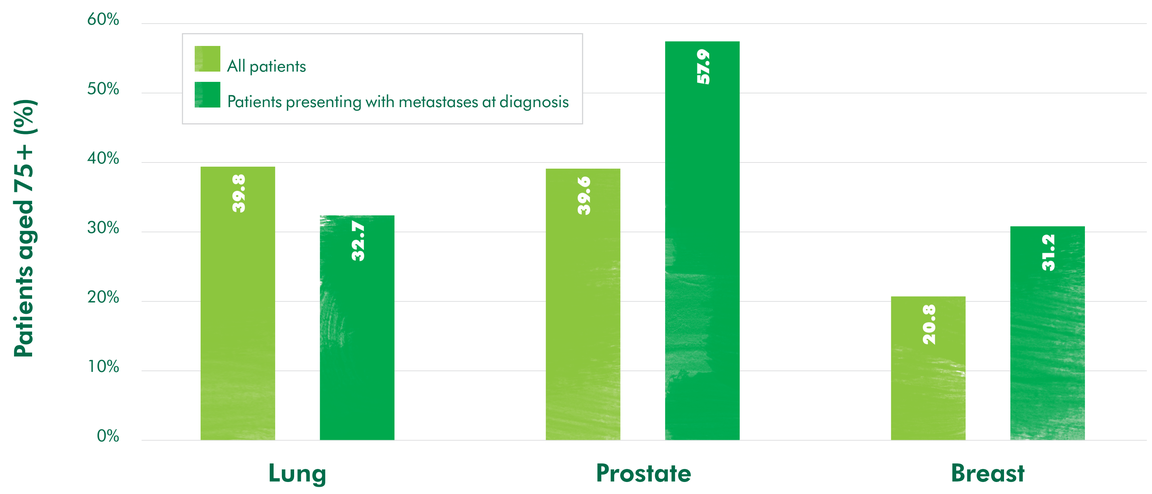
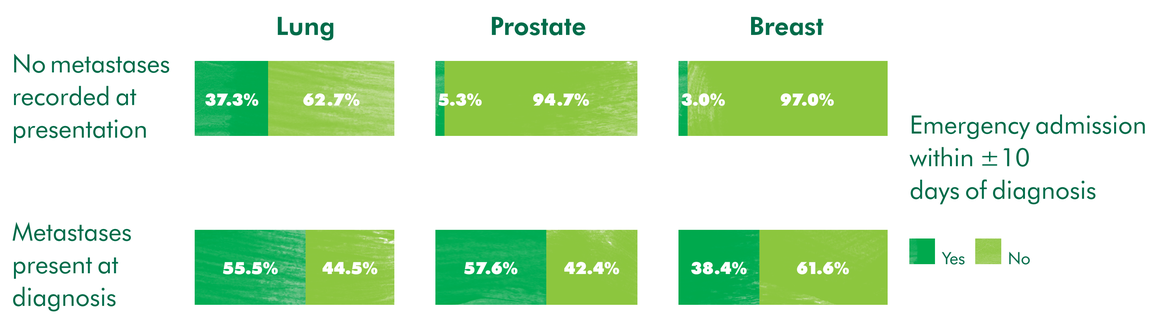


Figure 3: Emergency admissions within 10 days of diagnosis, among patients with and without metastases at presentation



Conclusion

Earlier diagnosis is essential if the UK is to match Europe's best cancer outcomes. Late diagnosis disproportionately affects older and deprived populations; findings that mirror NCIN's Routes to Diagnosis.[1]

Studies using comprehensive local data report higher proportions of patient's experiencing metastases.[2] Comprehensive national data is required if the full picture of metastatic data is to be understood.

Overall, RfD demonstrates the extent of insights it is possible to derive from analysis of routinely collected data, ranging from clinical outcomes to activity and costs.

References

[1] Elliss-Brookes et al., Routes to diagnosis for cancer – determining the patient journey using multiple routine data sets, British Journal of Cancer (2012)

[2] Walkington, L et al., Patterns of breast cancer recurrence and associated health care costs of 1000 patients treated in Leeds: a longitudinal study, NCIN Cancer Outcomes Conference poster presentation (2012)

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For further findings, see Routes from Diagnosis: the most detailed map of cancer survivorship yet

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