MULTIPLE CANCER DIAGNOSES

A Scottish Routes from Diagnosis study

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Background

There is a significant and increasing minority of people diagnosed with more than one cancer in their lifetimes, due (amongst other factors) to improving diagnostic techniques and increasing long-term survival of people living with and beyond cancer. As part of the Scottish Routes from Diagnosis (SRfD) project we explore the prevalence of multiple diagnoses and the timing of other diagnoses in relation to the diagnosis of the index cancer.

Methods

We used routinely collected data to define cohorts of patients diagnosed with the four most common cancers in Scotland in 2012 (Breast, Prostate, Colorectal and Lung cancers), and to identify persons with another cancer diagnosed up to 10yrs previously or in a 5yr follow-up period. We do not include multiple primaries of the cohort cancer. Number of persons with other diagnoses were converted to rates per 1000 person year at risk (PYAR). This is to allow comparisons between cohorts whilst accounting for survival differences in follow-up.

Results

- The breast cancer cohort had the lowest proportion of people with a previous diagnosis - 3.2%
- The lung cancer cohort had the highest proportion at 8.5%, or just over 1 in 12 people (Table 1).

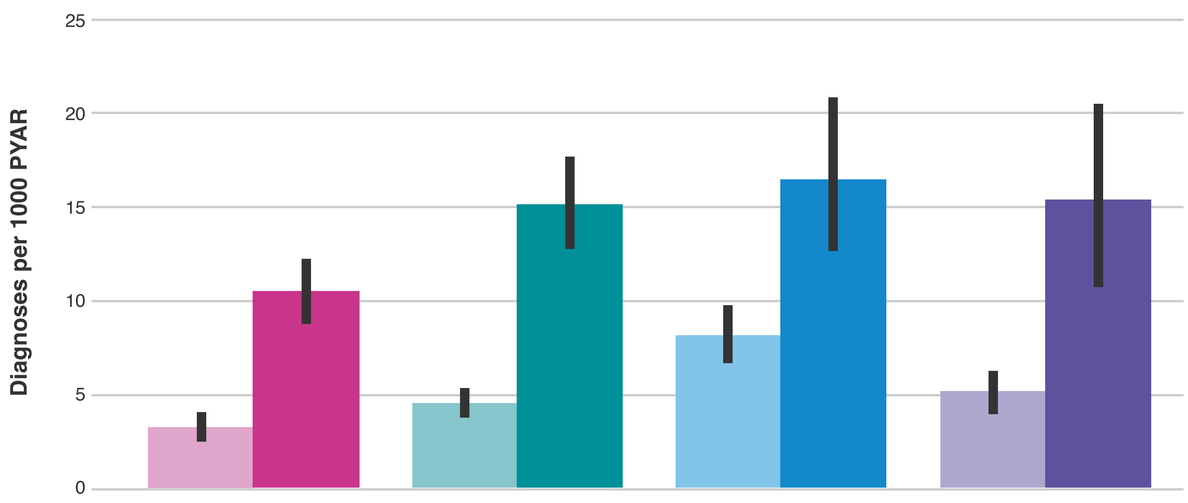
Table 1: Numbers of persons diagnosed with at least one other cancer in the lookback or follow-up periods. Also shown as percentage of persons in cohort affected.

Cohort	N	Mean age	10-year lookback N persons (% of cohort)	5-year follow-up N persons (% of cohort)
Breast	4327	63.6	141 (3.2%)	188 (4.2%)
Colorectal	3604	70.7	221 (5.8%)	215 (5.6%)
Lung	4740	72.4	442 (8.5%)	134 (2.6%)
Prostate	2902	70.9	205 (6.6%)	222 (7.1%)

- A relatively high proportion of prostate cancer patients experience other diagnoses in follow-up (7.1% of persons in 5 years). Just 2.6% of lung cancer patients have another cancer diagnosis in follow-up.
- This difference in cancer diagnoses in follow-up is influenced by much lower survival rates in the lung cancer cohort.
- Converted to rate per PYAR, the risk of another cancer diagnosis in follow-up is similar across the prostate, colorectal and lung cancer cohorts (Fig 1).

- The breast cancer cohort had a significantly lower age standardised rate of other cancers (per 1000 PYAR) compared to the other cohorts, both before and after the cohort cancer diagnosis, (Table 1, Fig 1). The lung cancer cohort had the highest age-standardised rate of previous diagnoses (Fig 1).

Figure 1: Truncated (at age 45) age standardised rates of tumour diagnoses across the 10 years before (pale), and 5 years after (darker) the cohort cancer diagnosis. Lines show 95% confidence intervals.

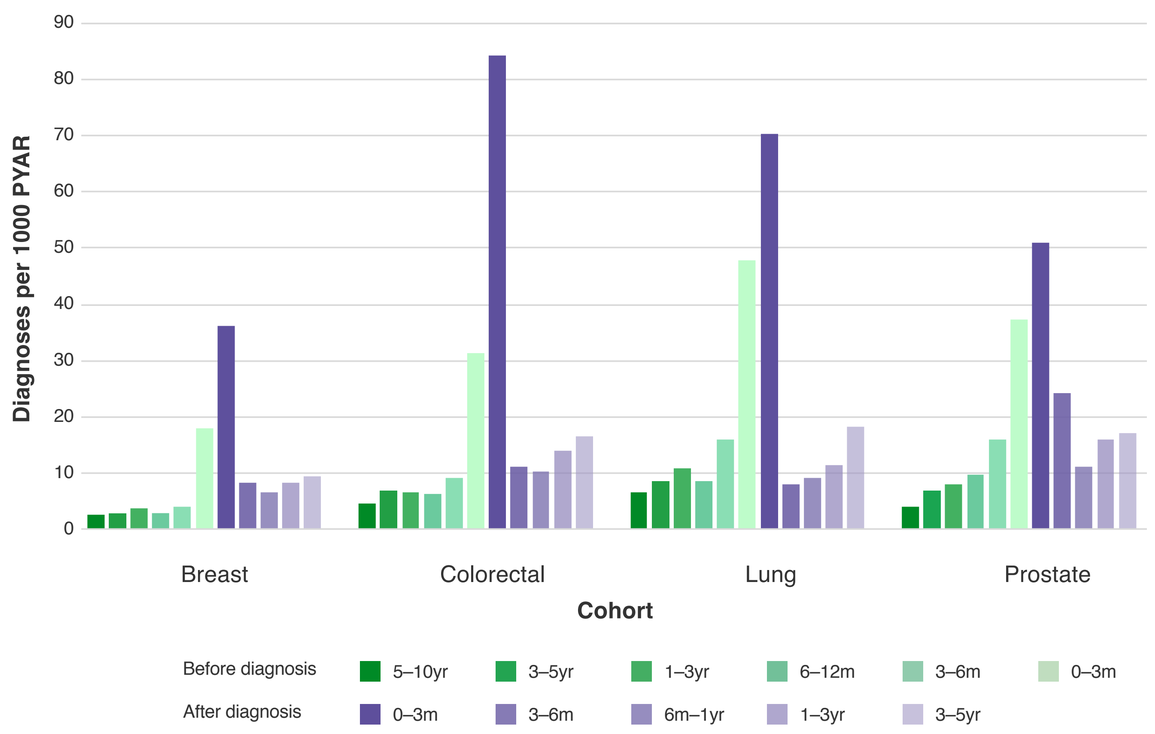


Results continued

Timing

- The rate of other cancer diagnoses is highest in the 3 months preceding and following the index diagnosis, across all cohorts. (Fig 2)
- With the exception of the lung cancer cohort, rates in time periods more than 1yr after the index tumour are still significantly elevated compared to 1yr or more before.

Figure 2: Diagnosis rate of tumours of other sites over time in relation to the cohort diagnosis date. Green – before cohort diagnosis, purple - after cohort diagnosis



Conclusions

A significant minority of patients in our cohorts experience another cancer diagnosis in addition to the cohort cancer in the lookback and follow-up periods.

Breast cancer patients had the lowest rate of other cancer diagnosed before or after their index tumour. This cohort has the youngest mean age, and as age is a risk factor for manytypes of cancer, this will have an influence. However, the age standardised rate for breast cancer is still much lower than for the other cohorts, so factors such as genetic and lifestyle risk factors must be playing a role.

Post diagnosis, although the rate of other cancer diagnoses (per PYAR) is similar in colorectal, lung and prostate cohorts, differences in survival rates mean that more people in the prostate cancer cohorts are affected, and fewest are affected in the lung cancer cohort. Longer survival means there is more time for a person to develop and be diagnosed with another cancer.

Increased medical contacts in the run up to diagnosis and investigations for one cancer diagnosis or set of symptoms probably accounts for the concentration of diagnoses in time, as some tumours may be discovered earlier than they would otherwise present.

Patients with multiple diagnoses may benefit from increased awareness among providers of care and support services.

References

https://www.macmillan.org.uk/about-us/what-we-do/evidence/research-funding/our-partnerships/information-services-division-scotland.html

http://www.isdscotland.org/Health-Topics/Cancer/Macmillan-ISD/

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