

INVESTIGATING COMMON COMORBIDITIES IN PATIENTS DIAGNOSED WITH CANCER: A Scottish routes from diagnosis analysis

Eilidh Fletcher¹; Cheryl Denny¹; Kelly Shiell-Davis²

¹ Information Services Division (ISD), NHS Scotland ² Macmillan Cancer Support

Background

The Scottish Routes from Diagnosis (SRfD) project forms part of the Macmillan Cancer Support/NHS Scotland Information Services Division (ISD) partnership. SRfD uses routinely collected health data to quantitatively describe the pathways patients follow after diagnosis with cancer.

In addition to their cancer diagnosis, other clinical diagnoses and comorbidities are likely to affect a patients' quality of life and may influence treatment options and outcomes. The Scottish Routes from Diagnosis framework investigated routine hospital admission data to learn more about the burden of comorbidities amongst our cohorts.

Method

We identified people living in Scotland diagnosed with breast (female only), colorectal, lung, or prostate cancer in 2012 through the Scottish Cancer Registry.¹ To investigate comorbidities, cases were linked to the NHS National Services Scotland Scottish Morbidity Records (SMR) for general inpatient/daycase admissions and for long-stay care of the elderly admissions. Data were linked using the Community Health Index Number (CHI),¹ the unique healthcare patient identifier in Scotland.

Admissions which occurred in the 12 months prior to and following the cancer diagnosis were selected and all diagnosis codes were extracted. Comorbidities were grouped by the International Classification of Disease² (ICD-10) chapter heading and if there was any mention of a relevant ICD-10 in any of the six diagnoses codes recorded during an admission the patient was considered to have this comorbidity. Neoplasms and diagnoses from chapters XV onwards (excluding congenital malformations) were excluded from the analysis*.

Results

In our cohort we found that **47%** of breast patients, **83%** of colorectal patients, **87%** of lung patients and **54%** of prostate patients experience other comorbidities in addition to their cancer diagnosis.

Figure 1 illustrates the number of different chapters from which patients have a diagnosis recorded. For breast, colorectal and prostate cancer the largest proportion of patients have diagnoses recorded from one ICD-10 chapter but 13% of lung patients and 10% of colorectal patients have diagnoses recorded from five or more ICD10 chapters, reflecting the demographics of these cohorts.

Figure 1: Number of ICD10 chapters where diagnoses are recorded and proportion of patient



Table 1 illustrates the proportion of patients in each cancer cohort with a recorded diagnosis, by individual chapter. Colorectal and lung cancer patients experienced the highest levels of comorbidities across all diagnoses. Circulatory, respiratory and genitourinary morbidities are the most prevalent amongst breast and prostate cancer patients, digestive morbidities the most prevalent amongst colorectal patients and respiratory morbidities the most prevalent amongst lung cancer patients. One quarter of lung cancer patients also experienced mental health disorders – the majority of which relate to tobacco addiction (73%).

Table 1: Proportion of patients with a diagnosis recorded by ICD10 chapter

ICD-10 Chapter (chapter code)	Cancer type			
	Breast	Colorectal	Lung	Prostate
Certain infectious and parasitic diseases (I)	7.7%	10.7%	10.4%	5.1%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (III)	9.6%	17.9%	12.1%	4.9%
Endocrine, nutritional and metabolic disorders (IV)	8.9%	19.1%	22.3%	9.8%
Mental and behavioural disorders (V)	5.7%	7.9%	25.1%	5.8%
Diseases of the nervous system (VI)	3.9%	4.8%	7.5%	4.9%
Disease of the eye and adnexa (VII)	3.3%	5.2%	5.0%	4.5%
Diseases of the ear and mastoid process (VIII)	0.6%	0.2%	0.5%	0.6%
Diseases of the circulatory system (IX)	19.1%	40.2%	46.6%	25.2%
Diseases of the respiratory system (X)	12.0%	20.0%	58.0%	11.9%
Diseases of the digestive system (XI)	11.6%	54.8%	22.3%	15.5%
Diseases of the skin and subcutaneous tissue (XII)	4.5%	3.3%	3.8%	2.6%
Diseases of the musculoskeletal system and connective tissue (XIII)	9.7%	10.1%	16.4%	9.1%
Diseases of the genitourinary system (XIV)	10.5%	19.6%	16.6%	25.0%
Congenital malformations, deformations and chromosomal abnormalities (XVII)	0.2%	0.5%	0.2%	0.1%

Conclusions

The data shown here illustrates the complexity of needs of the patients diagnosed with - and being treated for - cancer in Scotland. In addition to their cancer diagnosis, a large proportion of patients in these cohorts are also living with the additional burden of comorbidities and these conditions may influence both their treatment and quality of life.

It should be noted that the data used here includes secondary care admissions only and conditions managed exclusively in primary care and the community will not be included. Therefore it is likely the true levels of comorbidities in this cohort of patients will be underestimated. In addition, a patient may have a number of different comorbidities from the same ICD-10 chapter and we do not know if the comorbidities relate to the cancer or the cancer treatment.

In future work we will further examine the data to identify chronic conditions and conditions of specific interest to the individual cancer types.

Acknowledgements

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References

1 Information Services Division, NHS National Services Scotland. National Data Catalogue. <http://www.ndc.scot.nhs.uk/>. [Accessed 29 September 2018]

2 World Health Organisation. International Statistical Classification of Diseases and Related Health Problems 10th Revision. <http://apps.who.int/classifications/icd10/browse/2016/en>. [Accessed 29 September 2018]

Website details

<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/>

Notes

*The following ICD-10 Chapters were excluded from the analysis:
Neoplasms (II)
Pregnancy, childbirth and the puerperium (XV)
Certain conditions originating in the perinatal period (XVI)
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (XVIII)
Injury, poisoning and certain other consequences of external causes (XIX)
External causes of morbidity and mortality (XX)
Factors influencing health status and contact with health services (XXI)
Codes for special purposes (XXII)