Metrics for timely surveillance of variation in early cancer diagnosis by Clinical Commissioning Group

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Cancer Policy Programme

How to measure early diagnosis?

Can consider early diagnosis to be “early” stage for a given cancer, or define it by diagnosis at an early stage and before the cancer causes an acute medical problem

Three potential measures of failure in early diagnosis:

• Percent of patients diagnosed at late stage (“late stage risk“)

• Percent of patients diagnosed following A&E attendance or emergency referral (“emergency presentation risk“)

• Percent of patients who die within 30-days following diagnosis (“30-day mortality risk“)
How to measure early diagnosis?

Percent of patients diagnosed at late stage ("late stage risk")
- Easy to interpret, strongly predicts short-term and long-term survival
- Often missing, and missing stage is often really late stage

Percent of patients diagnosed following A&E attendance or emergency referral ("emergency presentation risk")
- Can be used as a proxy for underlying late stage
- Also independently associated with mortality

Percent of patients who die within 30-days following cancer diagnosis ("30-day mortality risk")
- Also can be used as a proxy for underlying late stage
- Reflects other factors too e.g. care in hospital, co-morbidities

How important is geography?

- Modelling shows patient factors like age, sex, deprivation are much more important than Clinical Commissioning Group (CCG) of residence
- BUT... Still there are many CCGs which have much lower or higher early diagnosis than expected
- Need to adjust for age, sex, and cancer site distribution differences between CCGs to make a fair comparison

Questions:
- Could missing stage bias comparisons of early diagnosis?
- Are the three early diagnosis measures interchangeable?
Emergency presentations by CCG – 2009-2013

Colorectal cancer
Non-small cell lung cancer

Lower than average
Above average

30-day mortality by CCG – 2009-2013

Colorectal cancer
Non-small cell lung cancer

Lower than average
Above average
Late stage (III/IV) by CCG – 2011-2013

Colorectal cancer
Non-small cell lung cancer

Lower than average
Above average

Late stage (III/IV/missing) by CCG – 2011-2013

Colorectal cancer
Non-small cell lung cancer

Lower than average
Above average
Summary

• Different early diagnosis measures are not always interchangeable – an outlier CCG on one measure will not always be an outlier on another!

• At CCG-level, areas which are high or low outliers for one cancer site are a little more likely to be outliers for another cancer too

• Could missing stage bias comparisons? Yes, but less in recent years

Next steps

• Continue surveillance from 2013 (when CCGs assumed responsibility for cancer services) at CCG and Cancer Alliance level

• Understand the barriers to early diagnosis in ‘red’ areas – lack of health-seeking behaviour (e.g. low screening uptake)? Co-morbidities? Diagnostic capacity?

• CCG areas which are persistent outliers (across measures, cancer sites, or over time) could benefit from targeted interventions to raise early diagnosis to levels achieved elsewhere
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