

Failure to use linked health records may lead to biased disease estimates

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Failure to use linked electronic health records may lead to biased estimates of heart attack incidence and outcome, warn researchers in a paper published in *BMJ* today.

They show that up to 50% of all heart attack cases are missed using just one [data source](#).

These findings may be relevant to other common conditions, such as [stroke](#), and support the wider use of linked multiple record sources by clinicians, policy makers and researchers, say the authors.

Electronic health records are increasingly used to measure [health outcomes](#), and for research, but records from one part of the health service (e.g. primary care) may not capture health events occurring in other parts of the [health system](#) (e.g. hospital care).

So a team of researchers from the London School of Hygiene & Tropical Medicine and UCL compared [electronic health records](#) for one major disease event – [heart attack](#) (myocardial infarction) – across four national health record sources in England: primary care, hospital care, disease registry and death records.

Previous studies have typically compared only one or two electronic sources.

They identified 21,482 patients with a record of acute myocardial

infarction in one or more of the four data sources.

Risk factor profiles and one year all cause mortality rates were comparable across records from different sources.

However, they found that each data source missed a substantial proportion of cases. For example, only one third of non-fatal myocardial infarctions were recorded in all three data sources (primary care, hospital care and disease registry), while two thirds were recorded in two sources.

Primary care records were the single most complete source of non-fatal myocardial infarction records (not recording one quarter), hospital records missed one third and the disease registry nearly half.

In other words, acute myocardial infarction was underestimated by 25–50% using one source compared to using all three.

"With the current emphasis on measuring clinical outcomes in health systems and recent plans to use linked data to drive improvements in the care of patients with cardiovascular disease, our study has important implications for practice and policy," say the authors.

And they say future research should focus on areas such as improving how data are coded, understanding how linkages with [primary care](#), admission to hospital and mortality data compare, and evaluating the quality of the data available in these linked data.

More information: www.bmj.com/cgi/doi/10.1136/bmj.f2350

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