Reviewer's report

Title: Urgent referral for suspected cancer as a means of reducing delay in the diagnosis. A population-based observational study in Denmark

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Reviewer: Lindsay Forbes

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This paper’s main hypothesis is that there was a fall in secondary care interval (time from GP referral to start of treatment) after the introduction of a national urgent referral cancer pathway.

The authors found some evidence to support their hypothesis. This is interesting but I have a number of comments on the way that the study is reported. I think these are all major compulsory revisions.

Abstract

Overall I think the abstract needs some further work to become comprehensible free-standing. The authors should define secondary care interval in the abstract. The hypotheses could be set out more clearly. The methods section should describe the time period over which the data were collected and describe data collection in more detail. Less detail is required about the statistical tests used. The results section reports detail on one of the hospitals and it is not clear why this hospital was picked out from the earlier part of abstract.

Introduction

Para 1: the authors should clarify whether the papers referred to (5 and 6) examine stage at diagnosis or stage at which treatment is started, which are not always the same. The authors should describe more precisely the controversies around the consequences around prolonged diagnostic interval and should set out the hypotheses more clearly.

Methods

The sampling procedure section is not very clear (I don't think I could reproduce the method), and the section on data collection could be improved.

How were GPs approached? When were they approached? The ‘referral documents’ referred to in the results are not described, as far as I can see, in the data collection section - please describe this in more detail. The outcome measures section does not describe the instrument used to collect data from GPs. I think the reader needs more information on this to be able to interpret the results. Second para of outcome measures – 1st sentence is unclear.

How did the authors calculate secondary care interval – only from GP questionnaires? While I understand that GPs would know GP referral date, how
did they know what date treatment was started in hospital? Were these data robust?

Results
It is very unclear to me how many patients were included in the analysis of secondary care interval – only 2,024? Or 6,518? After some thought I have worked out, I think, that the 2,024 were those for whom there where no data from the GPs on date of referral, but this isn’t very clear.

I recommend that the results section deals with each of the hypotheses in turn – I found it rather difficult to follow.

The section on Monthly changes in the secondary care interval - I did not understand the third sentence. The idea that ‘improvements had a tendency to diminish over time’ is rather value-laden.

Discussion
The main finding sentence could be improved by emphasising that the intervention was not ‘urgent referral’ but what I believe was a policy and interventions to encourage and facilitate rapid referral for cancer patients. The strengths and weaknesses section could be tightened up. I do not understand the sentence ‘the initial algorithm showed to be incomplete’. Is not the main potential source of bias recall bias among the GPs? I cannot tell if this is the case because I do not know when the data were collected from GPs – I assume all data were collected after 2008. It seems likely that GPs would be more likely to recall more recent dates more accurately, as possible to recall them with shorter secondary care intervals. I am not sure how the authors are proposing that information bias might have cause spurious results.

I do not think anyone would advocate an RCT of delay, as the authors suggest would be the ideal study – but they might advocate an RCT of the policy of promoting and facilitating urgent referral.

The discussion would be strengthened by discussing whether similar policies have been introduced elsewhere and the effect of on patient intervals, if known.

Presentational issues
The English could be improved – there are a number of grammatical errors, some words that are not used frequently and constructions that do not read fluently.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare I have no competing interests.