Reviewer’s report

Title: Hepatitis C prevalence in Denmark - a capture-recapture estimate based on multiple national registers

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Reviewer: Matthew Hickman

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The overall objective of estimating the number of people infected with HCV in a country is important – as often the data are inconsistent and methods can be complicated (e.g. Sweeting and De-Angelis et al). However, I found the methods described in this paper confusing and in parts unconvincing.

1. Under what assumptions can the registers used in the exercise estimate the number of “diagnosed cases not present in the registers”? Is this due to under-reporting to the registers themselves, or are there are other potential sources of diagnosis that are not covered by the registers but may be represented by the overlap? If solely due to under-reporting are there any other studies to corroborate the estimate generated by capture-recapture (CRC).

2. Can the authors re-assure readers that CRC is not simply estimating the number of diagnoses excluded i.e. 2380 persons were excluded and an estimated 2231 persons estimated to be diagnosed but missed.

3. Under what justification can the authors assume that non-tested drug users had the same prevalence of chronic HCV infection as those tested? Do the non-tested have the same age/gender/duration of injecting/ treatment and prison exposure as those tested. Is testing a random event unrelated to likelihood of infection? This assumption is too large to be unsupported by other evidence.

4. On page 9 last paragraph there are as series of calculations and assumptions that need to be more fully explained – as I didn’t quite understand them fully. Under what assumptions is 54% of total number of patients infected with HCV diagnosed. This is critical to the whole estimation exercise but is not clear.

5. The sensitivity analysis also is unclear.

6. The discussion provides some justification for some of the assumptions which is needed in the methods and results.

7. Information on model fits and overlaps for CRC should be given fully rather than a simple final estimate.

8. It is not clear to me how the method can generate a reliable estimate of the number of people infected with HCV – especially as the data sources do not seem to take account of ex and current injectors.

Level of interest: An article of limited interest
Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests