Reviewer's report

Title: Barriers and opportunities for evidence-based health service planning: the example of developing a Decision Analytic Model to plan services for sexually transmitted infections in the UK

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Reviewer: Patrick Horner

Reviewer's report:

This is an interesting paper which provides useful insights from potential users of a decision making analytical model informing health care delivery. I have a number of comments

Major corrections

• It would be helpful for the readers to have a description of what the generic structure of a DAM as applied to service delivery as this would be very helpful to the non specialist reader. I could not find this easily form accessing the references

• The article conveys the impression that a DAM will be reliable once constructed and it is evidence based. Sadly the experience from Chlamydia screening has caused considerable anxiety among clinicians about the validity of complex modelling in which uncertainty exists about many parameters. DAMs were initially used and then discarded in favour of dynamic models but such was the uncertainty around some of the parameters that three models gave very different results (even allowing for sensitivity analysis) [1]. One of the uncertainties is - transmission per episode of sexual intercourse - as this will be related to infectious load, use of barrier protection and host immunity[2-4] – both the former and latter are poorly understood certainly in the context of chlamydia and I would be sceptical of any model seeking to simulate transmission unless explicitly validated through experimental and/or observational data which would be extremely hard to do. Thus although the transmission model developed, as part of the DAM, takes into account age/sex structure it will have major uncertainties which cannot be allowed for using sensitivity analysis. Although you contend that uncertainties can be explored through sensitivity analysis in the context of chlamydia modelling this often relies on making assumptions about key characteristics of the model ( which usually includes transmission) which may or not be correct ( page 9 ) – otherwise all models would have arrived at the same result. You should state uncertainties will exist within DAMs and detail the example above

• Have any DAMs simulating service delivery been validated using real data? Have you any explicit examples of their utility if so these should be detailed explicitly. Until this happens I suspect many clinicians and managers will be sceptical of the value of such tools and it is hard to see how they can be considered evidence based until this happens. You mention swine flu as a positive example of the use of modelling 2nd para page 10. However the dire
predictions derived from modelling did not occur (http://www.guardian.co.uk/commentisfree/2010/jan/14/swine-flu-elusive-as-wmd). Climate change in my opinion is also not a good example of the validity of using DAMS as uncertainty exists as to the extent of temperature rise [5] which is likely to occur. This is likely to continue to be revised as more information becomes available and can only be validated in the future. This leads to concern among the public about model validity (http://www.dailymail.co.uk/sciencetech/article-2065954/Climate-change-fears-exaggerated-say-scientists-claim-apocalyptic-predictions-unlikely.html?ito=feeds-newsxml).

• I think there needs to be a discussion on how robust validation of such tools is needed before they can be advocated and considered evidence based. Particularly in the light of such major errors as the modelling assumptions predicted for the swine flu pandemic – which led to considerable wasting of public monies. This might allay many of the concerns by those for whom the tool is intended.

I suspect a validated DAM would be very helpful in informing delivery of sexual health services but in my opinion this needs to be demonstrated before it can be widely adopted.

Minor corrections:
I have accessed the references quoted (some incorrectly refs 9&10) and cannot find a clear example.

Reference List


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

Quality of written English: Acceptable
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