Reviewer's report

Title: Targeting research for the evaluation of emerging and "immature" technologies - the example of the da Vinci robot

Version: 1 Date: 9 September 2009

Reviewer: Trevor Sheldon

Reviewer's report:

This paper describes a framework and method used in a health region of Italy to handle the introduction of new/innovative health technologies and the need for further research.

The issue of when to adopt new technologies and when more research is needed is one of international importance and interest.

The model presented here is a practical one which can be followed by other health funding agencies/government to ensure that technologies are not introduced prematurely on the basis of inflated expectations fuelled by commercial interests and enthusiasts, whilst at the same time not stifling innovation. What is important about it (other than the fact it has actually been implemented by a large and important health region in a European country) is that it links technology adoption or coverage decisions to research strategy and funding. This is relatively unusual and possibly has only really been developed in England up to this point.

The authors describe the steps in sufficient detail to be understandable and to an extent replicable. They do not present the full detail of the evidence reviews but this is not the aim of the paper which is more to describe the process.

The discussion (wrongly labelled as conclusion) is fulsome and highlights are of strength and weakness. However it does not sufficiently compare the approach with others in the field and so put it in the context of other literatures; this can be remedied at revision (see below).

The writing is generally very clear but would benefit form a bit of editing to improve the English further.

Overall I think this is a clearly written and interesting paper which health policy makers would find interesting and useful.

The paper could be improved by considering the following issues and making the appropriate revisions:

Major Compulsory Revisions

1. At times there is a rather simplistic impression given about how uncertainty, research and adoption decisions relate. Evaluative research is simply a way of
reducing uncertainty and so reduced the risks associated with decision making over the adoption or not of a technology. One can adopt a technology under conditions of uncertainty is the estimated net benefits outweigh the potential disbenefits/costs. The last sentence on page 5 ("These are encouraged to put…… clinical benefits") implies that research provides definitive answers and this is rarely the case. There is always a degree of uncertainty. The authors should check the paper for this to ensure it does not come over as too naïve.

2. The point above also relates to the notion of an uncertainty profile which is very important indeed and possibly is not sufficiently well explained and presented. Note there that the authors refer to where research may change "those results" (page 8) but the key thing is whether the reduction in uncertainty as a result of the decision is likely to change the decision to adopt or not (if not it may not be worth doing the research). In other words there is too much separation between the idea of the research and the estimates of effect and the uncertainty about effect (and of course costs) and the adoption decision. There has been more use of Value of Information analysis in the UK since the Claxton paper in 2002 (reference 6) and maybe this needs to be acknowledged and better related to what is presented here (eg. Briggs AH New methods of analysing cost effectiveness. BMJ 2007;335:622-623 (29 September), doi:10.1136/bmj.39332.587581.BE). Maybe it needs to be made clearer at the bottom of page 9 how the value of the exercise described in this paper relates to VoI approaches.

3. Slightly more information is needed about the technology to provide better context (page 6); though as this is not an HTA we don’t want too much.

4. The paper seems to ignore the cost-effectiveness of new technologies and the cost of the new research.

Minor Essential Revisions

5. The GRADE group recommendations are relatively new and possibly need a bit more of an introduction (page 7) to explain why they are being used.

6. The Value of information analysis is used not just in deciding for the adoption but also when not to adopt technologies (top of page 5 – this might just be unclear English)

7. The last paragraph on page 5 is unclear. If it about detailed clinical practice I agree, but if it about the adoption decision – whether to use a technology in routine clinical practice- then I don’t think that the decision to do more research and the adoption decision can be separated. Perhaps this just needs clarifying or editing.

8. Should the paper give quantitative outputs for Step 5, if not why not?

9. The text needs a bit of editing to improve the English and correct a few minor typos. For example, Nice should be NICE (page 4); devolve research resources probably means invest research resources (pages 5 and 10); Strengths is
mis-spelt (page 15).

**Level of interest:** An article of importance in its field

**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' However, I have collaborated with one of the authors on research several years ago.