Reviewer's report

Title: The next security challenge: centralised or decentralised medical record architecture?

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Reviewer: Kenneth Mandl

Reviewer's report:

The authors make a case for a decentralized medical record architecture as the basis of a French National health information infrastructure, emphasizing the failure of centralized systems.

- Major Compulsory Revisions

The paper would be improved if the type of theoretical arguments used in discussion of the decentralized system were carried for discussion of the decentralized system. Instead, the paper goes into very concrete recommendations about the characteristics of the decentralized system, e.g., the use of PIN codes, smartcards, and specific public key encryption protocols. The title of the paper does not lead the reader to expect a detailed architectural proposal, but rather, a set of arguments.

The structure of the paper should be made a bit more explicit. It was not obvious to me on my first read that sections 2 and 3 were essentially a straw man being set up in anticipation of upcoming arguments for a decentralized system.

On page 2, the authors call for a unique patient identifier. They should also address the issues of privacy and linkage to external (e.g., financial, immigration) datasets that emerge if a national or EU-wide identifier were put into effect. They should also estimate the likelihood of such an identifier being mandated.

Even after discussion of standardization of medical records, it is difficult to fully understand the authors' perspective on the issue.

- Minor Essential Revisions

There is a growing US literature on decentralized systems which should be referenced. If this paper is to extend that literature, perhaps more detail should be given about the specifics of the French system and attempts to transform it.

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