Reviewer's report

Title: Implementation and first-year screening results of an ocular telehealth system for diabetic retinopathy in China

Version: 1 Date: 30 April 2011

Reviewer: Julie Lowery

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Major Compulsory Revisions

This is a nicely written manuscript, with a simple but solid design--assessing the accuracy of digital retinal images by comparing diagnoses from the images with those from in-person exams. However, much has been written on this topic already, and there is little information that is new here, at least as presented. A few potential topics of interest are alluded to; and, if these were expanded, the manuscript might be of more significance. These are described below.

“Only a few studies address the DR telemedicine screening experience in underdeveloped countries such as India and Nepal.” How is the DR telemedicine screening experience in underdeveloped countries different than the experience in developed countries? What were the barriers to system implementation in rural China, and how were these overcome? This information might be of interest to others around the world who would like to implement similar systems in underdeveloped areas.

“One characteristic of our DR telehealth system is that the Internet-transmitted data encompass not only the digital retinographs but also visual acuity, and the latter was seldom analyzed in other DR telemedicine systems based on our MEDLINE search. We believe that the reader is able to make accurate diagnosis with digital retinographs supplemented with vision proof, especially on suspected macular edema images.” This discussion should be expanded. What is it about the visual acuity information that contributed to the accuracy of the diagnoses? How do the results of this study compare with those of other assessments of diagnostic accuracy from digital retinal images?

“Most commercial telemedicine systems in developed countries are proprietary in that the end users (primary care centers) must use licensed software built into the imaging system for storage and transmission of images. Instead, we used commercially available software to construct our DR telehealth system.” What are the advantages and disadvantages to using proprietary systems vs. the system implemented by the authors? How do the systems differ technically and cost-wise?

In summary, since the accuracy of digital retinal images for diagnosing DR has been pretty much established, the authors need to present additional information on how this study adds to our knowledge of screening for DR. The more interesting information might be less from the accuracy data, and more from the
implementation experience (in which case the manuscript might be better suited for a journal aimed at clinicians and managers interested in implementing a digital screening system, and less for a health services research audience).

Minor Essential Revisions
None

Discretionary Revisions
I appreciate the fact that the authors present their actual data (not just the summary statistics) in Tables 2 and 3. This allows others to calculate additional, important statistics such as sensitivity and specificity. However, it would be helpful if the authors went ahead and calculated these other statistics, which are a bit more meaningful than kappa statistics, and which could then be compared to findings from other studies assessing the accuracy of digital images.

Level of interest: An article of limited interest

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.