Reviewer's report

Title: Improving Bone Mineral Density Reporting to Patients with an Illustration of Personal Fracture Risk

Version: 1 Date: 14 April 2014

Reviewer: Karthik Ghosh

Reviewer's report:

Major Compulsory Revisions

The question posed by the authors is significant in that it assesses patient preference, comprehension and perceived susceptibility - all important measures in communicating risk information. While the study design, measures of outcomes were all excellent, there is a significant bias in this study that makes the results questionable.

This study was aimed at comparison of four different formats of illustration to study FRAX risk. The authors indicate that identical risk information was provided.

However, in order to avoid a biased assessment, it is key that the 4 illustrations provide the same information. While the arrow, Bar and Stoplight provided information regarding the patient's absolute risk, it also provided information on what is considered low, moderate or high risk. The Faces illustration however only offered the patient's absolute risk information. There should have been 3 illustrations in addition on Figure 1 to demonstrate what low, moderate and high risk would look like - that would make it an unbiased comparison. As a result, the study is biased against the Faces array and the results are as expected as it only provides the subject an information of their absolute risk and that has no relevance when the subject has no knowledge of what that number implies.

Since, the 4 illustrations are not comparable in terms of the information they are providing, the results cannot be considered accurate. The comparison between Arrow, Stoplight and Bar would be useful information and important in clinical practice to communicate risk information.

A limitation that must be borne in mind when using color information is the population that is color blind as it would not be helpful to them.

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests:

I declare that I have no competing interests