Author's response to reviews

Title: A comparison of photographic, replication and direct clinical examination methods for detecting developmental defects of enamel

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Author's response to reviews: see over
Dear Sir/Madam

Thank you for sending us the reviewers’ comments on the above-mentioned paper. The reviewers’ comments were very positive and encouraging and useful to improve the paper. The paper is now revised based on their comments and a point-by-point response to each reviewer’s comments and questions is given below.

The authors declare that they have no competing interests.

Yours faithfully,

Ali Golkari
(On behalf of all authors)
Response to comments by Reviewer 1, Dr Jack Toumba (dated as 13 October 2010):

Thank you very much for your nice comments. The paper you mentioned has been included (Ref no 9).

Text changes regarding your comments are highlighted in gray.
Response to comments by Reviewer 2, Dr Najat Farsi (dated as 29 October 2010):

Thank you very much for reading the paper in details. A point by point response is given below.

Text changes regarding your comments are highlighted in yellow.

“DDEs”: The authors agreed that using “s” at the end of “DDE” was confusing. Therefore, all “DDEs” have been changed to “DDE” throughout the text.

A 1. The magnification of the photographs was the same for all children (1:1) (See Paragraph 1 under “The Photographic Method”). At the time of assessment, however, as explained in Paragraph 3 under “The Photographic Method”, “each photograph was first viewed as actual size based on the magnification ratio of 1:1 used when taking them. Then the examiner could use the magnifier tool to enlarge the photo several times. Some defects were clearer when using higher magnifications but some others were better seen with lower magnifications when the sharpness of components was higher.” This was discussed later as an advantage of the Photographic Method used in this study over the previous studies (See Paragraph 4 of Discussion Section). This is similar to the direct clinical examination, when the examiner can get closer to the teeth or farther from them to get a better view.

A 2. As explained in the Paragraph 4 under “The Photographic Method” and Paragraph 2 under “The Replication Method”, examiners’ first recordings were used to test the inter-examiner reliability. Then the discussion took place.
B. Two sentences are now added to the “Replication Method” and “Comparison of Methods” to explain the time and period of the study. Thanks for reminder.

**Results, Table 3:** Each child had 8 incisors. So the total number of examined teeth of 90 children would be 720, from which 115 would make 16%. The phrase “permanent incisors” is now added to the title of this table, and to Table 4, to avoid such confusion.

**Results, Index:** The modified DDE Index has two types of scoring: one for epidemiological studies, when defects are studied in details, and the other for screening studies, when the coding is simplified. Using the coding for screening studies, as used in WHO 1997 booklet, it would not be possible to say how many defects of a similar type exist in one tooth. Therefore the comparison of methods at lesion level would become impossible.

**Results, Score 6:** A line is now added to the Paragraph 4 of the Results Section to make it clear that score 6 and score 9 were retained as distinct categories when similar subcategories were combined.
Response to comments by Reviewer 3, Prof. Vita Machiulskiene (dated as 10 November 2010):

Thank you very much for reviewing the paper and for the useful comments. A point by point response is given below.

Text changes regarding your comments are highlighted in green.

1. The conclusion has been revised.

2. As discussed in the manuscript, most previous studies have tried to test the agreement between the clinical examination and photographic methods, and not the higher sensitivity of the photographic method. Indeed most studies have reported similar results using both clinical examination and photographic methods (Refs 3 and 4).

3. Yes, the higher magnification in photographic methods provides the chance for fine defects to be seen. And as you mentioned it is useful. In clinical examinations the examiner has the chance to get closer to the teeth, or get farther from them, or to change the angle of viewing to see more defects. Some researchers recommend the use of magnifying glasses in clinical examination.

4. It is recommended by authors of the Modified DDE Index that teeth be viewed wet and in natural light (Clarkson and O'Mullane 1989). On the other hand, although the photographs were taken in clinics, no extra advantage was provided. The photographs could easily be taken in schools. However, permission to do so was not provided as we needed parents consent to take photographs and impressions.
5. The time spent for each assessment was recorded. As requested by the reviewer, a new paragraph has been added to the Results Section (Paragraph 6) and more details have been given in Paragraph 5 of the Conclusion Section.
Response to comments by Reviewer 4, Dr Armando Soto-Rojas (dated as 22 November 2010):

We are sorry that this reviewer found the paper hard to read. His comments differ significantly from the other three reviewers who were very complementary about the style. Nevertheless, we have tried to address the comments and answer the questions.

1. It is important to provide a brief explanation of different indices used to assess enamel defects in the background section. On the basis of that review we outlined the justification for selecting the Modified DDE Index as the best index for the purpose of this study.

2. The Modified DDE Index is a well known index and is recommended by both FDI and WHO. It is routinely used in the study of enamel defects. Appropriate references are given in the text for those who are not familiar with this index.

3. There is no gold standard for assessing DDE, and there is no need to be a gold standard to be able to calibrate the examiners, or photographers. The aim of calibration was to make sure that if two or more people are doing an assessment, they do so likewise.

4. There is no need for the photographers to be the same as examiners.

5. As stated in the text a macro double flash was used. A single flash is not considered suitable for intra oral photography as it makes shadows (of the lens and of the lips) on one side of the mouth. Therefore, all professional and semi professional systems
which are used for oral photography use either a ring flash (several small flashes that are mounted on the outside border of the lens as a ring) or a double flash (two flashes which are mounted on two sides of the lens or body of the camera).

6. Affinis is probably one the most well known materials in dentistry. Nevertheless, we included the following description of Affinis in the text: “an additional curing rubber base material made by Coltène/Whaledent”.

7. Yes, in assessing the replicas the colour remains the same. That is why only hypoplastic defects were assessed in replicas.

8. As explained in the text, the impressions were only assessed to distinguish a genuine defect from an artefact made when casting the impressions. Therefore there is no need to have separate scorings for casts and impressions.

9. The reviewer states that he does not understand what “All types of DDEs were included in comparison of direct examination and photographic methods” means. We consider that this sentence is very clear, especially read with the following sentence in the text: “However, only hypoplastic defects were taken into account when comparing the direct examination and replication methods as colour changes were not recorded in the replicas.”

10. The reviewer claims that the results are hard to follow. We have reviewed what we wrote and as the other three reviewers were satisfied with our text we have not altered it.
11. The reviewer has commented on the following sentences: “The photographic method detected all cases with DDE that were detected clinically, except one. Twenty cases were only detected by the photographic method.” The first sentence explains that there was one case which was detected by the direct examination method and not by the photographic method. The second sentence explains that there were twenty cases that were detected by the photographic method and not by the direct clinical examination.

12. The word “assessing” is not the same as the word “detecting”. You assess a tooth. You might then detect a defect or find nothing.

13. Based on our results, we cannot say that the photographic method is over detecting. We have simply shown that the photographic method could detect more defects than the direct clinical examination.