Reviewer's report

Title: Utilization of the Atraumatic Restorative Treatment approach in a group of public oral health operators in South Africa: a 5-year longitudinal study

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Reviewer: Nicky Kilpatrick

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Utilization of the Atraumatic Restorative Treatment approach in a group of public oral health operators in South Africa: a 5-year longitudinal study. Steffen Mickenautsch and Jo E Frencken

Introduction.

The ART is now a well established approach to the management of dental caries based upon increased understanding of the carious process that was developed in an attempt to increase the provision of dental treatment in the developing countries. As such is has been shown to be a useful public health strategy in many parts of the world. Little has been reported about the impact of the implementation of ART on treatment patterns and therefore potentially on oral health outcomes for disadvantaged populations – this study could make a useful contribution to the literature. However as it has been presented, the manuscript lacks depth and as such does not at this stage make as great a contribution to the body of knowledge as it might.

1. Is the question posed by the authors well defined?

This study is essentially an audit of the impact of the introduction of ART on treatment patterns in the South African public dental health service over a 5 year period. The duration of follow up (5 years) is to be commended as it is important to assess the sustainability of any new model of health care.

2. Are the methods appropriate and well described?

There is a fundamental problem with the exclusion of the 8 original operators who, in the first year, appeared to not adopt the ART at all. As this study aims to assess the impact of the introduction of ART in one district the fact that 8 (almost 1 third) of all the operators essentially did not adopt it at all is important in interpreting the final results. If these 8 operators were included in the data analysis at 5 years the impact (%ART and REX scores) of the training would be significantly less. The training was delivered in the same way to all operators and as such all (but the 2 who left the district) should be included.

From the perspective of the structure of the manuscript the exclusion of the 8 non-adopters from the cohort of clinicians should infact be identified in the results section rather than under the heading of ‘evaluation’.

3. Are the data sound?

The data is somewhat superficial. It would be useful to have some idea of the
total number of treatments provided i.e. the ‘n=’ for ART and non-ART restorations as well as extractions per operator. It would also be useful to have the baseline and 12 month data for both the study and control areas so that the reader can put this in to context. This is particularly important as the only reference for the 12 month results is a local report which is not easily accessed by a broader readership. Furthermore the lack of change in REX scores could be the result of an increase in extractions rather than a lack of increase in ART restorations. It is not possible to interpret these results from the data provided.

The first paragraph on page 7 is very confusing and is not clarified by Figure 1. Do the authors mean that the %ART increased each year by an average of 3.9% from 24/0% to 42.7% by year 5? If so then the grammatical structure of that sentence can be improved substantially.

It is also a little surprising that there is no time effect for the change in REX in the primary dentition over the 5 year period. Figure 2 seems to clearly show an increase.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

With the addition of a table to include the data suggested above – yes. The results could possibly be in a section of their own followed by the results.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

The introduction and discussion are both too brief. The context for the use of ART in South Africa is important and should be described. It would also be useful to include some description of its success both in South Africa and elsewhere. Is there any information on the impact of the introduction of ART on oral health outcomes, on oral health or on simply service delivery anywhere else in the world? If not then it would be useful to state this. It would also be beneficial to include reasons why the goal of achieving a REX score of 2 may or may not be laudable in the first place and why it may not be achievable given the fact that this study suggests that at least in the hands of these 11 operators a REX score of 2 is far from being achieved.

Given the significant number of clinicians not included in this analysis the authors do not really explore the reasons behind what appears to be a really relatively unsuccessful implementation. What would be useful at this stage would be to complete some form of process evaluation – why was there no real difference in REX score over the 5 year period? The authors speculate that the clinicians wished to practice ART but were prevented from doing so for a number of reasons – actual evaluation of these issues would strengthen the value of this study enormously. For example why did 8 of the operators not adopt the technique at all and yet another 11 did?

Certainly a clearer description of the actual numbers of restorations and extractions would assist in interpreting these results.

The final conclusion that after training ART had been used consistently by the selected group of clinicians is misleading – whilst recognizing that the authors
acknowledge the limitations of excluding the group of 8 who did not adopt at all – the conclusions should reflect this group as a whole – 21 operators completed the training not just the 11 selected for this review.

6. Are limitations of the work clearly stated?
The major limitations are recognized in the discussion but are not sufficiently regarded in either the abstract or the conclusions and as such the tone of the manuscript is alittle misleading.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes.

8. Do the title and abstract accurately convey what has been found?
See above re conclusions and interpretation of the data with specific reference to the exclusion of the 8 non-adopters

9. Is the writing acceptable?
The English is poor in several sections of the manuscript. For example the last 2 sentences in the introduction on page 4 would read more clearly as:
There is currently no information on the long-term effect of the introduction of ART into public dental services. The aim of this study was to report on the impact on the patterns of treatment provided by clinicians 5 years after they had completed an ART training programme in South Africa.

Summary.
The implementation of ART is one of several strategies supported by the WHO in an effort to improve oral health outcomes in developing countries. The setting of this study, coupled with the data that has been collected provides an excellent opportunity to start to evaluate the extent to which ART is achieving this goal. However as it stands the data presented are not sufficient to make very meaningful interpretations at this time.

I hope that this review will provide useful ideas as to how to use the data collected to date in a manner that will enhance understanding of the development of oral health care in developing countries.

I confirm that I am happy for this report to be published should the manuscript be accepted by the BMC Oral Health.

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

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