Reviewer’s report

Title: Needlestick injuries among dental health care workers in non-hospital settings

Version: 1 Date: 26 May 2006

Reviewer: Robyn Gershon

Reviewer’s report:

General

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Overview

This is a generally well written and clear report on an understudied topic- namely needlestick injuries among dental professionals. The rationale for the study is the well recognized lack of information regarding dental professionals’™ risk and risk factors for these types of injuries. There has been a great deal of focus on reducing the risk of needlestick among other healthcare workers- leading to well documented declines in certain types of injuries (e.g., intravenous therapy-related needlesticks), but in the dental profession, some of these intervention strategies (mainly safer needed devices) are not applicable, and have not been implemented. The need for repeated reuse of anesthesia injections (i.e., multiple repeat injections in the oral cavity) has made it difficult to use some of the safety devices that are designed for a single use injection.

The authors provide a great deal of detail regarding their data source, and some of this is confusing. This section could probably be shortened while still providing the reader with adequate information. Nevertheless, the data source seems very well characterized, and has been successfully used in other occupational health studies.

The discussion should focus more on what can be done to â€œengineer-outâ€ the hazard, rather than focus on training- these injuries are really the result of inherently unsafe devices- and are not caused by workersâ€™ failure to adhere to safe work practices. Cleaning up contaminated trays of equipment cannot really be done safely if there are (or may be) exposed contaminated needles on the tray. These results indicate that safer devices are needed here. More discussion that compares and contrasts the risk in dental professionals with other healthcare work populations (i.e., the rates of needlesticks have been steadily declining for nurses since the introduction of safer needled devices).

I was a bit confused by the title and the characterization of dental workers as â€œin the non-hospital settingâ€. I was not aware of the possibility of a large number of dental professionals working in hospitals- my understanding is that most of these workers are in the small office or clinic setting. Therefore, in the introduction section, it might be helpful to simply enumerate the dental professions in the U.S. (by category), and by setting, so that the reader can get a better sense of how that are distributed across work settings.

The writing needs a heavy edit. In particular the punctuation and use of paragraphs needs attention. I have made some edit comments directly to the text which I will try and fax.

Major changes are warranted to strengthen this paper before publication.

Specific text comments (also noted directly in the text) are as follows:

1. Title: I would clarify why you are saying â€œnon-hospitalâ€ - I think readers will assume that most dental professionals work in a non-hospital setting. If there truly is a sizable number working in hospitals, then it might be of interest to present the data for dental professionals in both settings- differences could then be a point of discussion. I would think that in hospital-based dental clinics there is access to the same level of infection control and safety as the rest of the hospital, which is clearly much greater that the availability of these services in a dental practice.

2. Abstract, line 5. The proportion of injuries is not what is being measured here but rather the absolute number of needlestick injuries that are reported. This increase in reporting may be due to a number of factors, (e.g., improved reporting, increased number of dental professionals (denominator), or increased number of procedures, or increase in risk. I think it would be good to state that these data cannot tell you why the increased number occurred (1995-2001).

3. Introduction, pg 2 para 1 and 2. The references cited in the introduction on the risk of infection given an

4. Methodology, pg 2-3. This needs to be shortened and simplified. The SIC 80 vs SIC 82 is not clear. Which are you using and why? I don’t think it is necessary to list every one of the source codes. Readers who want and need more information can contact the senior author.

Pg 4, para 1, line 9-11. All workers with a needlestick are potentially exposed. If the source patient tests positive for one of the major blood borne pathogens (e.g., HCV, HBV, HIV), then the injured worker has a known exposure to one of these pathogens. This should be clarified. Also, it is not clear if the results were available for ALL sources? It is hard to believe that every needlestick that was reported also had source patient serologies available. Therefore, something about the percentage of serological data available might help to put these numbers in perspective.

5. Results, pg 4, para 1. There were 4,695 injury claims 1995-2001. Of these 3,655 were in a non-hospital setting. Of these, 894 were in dental professionals. Maybe it would be better to just say out of the 4,695, 894 were in dental professionals. As it is now it is confusing. There are a lot of other non-hospital based health care workers who could have had an exposure. If there were a total of 4,695 needlestick claims- is it possible that a little less than Â¼ were in dentistry? This is where I think the SIC 80 vs SIC 82 is not made clear enough. Please address this so the reader knows exactly which population of workers you are referring to.

Pg 5, para 3, ln 1: Were all of the 894 source patients really tested- or are the number of positive serologies just referring to: of those that were tested (GIVE NUMBER AND % HERE) 39 were either HBV/HCV/HIV positive and 2 had multiple infections. Of these, were there any seroconversions in the dental professionals that were exposed??

Pg 5, para 5, ln 1. You mention the costs, which is of interest. However, later on in the discussion, you do not discuss these costs or put them in perspective-(e.g., how much per year for dental exposure alone in Washington State, etc.).

6. Discussion. Pg 5, para 1, ln 1. This whole paragraph and the one following it, should be focused on what you found, how this connects to the existing literature, how this varies to some degree with data on other health care workers, including non-hospital based health care workers, etc. Also, you should go into detail on what the data are telling you regarding possible interventions. To me, it is clear that safer devices are needed, especially for the multiple injections that must be given over the course of a patient’s treatment. The problems are not really related to the workers not being careful, but are related to the way that the procedures are carried out and the very nature of the tasks that must be done in a general dental practice. It is not that workers are being careless, it is that the procedures themselves are inherently risky. There is no mention of the regulations or recommendations that pertain to safe work practices: OSHA, NIOSH, CDC, etc. Not even the CDC dental guidelines are noted. The discussion section would be a good place to bring up these relevant regulations and why they might not be working for this particular work population.

7. References: these are incomplete and outdated. Here are some additional references the authors should review and cite appropriately:


8. Figures and Tables
Table 1: Not pertinent to this discussion of dental professionals. Only dental data are provided, so there is no need for this table which lists the other non-hospital health care workers.

Table 2: Not necessary. You have not discussed the differences between dental and non-dental in terms of number of claims.

Table 3. Title should be: Mechanism of Reported Needlestick Injuries Among Dental Professionals, Washington State 1995-2001.
Provide the total number in each subpopulation at the top of the Table.

Figure 1. I don’t think this is necessary since you did not have denominator data to provide a rate. You can just describe the increase in reports in the text.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests