

Letters to the editor

On sharps management costs

In response to Trevor Thornton's article, 'Investigating management costs of disposable and reusable sharps containers' (*AIC* Autumn 1998), a lack of information on Australasian medical waste in the available literature prompts me to congratulate the author on his attempts to rectify the situation. However, in my view, without adequate peer review to ensure clarity of substance and the removal of unsubstantiated statements, articles lose their scientific credibility.

The sample size of the study – 12 – is inordinately disproportionate to the number of hospitals within Australia, which number 600. Further, sample selection reveals participation bias and there is no indication of whether the hospitals selected are comparable in case mix or function. Bigger teaching hospitals undertake larger, more expensive procedures more frequently, and this results in a more intensive demand for sharps containers. In Australia there are eight brands of disposable and two of reusable containers, and there must be economic differences between them. However, this information was not included in the study, meaning that the reader is unable to adequately compare the information obtained from each hospital. To say that reusable containers have "no environmental benefit" is, in my view, astounding. In Australia alone, around 320,000 kg of plastic, in the form of disposable sharps containers, is incinerated yearly, and around 60,000 kg in New Zealand. If reusable containers are used by 75 per cent of Australian hospitals (information indicates that 480 hospitals use them), then 240,000 kg less plastic is being turned into sharps containers, only to be incinerated – surely this represents an enormous reduction in greenhouse gas emissions? These are only a few examples of the inconsistencies and unsubstantiated statements identified within the study. There are simply too many overall to detail in one short letter.

May this article encourage others to more competently identify all the relevant economic, environmental and safety issues relating to the use of disposable versus reusable sharps containers.

Karen Gray

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And again ...

In response to 'Investigating management costs of disposable versus reusable sharps containers' by Trevor Thornton, there is a scarcity of Australasian medical waste articles in the literature, with publication of scientifically-based articles in this area sorely needed. However, Mr Thornton's article is scientifically wanting.

Peer review may have assisted the author to gain clarity, correct the flaws in methodology and data analysis, provide statistical analysis of the quantitative comparisons and produce base scientific conclusions on data rather than anecdotes or opinions. The author should have restricted his statements to those based on the study protocol. Acknowledgement of funding sources, particularly any from industry, would also have been appropriate.

In addition, the author should have included literature that disagrees with his hypotheses. In particular:

- the emphasis in sharps literature is not on the cost of safety devices but their cost-effectiveness;
- the greater the number of sharps container sites, the lower the risk of needlestick injury (NSI);
- large sharps containers, whether disposable or reusable, cost less than small containers;
- devices that effectively reduce NSI do cost more;
- the AS/NZS Standard for Reusables is more stringent than that for disposables and requires a higher needle-penetration force to pass;
- it is staff satisfaction that brings about greater adherence to safer practices;
- the trend internationally is to move away from smaller sized sharps containers;
- hospitals must pay strict attention to not overfilling sharps containers, as it is a prominent cause of NSI to staff;
- sharps containers should be increased in number and placed at many convenient points;

- NSI can be reduced when health-care workers (HCWs) are involved in decision-making;
- the concept of transporting a small sharps container to the bedside is feasible but does suggest a certain naivety with respect to current ward practices;
- the fact that reusables reduce the incineration of plastic by 240,000 kg per year in Australia somewhat refutes the author's statement that reusables have "no environmental benefit";
- the author's concern that reusables may "spread nosocomial infections" is not related to any data, consistent with epidemiological theory or supported by incidents.

The author also states that, with the use of reusable containers, "needlestick injuries have declined." With 50,000 NSIs occurring in Australian HCWs annually, this single statement would negate the article in the view of most risk managers.

In summary, the author's article touches on many issues worth discussing but, with a paucity of scientific standards, fails to address cost-effectiveness, a major omission in safety/cost literature. In all, 450 hospitals use reusable sharps containers, with no adverse comment on costs being received by the manufacturers. The 20 per cent that expend more than they did on disposables have justified their reasons.

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The author replies ...

In response to two letters received regarding my recent article, I most certainly agree with their authors in terms of the paucity of articles on medical waste management and, in particular, articles that offer differing viewpoints to those often quoted in the health-care industry. As the two letters are essentially the same, I will comment on them together.

The aim of my study was "to compare the economic cost to hospitals of using disposable as opposed to reusable sharps containers." The study was not designed to be – nor did it pretend to be – the definitive piece on all aspects of sharps management across Australasia.

Many hospitals were contacted and, in fact, provided data for this study. In addition, the concerns raised about the different waste generation rates between different hospital types are valid. However, confidentiality of information received

was a prerequisite of obtaining permission to use the data. It was only possible to use the information from a small percentage of data received, as a result of it being reliable and complete. Many hospitals still do not have, or cannot access, the necessary base data essential to ensuring cost-effective waste management. This was a limitation of the study and one that can be overcome in the future.


If the differences in results for L/OBD and \$/OBD were not as substantially different as the results indicate, then the comments made may have some justification. The cost of the containers (both reusable and disposable) was factored into the data as per the article. Supplying the price of the containers was not what the article was trying to achieve. Rather, it was comparing the total costs and, to do so, one must include the container price(s).

While reusable sharps containers reduce the volume of plastics being incinerated, there are other environmental issues associated with the treatment of the sharps and cleaning of the containers. The authors provide different data on plastics incinerated (240/320 tonnes) – I am not sure how these figures were arrived at. To accurately determine which variety has a reduced environmental impact, a lifecycle analysis must be conducted. To date, this has not happened; therefore, as I wrote, "nor have environmental benefits been demonstrated"; this is different from what the two letters indicate that I stated.

My article did achieve the aim of stimulating debate (as Ms Gray suggests), but on only one aspect of clinical waste management. Hopefully, it will encourage others to research and disseminate additional findings for the benefit of the environment and health-care organisations.

Trevor Thornton

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