Letters to the Editor

Classifying Waste by Reducing Its Generation

To the Editor:

In reporting the results of their commendable attempt to determine whether any waste generated in preparation for surgery was labeled incorrectly as infectious or contained material that could be recycled,[1] the authors, surprisingly enough, concluded that there was only a modest cost reduction to be derived from the effort. However, what was not taken into consideration was another category of materials that could be considered, namely, reusable. In reality, the solution to reducing waste is not necessarily to be found in the classification of its contents, but rather in reducing its generation at the source.

For example, in a quantitative, qualitative, and critical assessment of surgical waste reported several years ago, the researchers did just that.[2] By using reusable textile products and engaging in available recycling methods for other materials, they estimated that weight reductions of 73% and volume reductions of 93% in surgical waste were possible.

Admittedly, source reduction of the myriad of products used is not an easy task. Perhaps the most difficult one to overcome is changing the personnel's deep-rooted behavioral attitudes and their habitual single-use throwaway mentality. However, considering the impending restrictions on landfill space and the recently enacted stringent incinerator emissions,[3] is there any other choice?

One of the major problems with many disposable types of healthcare products is that the materials of which they are made are neither recyclable nor degradable. Attempts to modify their composition, if successful, certainly would enhance their value, provided, of course, such modifications did not affect their functional value. However, while a positive step, such efforts more than likely would increase cost.

Furthermore, in those situations in which the product is contaminated with blood and classified as infectious or hazardous waste, whether or not the material of which it is made is recyclable is not relevant.

On the other hand, a reusable product is just that. It is designed and intended to be used repeatedly in its original shape and form and can be reprocessed to render it suitable for another identical use and sterile if need be.

Not to be overlooked are the economic benefits to be derived from the use of reusables. As reported in one of the references cited by the authors, a group of surgeons compared the cost of the reusable clothing provided them by one facility with the cost of the comparable disposable items provided them at another facility. Having found the reusables to be substantially less expensive, they concluded that "it was inappropriate for hospitals to place pressure on physicians to practice fiscal austerity in patient diagnosis and treatment and then to waste dollars on the expensive conveniences of modern 'disposable' society".[4]

Today's concerns for the environment are accompanied by a clear and distinct message. The surprise may be that the healthcare community may find a real economic, as well as an environmental, benefit to some aspects in the reprocessing of reusables and that the era of disposables ultimately will be recorded in history as a passing experience in the relentless process of change.

REFERENCES

1. Francis MC, Metoyer LA, Kaye AD. Exclusion of noninfectious medical waste from the contaminated waste stream. *Infect Control Hosp Epidemiol* 1997;18:656-658.
2. Tieszen ME, Gruenberg JC. A quantitative, qualitative, and critical assessment of surgical waste. *JAMA* 1992;267:2765-2768.
3. New incineration rules. *Materials Management in Healthcare.* 1997;6:6. News Update.
4. DiGiacomo JC, Odom JW, Ritota PC, Swan KG. Cost containment in the operating room: use of reusable versus disposable clothing. *The American Surgeon* 1992;58:654-656.

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The author replies.

Dr. Belkin's comments are very important, especially since costs have become such a large focus in waste management. The authors do believe that reusing materials can be necessary and critical in this age of conservation and cost-containment. We believe the future will find a transition from the period that exists now, which involves very little recycling of potentially reusable resources including paper and plastic materials. It is inevitable that our society will restrict landfills and force industry to be more creative in reducing waste.

Certainly, even if operating room waste were viewed as a microcosm for all the problems of waste management in the world, we could see that solutions exist and that functionality of the answers should not be viewed only in dollars and cents. Diverting and recycling waste would provide employment that would require minimum training and expertise.

Social benefits of providing such employment and promoting recycling, rather than spending an equal amount of money on waste removal, will provide solutions that are constructive in this area. A common ground in terms of economics and environmental benefits may indeed be emphasizing the increased use of reusable materials.

Our study has far-ranging economic and social implications, but we can not comment fully on the actual success of reusables. Although we agree with Dr. Belkin's ideas, there is a significant bias against reusables and difficulties associated with implementation of such policies in this country.

As mentioned in the article, excluding the noninfectious waste from the infectious waste stream would reduce the volume of infectious waste, making it easier and cheaper to dispose of infectious waste on an environmental level. Also, by recycling, we can help to preserve our future resources by using our present resources to their fullest potential. Environmental implications of infectious waste disposal include

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preserving landfill areas and maintaining air and water quality.

Although the results of our investigation suggest that modest cost reduction is possible from separation of noninfectious waste from the operating room, this is only a first step in finding solutions. We still feel very strongly, as we summarized in the article, that the use of separated bags for paper and plastic, along with recycling, can greatly reduce the burden on hospital personnel, incineration costs, and ultimately can decrease the burden on our environment. Reducing waste generation by the strategy of increasing use of reusables is certainly an area that must be explored in the future.

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Biohazardous Waste: Risk Assessment, Policy, and Management

To the Editor:

Dr. Keene's recent review[1] of *Biohazardous Waste: Risk Assessment, Policy, and Management,* by Wayne L. Turnberg,[2] has prompted our response in this letter to the editor. It is Dr. Keene's prerogative and obligation to advise Journal readers of his opinions of the merits of this text. Concomitantly, we believe that it also is essential for us, as professionals involved in the management of biohazardous waste, to present alternative views of Mr. Turnberg's work so as to provide a more balanced evaluation.

First, Dr. Keene repeatedly cautions readers throughout his review that "both the regulatory framework provided, and the technology of alternative treatment systems discussed, are in a constant state of flux." Taking the liberty of paraphrasing this statement, Dr. Keene would appear to be advising readers that the information contained in the text may be outdated and therefore of little current value. However, owing to the lengthy and tedious process involved in the publication of scientific works, this same criticism can be made about any reference text. A more positive view would note that there is no other single reference text presently available that contains such detailed information on as great a diversity of alternative medical-waste–treatment technologies. Furthermore, Mr. Turnberg provides his perspectives on the numerous and highly variable local, state, and federal regulations dealing with the handling and treatment of this form of solid waste. Without this information, those interested in the processing of medical waste would have to contact individually more than 40 manufacturers of treatment systems in order to gather the data presented in Mr. Turnberg's text. Additionally, attempting to obtain legible and inexpensive copies of all applicable regulations would be an expensive and frustrating project. Mr. Turnberg has overcome all of the governmental hurdles for the readers. He presents the often-conflicting statutes and rules in a clear and concise manner and includes information to enable the readers to contact each state regulatory agency. We believe that readers of the Journal are sufficiently sophisticated to understand that treatment systems enter and leave the commercial marketplace and that regulations are subject to the proceedings, albeit impetuous actions, of state and federal legislators.

Second, Dr. Keene expresses a similar cautionary tone concerning the State and Territorial Association on Alternate Treatment Technologies (STAATT)[3] guidance document and its inclusion in *Biohazardous Waste.* He points out in the summary of his review that, "Finally, the STAATT document, published in its entirety in this book, has not had a rigorous scientific peer review, nor has it been the subject of public comment. It should not be accepted as a basis for regulatory promulgation until it has been subjected to such review and comment." However, Dr. Keene fails to note that the STAATT guidance manual represents the combined efforts of over 20 state and federal regulators, as well as some of the most informed consultants in the area of biosafety and hazardous-waste management.

He does not inform the readers that the document was the first and only attempt, until the publication of *Biohazardous Waste,* to bring some degree of order and stability to a chaotic area after the sunset of the federal Medical Waste Tracking Act in the early 1990s. He also does not indicate that it required five separate 2- to 3-day conferences over 2 years before the participants reached a consensus on standardized approaches for the regulatory oversight of all phases of biohazardous-waste management. Furthermore, Dr. Keene did not note that many of the members of the STAATT committee would be the same individuals who would be requested to provide peer reviews of the document. The review does not discuss the fact that the STAATT report has been adopted, either in part or in its totality, by many state regulatory agencies and those of several foreign governments.

Finally, the guidance document was published in 1994 and, except for the negative comments contained in Dr. Keene's review, has received positive responses from those concerned with handling, treating, and disposing of biohazardous waste.[4] Consequently, rather than assuming Dr. Keene's negative view of the publication of the STAATT document in *Biohazardous Waste,* we believe that its inclusion can have only the positive consequences noted by Mr. Turnberg, ie, "The publication of this guidance document is an important step in establishing a network of state, local, and federal agencies all working toward the same goal; approving for use in their jurisdiction medical waste treatment and/or destruction technologies that are effective, reliable, environmentally friendly, and safe for workers and the public."

In summary, we believe that Dr. Keene's cautionary statements concerning *Biohazardous Waste* and the STAATT guidance manual are unwarranted and ill-founded. Additionally, we are concerned that this review may deter interested persons who may lack training and experience in this area of waste management from obtaining a text that represents a valuable resource for regulators, manufacturers, scientists and the public.

REFERENCES

1. Keene JH. A review of *Biohazardous Waste: Risk Assessment, Policy, and Management. Infect Control Hosp Epidemiol* 1997;18:530.
2. Turnberg WL. *Biohazardous Waste: Risk Assessment, Policy, and Management.* New York, NY: John Wiley and Sons, Inc; 1996.
3. State and Territorial Association on Alternate Treatment Technologies. *Technical Assistance Manual: State Regulatory Oversight of Medical Waste Treatment Technologies.* 1994.
4. Slavik NS. Use of germicides in medical waste treatment. In: Rutala WA, ed. *Chemical*

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