

# MEDICAL WASTE MANAGEMENT

Quarterly Journal on Medical Waste Handling & Processing

VOL. 1 NO. 3

NOVEMBER 2005

## Shredding of Hospital Waste: Revising Regulatory Policies to Reflect Today's Threats

By John L. Hall & Arthur I. McCoy

Over the past three decades, the medical waste industry has witnessed the regulatory climate of medical waste treatment evolve from emotional reaction to more practical policies that are meant to prevent problems rather than create them. From syringes washing up on New Jersey shores in 1981 to safeguarding healthcare employees and public and waste professionals, the evolution of waste treatment has been dramatic. As of 2005 however, there remain a few state and local agencies that have yet to progress and modify their regulations to reflect the experiences that both the healthcare and waste industries have gained in regards to shredding medical waste.

Perhaps this article will create a new awareness regarding some perceptions that have traditionally shrouded the topic of shredding medical waste. We hope that federal, state, and local regulators will consider the on-site treatment of medical waste as an essential tool for reducing healthcare costs as well as for emergency preparedness—not as something that could be a financial and dysfunctional burden to healthcare providers, as shredding has historically proven.

### HISTORY

Initial regulations demanding that treated medical waste be “unrecognizable” was based upon the perception that shredding completely destroyed syringes, thus making them safe. Additionally, shredded needles provide a visual perception that the material is somehow less harmful. As a result, some shredding technologies were very successful capitalizing on the medical waste hysteria.

As regulators have gained more experience in how to effectively manage this waste stream to ensure the safety of all involved, we have seen the expectation of regulators shift from being concerned with “perception” to demanding “verification”. Simply stated, many regulatory agencies prefer that treated RMW be in a condition that would allow visual verification of treatment. The issue posed with shredded waste is that there is no method to distinguish treated shredded waste from non-treated shredded waste by sight other than small melted plastic particles.

Regulations governing the treatment of medical waste are devised to assure safety and minimize the public health risks. Generally, it is

the healthcare professionals as well as those in the waste industry that are exposed to the treatment process and the waste material. Therefore, the consideration and examination by regulators is two-fold.

### IMPACT OF HEALTHCARE & WASTE INDUSTRIES

As the field of medical waste management in the United States has matured, many hospitals have discovered that shredding is not a panacea for managing their waste stream. The need for disciplined maintenance of the shredding equipment and ongoing staff training to minimize the inclusion of non-shreddables (i.e., prosthetic joints from orthopedics, oxygen bottles, broken metallic tools, etc.) can cause on-site treatment to become cost-prohibitive.

When a hospital ultimately invests in a treatment technology that integrates shredding, it is strongly advisable to avoid shredding prior to treatment. It has been clearly documented that the transmission of such diseases as tuberculosis can and has occurred while operating technologies that pre-shred the waste prior to treatment, despite the use of a HEPA filter. The CDC has examined such occurrences of disease transmission from medical waste that was shredded prior to treatment. According to the Center for Disease Control and Prevention-Healthcare Infection Control Practices Advisory Committee (2001), “*This outbreak demonstrates the need to avoid the use of any medical waste treatment method or technology that can aerosolize pathogens from live cultures or stocks (especially those of airborne microorganisms)...*”

In addition to the potential for aerosolization of dangerous microbes, workers need to take extreme caution when servicing such shredders



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## PUBLICATION STAFF

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6075 Hopkins Road  
Mentor, OH 44060  
Ph: 440-257-6453  
Fax: 440-257-6459

Email: [downassoc2@comcast.net](mailto:downassoc2@comcast.net)

**For subscription information,  
please call 440-257-6453.**

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Annual subscription rate U.S. is \$29.95. Outside of the U.S. add \$10.00 (\$39.95). Contact our main office, or mail-in the subscription form with payment.

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# Shredding of Hospital Waste

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since the shredding equipment is fully contaminated from the untreated waste. These risks will become extremely volatile during an emergency situation when infectious waste volumes spike (i.e., pandemic, material disaster, etc.).

After being treated at the healthcare institution, this material ultimately makes its way to the disposal site, generally a landfill. In accepting treated medical waste at a landfill site, two issues typically arise with shredding. The first is verifying that the material is in fact treated in a manner that is approved by the proper state and local regulatory bodies. Shredded material offers no visual verification of proper treatment. Shredding alone does not constitute treatment. The second concern is that shredded material can easily be carried and scattered by wind at the disposal site. This can create a safety hazard for transfer station and landfill operators. Therefore, it is critical to work with these waste professionals to have a clear understanding of their policies and expectations.

Transfer station and disposal site personnel are integral partners in the waste disposal process and are dependent upon hospitals to safeguard them from exposure. Since the shredded waste is often blown about by wind, it can make contact with the public. Needless to say, this will create unwanted hospital and/or patient attention.

Patrick Quinn, Supervising Waste Specialist with County of Sacramento's Public Works agency, states, "For safety and operational reasons, we much prefer bagged waste. Shredded medical waste on the other hand, presents problems for us since it can be scattered by the wind, increasing potential worker and customer exposure, and...we must be able to verify that medical waste received at the landfill has been properly treated".

In addition to encapsulating the treated material, many regulators insist that there are thermal verification strips affixed to each treated load. This is another means to effectively identify that proper destruction of potentially infection material has occurred.

Southern California's Riverside County has perhaps dealt more with medical waste issues than most other counties in the country. Mathew Hickman (Riverside County Waste Management Department) has been in the challenging position of dealing with medical waste that is frequently found within solid waste loads from various hospitals that dispose of their waste at his facility. "Presently the Riverside County Waste Management Department is concerned for employee safety

in regards to accepting medical waste loads when there is no way for on site load check personnel to verify the waste load has been treated. The Department is currently working with the Local Enforcement Agency and the local District Attorney's office to establish a medical waste acceptance policy which may include a prohibition on accepting shredded medical waste due to the inability to verify proper treatment."

## CONCLUSION

Fortunately, today there are more resources for regulators to turn to when determining how to create legislation governing medical waste treatment. Formulating policies and legislation that are based upon preventing legitimate risks is priority. Contemporary national threats supercede syringes washing up on beaches. Today's headlines encompass terrorist attacks, natural disasters, as well as an imminent pandemic. According to a recent article published in the October 2005 National Geographic Magazine, "The H5N1 bird-flu virus killing poultry and people in Asia could cause the next global pandemic if it gains the ability to spread quickly from person to person. Estimated deaths in such a pandemic range from 7.4 million to an apocalyptic 180 million to 360 million, extrapolating 1918 deaths to today's population."

On-site treatment of medical waste can now be a critical part of disaster preparedness. Treating this infectious material at the point of generation—the health care facility—will prevent public exposure. As the public relies on healthcare institutions to safeguard us by containing and treating infectious diseases, we equally rely on legislators and policy makers to develop guidelines to effectively deal with qualified occupational and public risks. We should learn from the challenges faced by many New York City hospitals during 9/11 and the recent disasters that have hit Louisiana and Mississippi on how ill-prepared our healthcare institutions are in managing infectious waste. On-site treatment must be a critical component of any hospital's infection control arsenal. Compulsory shredding of medical waste can often discourage healthcare institutions from pursuing this responsible method of managing the same infectious material that they generate.

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