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Hospital Waste Management

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Hospital Waste

Nucleic Acid-Based Diagnostics: The Next Step in Early Detection of Disease Outbreaks

Clinical laboratories have been using pathogen nucleic acid-based diagnostic techniques for some time, but now researchers are combining these with gene amplification and extremely sensitive and selective detection methods to provide epidemiologists and public health officials with very early, accurate and specific disease alerts.

In the most promising research, blood samples are drawn from patients and the cells lysed to release both patient and pathogen DNA. Special segments of DNA are added that contain nucleic acid codes common to many pathogenic species. These segments will combine with the pathogen DNA in the lysed sample, but not with the patient DNA. The common DNA codes often lay next to unique DNA code sections specific for a single pathogen. The combined DNA segments are then amplified using either simple or more complicated PCR (polymerase chain reaction) techniques to create many copies. Finally, mass spectrometry—which can distinguish molecular weight differences among DNA segments—is used to specifically identify a unique DNA code and thus a specific disease afflicting the patient. The process can be conducted in a matter of hours.

Nucleic acid-based diagnostics can detect specific genetic markers—for example, drug resistance—which immunoassays cannot. But these techniques are only useful for pathogens that reside in the patient's blood. Organ-specific diseases would be much more difficult to detect.

The FDA has already approved a number of *in vitro* nucleic acid-based diagnostic tests for such pathogens as *C. difficile*, *B. anthracis*, *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *E. Coli*, *Enterococcus faecalis*, Group A & B *Streptococci*, MRSA for *Staphylococcus aureus*, *Mycobacterium tuberculosis*, and *Yersinia pestis*.

Statistical analysis of multiple patients with the same disease at several locations can alert public health officials to an outbreak after just a handful of cases. Catching the signs and identifying the disease early obviously have enormous public health implications for abating epidemics. Within a decade we may have these tools in select hospitals.

Special points of interest:

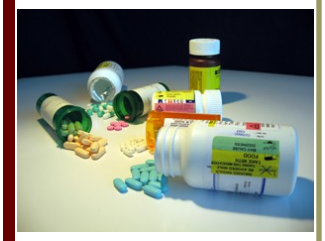
- **Successfully managing dangerous waste while juggling your other jobs**
- **Hazardous Drugs—you have some flexibility in what's hazardous**

Inside this issue:

This is Your Last Newsletter Issue if You Haven't Signed Up!

In an effort to reduce waste and our impact on the environment, we are moving to an all-electronic version of the *Hospital Waste* newsletter. If you're receiving a printed copy of this newsletter via U.S. mail, this is your last issue of *Hospital Waste*. Send an e-mail to the editor at alanbjones@frontier.com. Newsletter issues will be sent as e-mail attachments.

Hazardous Drug Rule: You May Have Some Flexibility in Declaring Which Drugs in Your Formulary are Hazardous



Washington's Hazardous Drug Rule, published in January 2011, requires all healthcare and veterinary facilities whose employees may be exposed to hazardous drugs to prepare a written Hazardous Drug Control Plan by January 1, 2015.

The definition of a hazardous drug is the NIOSH list. But this list is *not* monolithic and there may be considerable flexibility in which of your formulary drugs should designate as hazardous.

You can download the NIOSH 2012 list of hazardous drugs at http://www.cdc.gov/niosh/docs/2012-150/pdfs/2012-150.pdf. Between the columns of drug names and AHFS Pharmacologic Classification is a source number. That source is a reference to other, older lists that were used to compile the complete NIOSH list. These sources include the NIH Clinical Center, Johns Hopkins Hospital, Northside Hospital (Atlanta, GA), PhRMA and the University of Michigan.

These lists of hazardous drugs are referenced because that particular institution designated a particular drug as hazardous, but they don't all agree. NIOSH prepared its master list by simply adding together all the drugs that have been named in all these lists. A few drugs are common to all lists, but many are not.

NIOSH notes that not all the drugs in its list may be hazardous, especially if a drug in your formulary is in a dosage formulation that doesn't pose a high risk of exposure. If you have existing precautions for pregnant employees, you may decide that synthetic hormones should not be included in your planning because they don't affect all exposed employees.

Washington Labor & Industries Adopts New Hazard Communication Rule Incorporating GHS

On May 1, 2014 Washington's Department of Labor & Industries adopted a new Hazard Communication Rule. The new rule is WAC 296-901-14010 and can be found on the internet at http://app.leg.wa.gov/wac/default.aspx?cite=296-901-14010.

Are you in charge of Hazard Communication at your facility? The new rule incorporates changes that will affect new-hire and annual employee training as well as wording in written Hazard Communication (HazComm) Programs at Washington hospitals. Many of the changes are driven by the national adoption of the rules for the Globally Harmonized System of Classification & Labeling of Chemicals (GHS).

Written hazcomm programs and training should address the nine (9) GHS pictograms and the new signal words "Danger" and "Warning." The standardized format for Safety Data Sheets (SDSs) with their sixteen (16) sections must be taught to all employees. Container labels and hazardous chemical storage area warning signs must now display pictograms and signal words. For example, cabinets and lockers where formalin is stored or used must display the TOXIC and LONG-TERM HEALTH EFFECTS pictograms.

Managing Your Facility's Dangerous Waste Activities When You're Wearing 9 Other Hats

Let's face it, dangerous waste (DW; chemical waste that is ignitable, corrosive, reactive, toxic, or persistent) management at most Washington hospitals is overseen by someone who may also be the:

- safety officer,
- emergency preparedness coordinator,
- facilities manager,
- security manager,
- EOC manager,
- infection control officer,
- environmental services manager,
- Support services manager.

If you don't supervise any staff and must oversee DW management by yourself, then you've got to get help, at least in terms of regulatory compliance knowledge. Washington's DW regulations span 230+ pages and there are dozens of technical information bulletins that impact healthcare. Knowledgeable support probably doesn't exist within your facility, but it does in your colleagues at sister facilities, at the cooperative Hazardous Waste & Toxics Reduction Program at Ecology, and in private consultants.

If you do supervise staff, then you can delegate oversight of your facility's DW management. The key is to find the right champion on your staff. That champion should show some interest in chemical waste issues, an attention to detail, and competence in accurately completing paperwork, inspections and records.

But delegation must be accompanied by two critically important elements:

1. Authority, and
2. Accountability

Merely delegating a task to staff doesn't empower them and certainly doesn't insure that the task will be done properly, if at all.

When you delegate, give your overseer the authority to sign Uniform Hazardous Waste Manifests, to speak for you on matters of DW, and perhaps to negotiate contracts with vendors. There is nothing worse than to be given responsibility without the authority to do it right.

Finally, your DW overseer should be given measurable goals and you should meet with your overseer regularly to hold them accountable for achieving, or at least making progress towards, those goals.

Changes to Dangerous Waste Regulations Not Likely to Impact Healthcare

Ecology will adopt changes to the Dangerous Waste Regulations (WAC 173-303), but they are unlikely to appreciably impact healthcare.

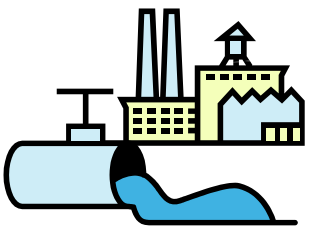
You can read more about the proposed changes at http://www.ecy.wa.gov/programs/hwtr/shoptalkonline/current_issue/story_two.html. Many changes concern permitting and certification.

Pollution Prevention Planning Evolves Under *TurboPlan*

If your hospital has been a Regulated Generator of dangerous waste for at least several years, chances are good that Ecology has asked your staff to prepare a Pollution Prevention (P2) Plan.

In the past couple of years Ecology has transitioned all P2 Plans to its online software database *TurboPlan*. TurboPlan directly links your P2 Plan to your facility's Dangerous Waste Annual Report. Ecology can directly compare values in your Dangerous Waste Annual Report to your P2 Plan.

TurboPlan allows clients to update their P2 Plans in real time. I.e., you don't have to wait until the annual September 1st deadline to input your facility data. As you and your staff successfully implement waste reduction or elimination opportunities, processes can be retired (inactivated) and new processes addressed. P2 planning is a continuous process of improving your facility's waste footprint.



Helping Hospitals Manage Waste & Hazardous Materials

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Hospital Waste is published quarterly for hospital, clinical and medical laboratory waste and hazardous material managers.

Hospital Waste Management is committed to serving the healthcare industry by assisting healthcare facilities in managing their waste and hazardous materials. Hospital Waste aims to provide information about waste regulations and waste management initiatives and to provide helpful hints and general waste information to healthcare waste managers.

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