West Virginia Infectious Medical Waste Program

Infectious Medical Waste Information and Guidance on Segregation and Reduction of Waste Presentation

"There is no epidemiological evidence to suggest that most hospital waste is any more infective than residential waste. Moreover, there is no epidemiological evidence that hospital waste has caused disease in the community as a result of improper disposal. Therefore, identifying wastes for which special precautions are indicated is largely a matter of judgment about the relative risks of disease transmission. The most practical approach to the management of infective waste is to identify those wastes with the potential for causing infection during handling and disposal and for which some special precautions appear prudent. Hospital wastes for which special precautions appear prudent include microbiology, laboratory waste, pathology waste, and blood specimens or blood products. While any item that has had contact with blood, exudates, or secretions may be potentially infective, it is not usually considered practical or necessary to treat all such wastes as infective." (Centers for Disease Control, Morbidity and Mortality Weekly Report 36(2S); 12S, August 21, 1987.

Presentation Narrative

Welcome to this presentation by the West Virginia Bureau for Public Health's Infectious Medical Waste Program.

During this presentation we will define Infectious Medical Waste,
discuss segregation of infectious medical waste from the solid waste stream, and
look at ways to reduce the amount of Infectious Medical Waste generated.

The West Virginia Infectious Medical Waste Program has several goals we wish to achieve through regulation of the Infectious Medical Waste stream:
To minimize the potential for the spread of disease from a medical setting to the general public, and the overall reduction of waste generated in West Virginia, which helps to protect the environment and reduces the expenditures of healthcare facilities for waste treatment.

We're also trying to limit the transmission of the following diseases from blood and fluid-borne pathogens. Some of these diseases are uncommon, but it is because of these and other blood and fluid-borne diseases that we regulate Infectious Medical Waste. It is very important to know what pathogens you may be exposed to while working, especially in laboratory settings.

In order to further understand why Infectious Medical Waste is regulated, we must understand what Infectious Waste is.
According to the West Virginia Infectious Medical Waste Rule, it is medical waste capable of producing an infectious disease.
Waste items are Infectious when they are contaminated by an organism that is pathogenic to healthy humans,
When the organism is not routinely available in the environment, and

When the organism is present in sufficient quantities, and with sufficient virulence to transmit disease.

Infectious medical waste includes:

- Blood and blood products in a free-flowing or unabsorbed state,
- Contaminated sharps,
- Unfixed pathological tissues, and
- Animals used in research that are exposed to infectious agents.

This suction canister contains free flowing blood and must be disposed of in the biohazardous waste.

Blood plasma bags contain remnants of blood products and must go into the biohazardous waste.

Laboratory wastes such as cultures, etiological agents, specimens, stocks, and other contaminated wastes, as well as all vaccine vials are Infectious Medical Waste.

Typical laboratory wastes, such as these culture plates and trays, are infectious waste.

Pathological wastes like these samples that have been fixed and are ready to be cut into slides are not infectious medical waste.
Incineration is the preferred method of disposal for pathological wastes that meet the definition of Infectious Medical Waste. Therefore, wastes containing pathological items must be properly labeled to ensure they are incinerated.

Only isolation wastes from patients having or suspected of having a disease caused by a viral agent listed as Biosafety Level 4 by the CDC meet the definition of Infectious Medical Waste. If the patient is isolated for any other reason and the waste does not otherwise meet the definition of infectious medical waste, it must be disposed as solid waste.
However, it is extremely important to wear the appropriate level of personal protective equipment for every isolation.

Isolation wastes that are not contaminated should be separated and disposed in the general waste stream, (i.e., gowns, masks, and shoe covers that are not soiled).
Regardless of how isolation wastes are disposed, all waste from an isolation room should be treated with caution and the appropriate Personal Protective Equipment must always be worn.

What about OSHA?
OSHA's goal is to ensure that all employees can safely perform their normal duties without undue health risks.
The Bloodborne Pathogen Standard was developed to protect all employees who have occupational exposure to blood or other potentially infectious materials, from HIV and Hepatitis-B infection.
The standard requires employers to evaluate engineering controls that would reduce or eliminate exposure risks to employees (i.e., adoption of a needleless system).

The Bloodborne Pathogen Standard also requires employers to:
Ensure that Universal Precautions are observed.
Provide all necessary personal protective equipment (PPE) and see that it is used.
Offer employees the Hepatitis-B vaccination series free of charge.
Provide Bloodborne pathogen training at the time of hire, and annually thereafter.
Maintain records of all training events.
Maintain a yearly updated Exposure Control Plan, and
Record any exposure incidents and follow-up activities.

The Bloodborne Pathogen Standard defines Regulated Wastes as:
Liquid or semi-liquid blood, or other potentially infectious materials (OPIM);
Contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed;
Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling;
Contaminated sharps; and
Pathological and microbial wastes containing blood or other potentially infectious materials.

OSHA requires that the following fluids (OPIM) be regarded as infectious:

- Any body fluid with visible blood
- Amniotic fluid
- Cerebrospinal fluid
- Pericardial fluid
- Peritoneal fluid
- Pleural fluid
- Saliva in dental procedures
- Semen and vaginal secretions
- Synovial fluid
- Anywhere body fluids are indistinguishable.
- Essentially, all fluids except feces, urine, and vomit without visible blood.

Urine with visible blood must be disposed of as infectious waste.

The following items are specifically not Infectious Medical Waste according to the WV IMW Rule:
Used personal hygiene products such as tissues, diapers, and feminine products;
Gauze and dressings containing small amounts of blood;
Fixed pathological tissues; and
Medical tubing and devices that are certified as not having been contaminated.
Note: All tubing with any visible blood, must be disposed of as infectious waste.

Uncontaminated IV bags are commonly over-classified, but are not infectious and belong in the regular waste.

The paper towels in this garbage bag are not saturated and therefore belong in the regular waste.

Human remains used for medical purposes, under the control of a licensed doctor, or in preparation for burial by a licensed mortician, are not infectious medical waste.
Hair, nails and extracted teeth are likewise, not infectious medical waste.

Universal Precautions are the single most effective measure to control the transmission of Bloodborne Pathogens.
Under Universal Precautions, employees are to treat all human blood and other potentially infectious materials as if they are known to be infectious for Hepatitis B and HIV.

With the widespread adoption of Universal Precautions and use of PPE, the incidences of exposure to medical personnel have decreased, but continue to occur. The following are the three most common ways medical personnel are exposed to infectious agents. When exposures such as these occur, it is imperative that you follow your facility's exposure control plan.
Accidental puncture from contaminated needles, broken glass, or other sharps.
Contact between non-intact skin (cut, abraded, sunburned, or chapped) and infectious body fluids.
Contact between mucous membranes and infectious body fluids, e.g., (splash in the eyes, nose, or mouth).

When exposures do occur, several factors affect possible disease transmission.
An Infected source - The disease stage of the source individual affects the probability of transmission. However, Universal Precautions require that you treat every patient as if they are infected.
Means of entry - the severity and/or depth of: puncture wounds, broken skin (open sores, cuts, acne, sunburn), or contact with a mucus membrane (eye, nose or mouth).
An infective dose - the amount and type of fluid, as well as the amount of infectious agent in the fluid. Blood is the fluid of greatest concern.
A susceptible host - individuals who are immunocompromised, have underlying disease, or a history of long-term antibiotic treatment are at greater risk.

Prevention of exposure incidents and disease transmission can be achieved by following these simple guidelines, first and foremost
Observing Universal Precautions.
Frequent hand washing.
Standard barrier precautions - gloves, gowns, face shields and masks.
Regular cleaning and decontamination of work surfaces. For spill cleanup, the cleaning agent must be labeled as being effective against Mycobacterium or TB.
Hepatitis-B Vaccination of all healthcare workers.
Proper waste handling, both soiled linens and Infectious Medical Waste.

What should you do if you have an exposure incident such as a needle stick or splash in the eyes, nose or mouth?
Wash exposed area with soap and water. Do not use bleach on the wound as it may cause greater injury.
Flush splashes to nose, mouth or skin with water.
Irrigate eyes with water or saline.

Report the exposure to your supervisor and follow your facility's response plan.
For your safety, report any incident no matter how minimal it may seem.

Requirements of the West Virginia Infectious Medical Waste Rule for managing IMW.
Infectious medical wastes must be collected at the point of generation in properly color coded and labeled bags.
Orange bags for autoclaved waste. Red bags for all other treatment methods.
Color coding helps landfill personnel recognize which waste materials have been properly treated because there is no change in appearance after waste is autoclaved.
Biohazard bags must be labeled with the international biohazard symbol and appropriate wording. Biohazard, Biomedical Waste, Infectious Medical Waste, or Regulated Medical Waste

Sharps must be collected at the point of generation in leak-proof and puncture-resistant containers.
Containers must be labeled with the biohazard symbol and appropriate wording.
They should never be completely filled, and never filled above the full line indicated on the container.

Liquid Infectious Wastes pose a major problem in a hospital setting. Because of the large volume generated, they can add a great deal of weight to the infectious waste stream. They can be disposed of several ways:
Placed directly in the biohazard waste (spill potential).
They can be poured down a sanitary sewer (splash hazards).
They can be solidified with a disinfectant solidifier and put in the solid waste (hold time, chemicals).
Each of these methods has its own drawbacks, and your facility should determine which method best suits your needs.

When shipping medical waste off site for treatment, it must be packaged in a labeled, lined, cardboard box or reusable plastic container.
When the box or container is full, the bag lining it must be sealed, and the box or container then sealed shut.
Sealed boxes must be labeled with your facility's name, address, phone number and with the date the container was sealed.
Sealed and labeled boxes can be stored on-site for no more than 30 days.

Every load of medical waste shipped off-site for treatment is tracked using a manifest system.
The manifest is a multi-copy document that accompanies the waste to the treatment facility and lists the number and type of containers shipped.
Every person who takes possession of the waste must sign the manifest, including someone from your facility who must sign before the boxed waste can be shipped off-site.
Your facility is ultimately responsible for your waste until you receive the proof of destruction (top copy) of the manifest.

This manifest is blank and ready for use. There are sections for the generator, the transporter, and treatment facility.

The proof of destruction (top copy) of the manifest must then be returned to your facility within 50 days of the pick-up date.
The West Virginia Infectious Medical Waste Program should be notified of any waste that is unaccounted for 50 days after being picked up.
Manifests must be kept on file at your facility for 3 years.

This manifest has been completed and signed to certify destruction of the waste load.

Every medical facility is required to maintain a spill kit on site to manage infectious waste spills.
The spill kit must contain all of the items you see listed here.
It is very important that each employee know where this spill kit is located, and to have the kit accessible for use at all times.
Health care facilities that are not permitted by the West Virginia Infectious Medical Waste Program are not required to maintain as thorough a spill kit. More information is available on the Program's web site.

Over-classification is the term used when non-infectious waste is disposed of as infectious, or when wastes are not properly separated.
It is the most commonly cited violation, nearly 98% of all facilities are cited during inspection.
Over-classification also creates a financial burden, through higher infectious waste disposal costs for health care facilities.

Paper, gloves, and wrappers are all too commonly put in the biohazardous waste.

IV bags and tubing with no visible blood are not infectious medical waste.

Foley catheters and associated tubing with no visible blood should be disposed as solid waste.
Urine and feces, unless visibly contaminated with blood are not infectious medical waste.

The West Virginia Infectious Medical Waste Program places a great deal of emphasis on the proper classification of wastes from medical facilities.
The main reasons are that medical wastes typically contain large amounts of plastics, which when incinerated produce carcinogenic compounds. Improper incinerator operation increases the potential for atmospheric pollution.
The second reason is that increased amounts of infectious waste generated due to over-classification require more vehicles to haul the waste. This increases the risk of accidents and infectious waste spills during transportation.

Why should you bother to segregate your wastes? Let's look at the cost for waste disposal.
For routine solid wastes being hauled to a landfill, it costs approximately $32 per ton, or $.01 per pound.
Disposal costs for infectious wastes range from $.28 cents, to well over $4.00 per pound.
This price will continue to increase in the future as incinerator emission standards are strengthened, and fuel costs continue to rise.

Let's use a facility in southern WV as an example.
During an 1996 inspection of this facility, it was noted that the ER, ICU, Lab, OB, and OR departments were classifying all wastes as infectious.
Management said that their staff was too busy to segregate garbage.
Their records indicated they generated 245,060 lbs. of infectious wastes in 1996, with a treatment cost of $.29 per pound.

The cost of over-classification! The inspection revealed that 90-95% of the materials in their infectious waste stream were items that should have been disposed of in the solid waste stream.
The total cost for their off-site infectious waste disposal that year was $71,067.
This facility could have saved up to $68,000 by properly segregating their wastes.

Everyone did their part, and with teamwork, the records for this same facility in 1998 showed a reduction by more than 50% to 114,000 lbs. With a cost savings of $38,007.
By 2001, this facility had reduced their infectious waste weight to 58,838 pounds. A 76% reduction and a $54,004 savings from 5 years earlier.

Source separation is the key.
Everyone needs to consider which waste stream an item goes in, every time wastes are disposed.
We understand that everyone is busy, but it only takes a few seconds to separate waste into the proper waste stream.
By properly segregating medical wastes, the weight of Infectious waste can be drastically reduced in every facility.

This is a source separation problem. The sodium chloride IV bag is not infectious waste. However, the whole blood unit and tubing are. By taking an extra second, someone could have put each bag and tubing in the correct waste stream.

Medication bottles are not infectious waste, but the tubing has blood in the end and is infectious waste.
The medication bottle should go into the solid waste, or a special container for collection of non-infectious glass. The tubing should go into the biohazardous waste.

These are some solid waste items commonly over-classified as infectious, frequently found in biohazard containers during inspections.
We recommend that every facility review how items in this list are disposed of and ensure they are segregated into their appropriate waste streams.

Diapers, both adult and infant, are not infectious waste unless there is visible blood contamination.

Chucks and exam table papers are frequently over-classified as infectious waste.

A regular trash bag, or any other items, left on top of biohazard containers results in a violation for inaccessibility.
Biohazard containers must be located and maintained free of obstructions at all times.

You can see medication vials in this sharps container that have been disposed of as infectious.
Remember, the only glass items required to go into sharps containers are vaccine vials and broken ampoules.
Other glass items can be collected in a sealable container labeled as non-infectious glass, for example, a 5-gallon plastic detergent bucket or sturdy cardboard box.

The West Virginia Infectious Medical Waste Program does not assess fines for over classification of solid waste.
Facilities are fining themselves by paying more for the treatment of these materials.
Fines are assessed for putting infectious waste into the regular garbage. The fines are based on the severity of the incident as well as negligence and can be up to $25,000 per day.

Putting infectious medical waste items into the regular garbage is a serious violation of the Infectious Medical Waste Rule, and will result in your facility being fined.

If you misclassify a waste item by placing it into the wrong waste stream, you are not permitted to separate them. Once infectious and non-infectious items are co-mingled, the entire contents are considered infectious.

A little history of where we started. In 1996 WV saw its peak infectious medical waste production, nearly 10 million pounds.
Since then, many facilities have made great strides in reducing the amount of wastes they generate.
From 1996 to 1998 the total amount of infectious medical waste generated in WV dropped roughly 3 million pounds. That is a statewide decrease of 33%.

From 1998 to 2005 the annual Infectious Medical Waste generated in West Virginia has remained around 6 million pounds.
It is estimated that approximately 30% of this 6 million pounds could be eliminated if over-classification is reduced.
West Virginia healthcare facilities could save an estimated $1 million a year.

For more information on infectious medical waste visit our website.
It contains many helpful resources that we hope you are able to take advantage of.
If you have any suggestions about changes or additions to the web site, please let us know.

If you have questions or comments, please feel free to contact us, or visit our online question and answer forum.