

## Infection Control Programs- Preventing The Transmission Of Bloodborne Diseases

### BACKGROUND

We often associate infection control program with healthcare, biomedical research and similar industries. However, workers in maintenance positions or who are designated as first aid providers are also at risk of contracting a variety of infectious diseases through contact with contaminated blood or other body fluids. Bloodborne infectious diseases are transmitted from the infected person (carrier) to the worker (receptor) by bacteria, viruses and other microbial agents. Three bloodborne viruses of particular concern are Hepatitis B Virus (HBV) and Hepatitis C virus (HCV), which can cause liver disease, and Human Immunodeficiency Virus (HIV), which is responsible for Acquired Immune Deficiency Syndrome or AIDS.

Despite the potential for infection, blood or body fluids contaminated with HBV or HIV can be handled safely. Safe handling involves blocking exposure through the use of protective barriers and prudent work practices. However, to be effective, these safe handling procedures must be outlined in a written Infection Control (IC) program, and the elements of the IC program must be constantly reinforced through a formalized training program.

The remainder of this Bulletin outlines the five essential elements of an effective IC program.

### ELEMENT 1: UNIVERSAL PRECAUTIONS

It is not possible to identify all infectious disease sources, even with the best screening methods. Because of this, all materials which could be infectious should be handled as if they are infected. This conservative philosophy for handling biohazard materials is called "Universal Blood and Body Fluid Precautions" or simply "Universal Precautions". The use of Universal Precautions by all personnel who handle biohazard materials is the cornerstone of an effective IC program.

Universal Precautions require that you:

- Use PROTECTIVE BARRIERS to prevent skin and mucous membrane exposure when any contact with blood or other body fluids is anticipated.
- Protective barriers include: Gloves - disposable latex or vinyl, changed frequently Masks and protective eye/face shields - for procedures likely to generate droplets or splashes of blood or other body fluids Gowns or aprons - worn routinely and changed regularly.
- Employ good PERSONAL HYGIENE habits: Hands and all skin surfaces should be washed thoroughly if contaminated with blood or other body fluids.
- Hands should be washed every time gloves are removed.
- Food must never be eaten or stored where biohazard materials are handled. Fluids must NEVER be mouth pipetted in a biohazard area.

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- Individuals with open sores or “weeping” dermatitis should not handle biohazard materials until their condition resolves.
- Prevent PERCUTANEOUS (puncture) exposures through the judicious handling of needles, scalpels and other sharp objects which might penetrate the skin.
- NEVER recap, bend or break syringe needles.
- NEVER remove needles from disposable syringes.
- ALWAYS dispose of needles and other “sharps” in a puncture-resistant container. “Sharps” containers should be located as close as practical to the use area.
- Use needles and non-needle “sharps” equipped with engineered “sharps” injury protection.

HOUSEKEEPING - Special attention needs to be given to housekeeping operations. Housekeeping staff should receive IC training, including Universal Precautions, to assure that they do not unknowingly contact infectious materials through contaminated surfaces or biohazard wastes.

## **ELEMENT 2: BIOHAZARD IDENTIFICATION**

SIGNS & LABELS - All areas, equipment and materials, including wastes, which might be contaminated with infectious agents must be clearly identified by an appropriate label or sign. Such identification must include the signal word BIOHAZARD or the biohazard symbol clearly visible from a distance of five feet. In addition to the signal word or symbol, signage must also include a major message (words or pictographs) that describes the specific hazard or hazards.

AUTHORIZED AREAS - Controls, such as authorized entry lists, should be established to limit biohazard area access to trained personnel only. Such lists should be updated at least annually or whenever procedures or materials change substantially.

## **ELEMENT 3: EMERGENCY PROCEDURES**

BIOHAZARD EXPOSURES - In the event of exposure to infectious materials, a clear action plan must be documented for reporting and responding to the incident. An action plan should include at least:

- Guidelines for immediate action, such as water flushing and disinfecting
- Timely (emergency) medical care and documentation
- Written incident report
- Incident review by committee
- Medical follow up, including ongoing blood testing and treatment, if appropriate

HBV VACCINATIONS - As a precaution, all employees at risk from infectious disease exposures should be offered HBV vaccinations free of charge. Those employees eligible for such vaccinations should be documented and an eligible list established.

SPILL RESPONSE - Step-by-step procedures should be established for the clean up of spilled biohazard materials and the disinfection of contaminated equipment and instruments. This procedure should identify:

- Disinfectants used (i.e. “5.25% sodium hypochlorite diluted 1:100”)
- Personnel authorized to clean up contaminated equipment and areas
- Detailed guidelines for bagging, labeling and disposing of biowastes

## **ELEMENT 4: TRAINING**

A successful IC program requires a high degree of proficiency and diligence on the part of all personnel who handle biohazard materials. This can be achieved only through a formal, performance-oriented training

program. This training program must include an initial training for new employees or personnel reassigned to jobs involving infectious material handling and ongoing reinforcement training for veteran employees. The basic elements of an IC training program include at least the following:

- A discussion of the nature of infectious diseases including epidemiology, modes of transmission, symptomatology and prevention.
- Safe handling of infectious materials through the use of Universal Precautions and specific waste handling/disposal guidelines.
- Location and proper use of protective barriers and equipment such as eyewash stations, hand washing sinks, "sharps" containers and spill cleanup materials.
- Identification and interpretation of signs and labels used to identify infectious materials and biohazard areas.
- Emergency procedures to be followed in case of accidental contamination of persons or objects. Incident documentation, medical intervention and spill cleanup procedures should be outlined in detail.

#### **ELEMENT 5: COMPLIANCE MONITORING**

An effective IC program must continually adjust to the dynamic working environment that characterizes the clinical and biomedical research workplace. A system of routine inspections and process reviews must be established to provide a feedback loop to identify and adjust the IC program as changing conditions dictate. Corrective actions or process control requirements which stem from the IC program must be fully documented and followed through to completion. In addition, the IC program itself must be periodically reviewed to assure that its requirements remain applicable and reasonable.

#### **SUMMARY**

HBV, HCV, and HIV contaminated blood or body fluids can be handled safely through the implementation of a comprehensive Infection Control program. Your local Zenith office can assist you further in establishing your program.