

# VIRGINIA EPIDEMIOLOGY BULLETIN

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## Summary of OSHA's New Regulation of Occupational Exposure to Bloodborne Pathogens\*

**Editor's Note:** What follows is a summary adapted from a fact sheet issued by the U.S. Department of Labor, Occupational Safety and Health Administration, December 2, 1991. Questions about the regulation from Virginia employers should be addressed to Clarence H. Wheeling, Occupational Health Enforcement Division, Virginia Department of Labor and Industry (804) 786-0574.

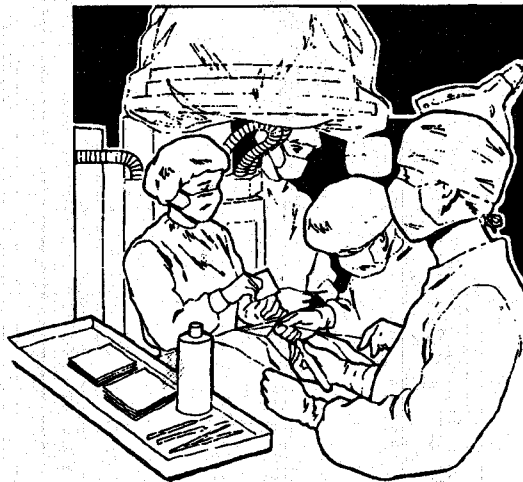
The Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, recently issued its final standard to protect workers against bloodborne infections. The standard limits occupational exposure to blood and other potentially infectious materials since any exposure could result in transmission of bloodborne pathogens which could lead to disease or death.

### Scope

Covers all employees who could be "reasonably anticipated" as the result of performing their job duties to face contact with blood and other potentially infectious materials. OSHA has not attempted to list all occupa-

tions where exposures could occur. "Good Samaritan" acts such as assisting a co-worker with a nosebleed would not be considered occupational exposure.

Infectious materials include semen, vaginal secretions, cerebrospi-



nal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid visibly contaminated with blood and all body fluids in situations where it is difficult or impossible to differentiate between body fluids. They also include any unfixed tissue or organ other than intact skin from a human (living or dead) and human immunodeficiency virus (HIV)-containing cell or tissue cultures, organ cultures and HIV or hepatitis B (HBV)-containing culture medium or other solutions as well as blood, organs or other tissues from experimental animals infected with HIV or HBV.

### Exposure Control Plan

Requires employers to identify, in writing, tasks and procedures as well as job classifications where occupational exposure to blood occurs—without regard to personal protective clothing and equipment. It must also set forth the schedule for implementing other provisions of the standard and specify the procedure for evaluating circumstances surrounding exposure incidents. The plan must be accessible to employees and available to OSHA. Employers must review and update it at least annually—more often if necessary to accommodate workplace changes.

### Methods of Compliance

Mandates universal precautions, (treating body fluids/materials as if infectious) emphasizing engineering

and work practice controls. The standard stresses handwashing and requires employers to provide facilities and ensure that employees use them following exposure to blood. It sets forth procedures to minimize needlesticks, minimize splashing and spraying of blood, ensure appropriate packaging of specimens and regulated wastes and decontaminate equipment or label it as contaminated before shipping to servicing facilities.

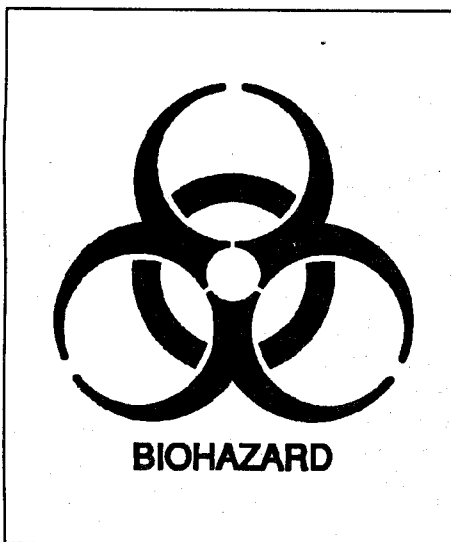
Employers must provide, at no cost, and require employees to use appropriate personal protective equipment such as gloves, gowns, masks, mouthpieces and resuscita-

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tion bags and must clean, repair and replace these when necessary. Gloves are not necessarily required for routine phlebotomies in volunteer blood donation centers but must be made available to employees who want them.

The standard requires a written schedule for cleaning, identifying the method of decontamination to be used, in addition to cleaning following contact with blood or other potentially infectious materials. It specifies methods for disposing of contaminated sharps and sets forth standards for containers for these items and other regulated waste. Further, the standard includes provisions for handling contaminated laundry to minimize exposures.



## HIV and HBV Research Laboratories and Production Facilities

Calls for these facilities to follow standard microbiological practices and specifies additional practices intended to minimize exposures of employees working with concentrated viruses and reduce the risk of accidental exposure for other employees at the facility. These facilities must include required containment equipment and an autoclave for decontamination of regulated waste and enable easy clean up. Additional training and experience requirements apply to workers in these facilities.

## Hepatitis B Vaccination

Requires vaccinations to be made available to all employees who have

## Hepatitis B Vaccine: ID Route Discouraged\*

Some organizations have attempted to decrease the cost of employee hepatitis B vaccination by administering 1/10 the recommended intramuscular (IM) vaccine dose by the intradermal (ID) route; however, hepatitis B vaccine is not licensed by the FDA for ID administration. In addition, ACIP recommends that hepatitis B vaccine be administered by the ID route only when a research protocol is used that includes informed consent from vaccinees and postvaccination antibody testing to detect nonresponders, who would then be eligible for revaccination.<sup>1</sup>

In general, plasma-derived hepatitis B vaccine has induced seroconversion in similar proportions of vaccinees when vaccine has been administered by the IM and ID routes.<sup>2</sup> However, immune responses to recombinant vaccine have not been equivalent after IM and ID vaccination. At least four studies have directly compared the immunogenicity of 1.0-mL doses of recombinant vaccine administered by the IM route to 0.1-mL doses administered by the ID route; in three of these, a greater proportion of vaccinees were protected after three IM doses (94%-97%) than after three ID doses (55%-78%).<sup>3-5</sup> In one study, the immune response was equivalent in both the IM and ID groups<sup>6</sup>; however, the gender composition of these groups differed.

In previous studies of recombinant vaccine, a smaller proportion of men (54%-71%) than women (87%-92%) responded to ID vaccination<sup>3,7</sup>; in addition, both IM and ID vaccination routes induce better immune responses in younger vaccinees.<sup>1</sup> Because of the generally poor immune response to ID vaccination and the demographic composition of public safety workers (e.g., some groups may consist predominantly of men, many of whom may be 40 years of age), ID vaccination for public safety workers is not recommended.

Because ID administration of hepatitis B vaccine induces a poor immune response, especially in older men, any potential savings in costs resulting from ID administration of 1/10 the recommended vaccine dose will likely be negated by the costs of required postvaccination testing and additional vaccination of nonresponders.

ACIP has not recommended the ID administration of hepatitis B vaccine, and FDA has not licensed hepatitis B vaccine for ID administration. Moreover, ID vaccination programs offered by private contractors do not offer substantial cost savings over IM vaccination and may fail to induce immunity in a substantial proportion of vaccinees. For these reasons, vaccination programs should not use the ID route of administration.

## References

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\*Adapted from: Centers for Disease Control. Inadequate immune response among public safety workers receiving intradermal vaccination against hepatitis B—United States, 1990-1991. *MMWR* 1991;40:569-572.

occupational exposure to blood within 10 working days of assignment, at no cost, at a reasonable time and place, under the supervision of a licensed physician/licensed health-care professional and according to

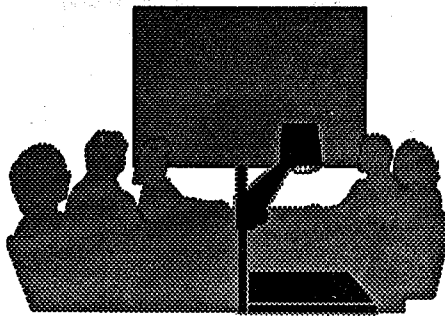
the latest recommendations of the U.S. Public Health Service (USPHS). Prescreening may not be required as a condition of receiving the vaccine. Employees must sign a declination form if they choose not to be vacci-

## Train-the-Trainer Courses Scheduled\*

Train-the-trainer programs to assist employers in understanding the requirements of the new standard for occupational exposure to bloodborne pathogens have been scheduled by the Virginia Department of Labor and Industry, as follows:

- April 9, 1992: Roanoke
- April 22, 1992: Prince William County
- April 23, 1992: Richmond
- May 12, 1992: Virginia Beach

All of these training sessions are scheduled for 8:30am - 12:30pm. Please contact Leslie Cox, VOSH Training, at 804/786-5873 to register.



*\*Health department employees will be trained under a separate, in-house training program.*

involving blood, how to handle exposure incidents, the post-exposure evaluation and follow-up program, signs/labels/color-coding. There must be opportunity for questions and answers, and the trainer must be knowledgeable in the subject matter. Laboratory and production facility workers must receive additional specialized initial training.

### Recordkeeping

Calls for medical records to be kept for each employee with occupational exposure for the duration of employment plus 30 years, must be confidential and must include name and social security number; hepatitis B vaccination status (including dates); results of any examinations, medical testing and follow-up procedures; a copy of the healthcare professional's written opinion; and a copy of information provided to the healthcare professional. Training records must be maintained for three years and must include dates, contents of the training program or a summary, trainer's name and qualifications, names and job titles of all persons attending the sessions. Medical records must be made available to the subject employee, anyone with written consent of the employee, OSHA and NIOSH—they are not available to the employer. Disposal of records must be in accord with OSHA's standard covering access to records.

### Dates

Because all federal OSHA regulations must be adopted in Virginia by the Virginia Safety and Health Codes Board, the effective date in Virginia differs from that specified in the federal standard. In Virginia, the standard takes effect on **June 1, 1992**. The exposure control plan must be completed within 60 days of the effective date (August 1, 1992). Information and training requirements take effect 90 days following the effective date (September 1, 1992). And the following other provisions take effect 120 days after the effective date (October 1, 1992): engineering and work practice controls, personal protective equipment, housekeeping, special provisions covering HIV and HBV research laboratories and production facilities, hepatitis B vaccination, post-exposure evaluation and followup, and labels and signs.

nated, but may later opt to receive the vaccine at no cost to the employee. Should booster doses later be recommended by the USPHS, employees must be offered them.

### Post-exposure Evaluation and Follow-up

Specifies procedures to be made available to all employees who have had an exposure incident plus any laboratory tests must be conducted by an accredited laboratory at no cost to the employee. Follow-up must include a confidential medical evaluation documenting the circumstances of exposure, identifying and testing the source individual if feasible, testing the exposed employee's blood if he/she consents, post-exposure prophylaxis, counseling and evaluation of reported illnesses. Healthcare professionals must be provided specified information to facilitate the evaluation and their written opinion on the need for hepatitis B vaccination following the exposure. Information such as the employee's ability to receive the hepatitis B vaccine must be supplied to the employer. All diagnoses must remain confidential.

### Hazard Communication

Requires warning labels including the orange or orange-red biohazard symbol affixed to containers of regulated waste, refrigerators and freez-

ers and other containers which are used to store or transport blood or other potentially infectious materials. Red bags or containers may be used instead of labeling. When a facility uses universal precautions in its handling of all specimens, labeling is not required within the facility. Likewise, when all laundry is handled with universal precautions, the laundry need not be labeled. Blood which has been tested and found free of HIV or HBV and released for clinical use, and regulated waste which has been decontaminated, need not be labeled. Signs must be used to identify restricted areas in HIV and HBV research laboratories and production facilities.

### Information and Training

Mandates training within 90 days of effective date, initially upon assignment and annually—employees who have received appropriate training within the past year need only receive additional training in items not previously covered. Training must include making accessible a copy of the regulatory text of the standard and explanation of its contents, general discussion on bloodborne diseases and their transmission, exposure control plan, engineering and work practice controls, personal protective equipment, hepatitis B vaccine, response to emergencies

**Cases of Selected Notifiable Diseases, Virginia, February 1 through February 29, 1992.**

Disease	Total Cases Reported This Month						Total Cases Reported to Date in Virginia		
	State	Regions					This Yr	Last Yr	5 Yr Avg
		NW	N	SW	C	E			
AIDS	36	2	12	3	12	7	88	97	72
Campylobacter	28	2	5	1	15	5	69	49	61
Gonorrhoea*	1797	-	-	-	-	-	3814	2262	2482
Hepatitis A	12	0	8	0	1	3	19	26	25
Hepatitis B	27	0	4	5	6	12	38	36	46
Hepatitis NANB	4	0	0	1	1	2	6	3	6
Influenza	0	0	0	0	0	0	56	598	1075
Kawasaki Syndrome	1	0	1	0	0	0	5	5	3
Legionellosis	1	0	0	1	0	0	2	2	2
Lyme Disease	5	0	1	3	0	1	10	2	2
Measles	4	0	4	0	0	0	4	0	1
Meningitis, Aseptic	30	1	11	2	1	15	41	27	26
Meningitis, Bacterial~	21	3	7	2	4	5	29	27	29
Meningococcal Infections	10	0	3	4	1	2	13	7	11
Mumps	11	0	4	4	0	3	14	10	8
Pertussis	2	0	1	0	0	1	2	2	6
Rabies in Animals	21	8	7	1	3	2	30	23	36
Reye Syndrome	0	0	0	0	0	0	0	0	0
Rocky Mountain Spotted Fever	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0
Salmonellosis	52	6	14	4	13	15	109	129	149
Shigellosis	8	2	4	1	0	1	17	27	50
Syphilis (1° & 2°)*	34	0	1	5	4	24	103	149	94
Tuberculosis	14	0	0	7	7	0	22	38	45

*Localities Reporting Animal Rabies:* Arlington 1 fox; Augusta 2 cats, 1 raccoon; Botetourt 1 raccoon; Fairfax 1 fox; Frederick 1 fox, 1 raccoon; Goochland 1 raccoon; Greensville 1 raccoon; Isle of Wight 1 raccoon; Loudoun 2 raccoons; Prince William 1 raccoon, 2 skunks; Shenandoah 1 raccoon; Southampton 1 skunk; Spotsylvania 1 raccoon; Sussex 1 raccoon; Warren 1 cow.

*Occupational Illnesses:* Asbestosis 65; Carpal Tunnel Syndrome 41; Coal Workers' Pneumoconiosis 17; Lead Toxicity 1; Loss of Hearing 5; Repetitive Motion Disorder 1; Thoracic Outlet Syndrome 1; Silicosis 1.

\*Total now includes military cases to make the data consistent with reports of the other diseases.

~Other than meningococcal

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