EPIDEMIOLOGY BULLETIN

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HTLV-III/LAV: Agent Summary Statement

INTRODUCTION

In March 1984, CDC and the National Institutes of Health (NIH), in consultation with scientists, physicians, and public health workers in academia, industry, and government, published a manual entitled *Biosafety in Microbiological and Biomedical Laboratories* ("biosafety manual")* (*1*). The manual describes combinations of standard and special microbiologic practices, safety equipment, and facilities recommended for working with infectious agents in various laboratory settings. The recommendations are advisory and provide a voluntary code of safety practices.

A section of this manual is devoted to a number of specific "agent summary statements" consisting of brief descriptions of documented or anecdotal laboratory-associated infections, the nature of the laboratory hazards, and recommended precautions to be taken in handling and working with certain infectious agents. Contributors to the manual recognized that new agents would be discovered from time to time and recommended that a summary statement for each new agent be developed and published in the *MMWR*. The summary statement for human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV)† follows. All laboratory directors are requested to put a copy of this summary in each of their copies of the biosafety manual and bring it to the attention of laboratory personnel. The recommendations in the summary statement were compiled from published scientific reports and are consistent with the published guidelines for health-care workers (*2–4*).

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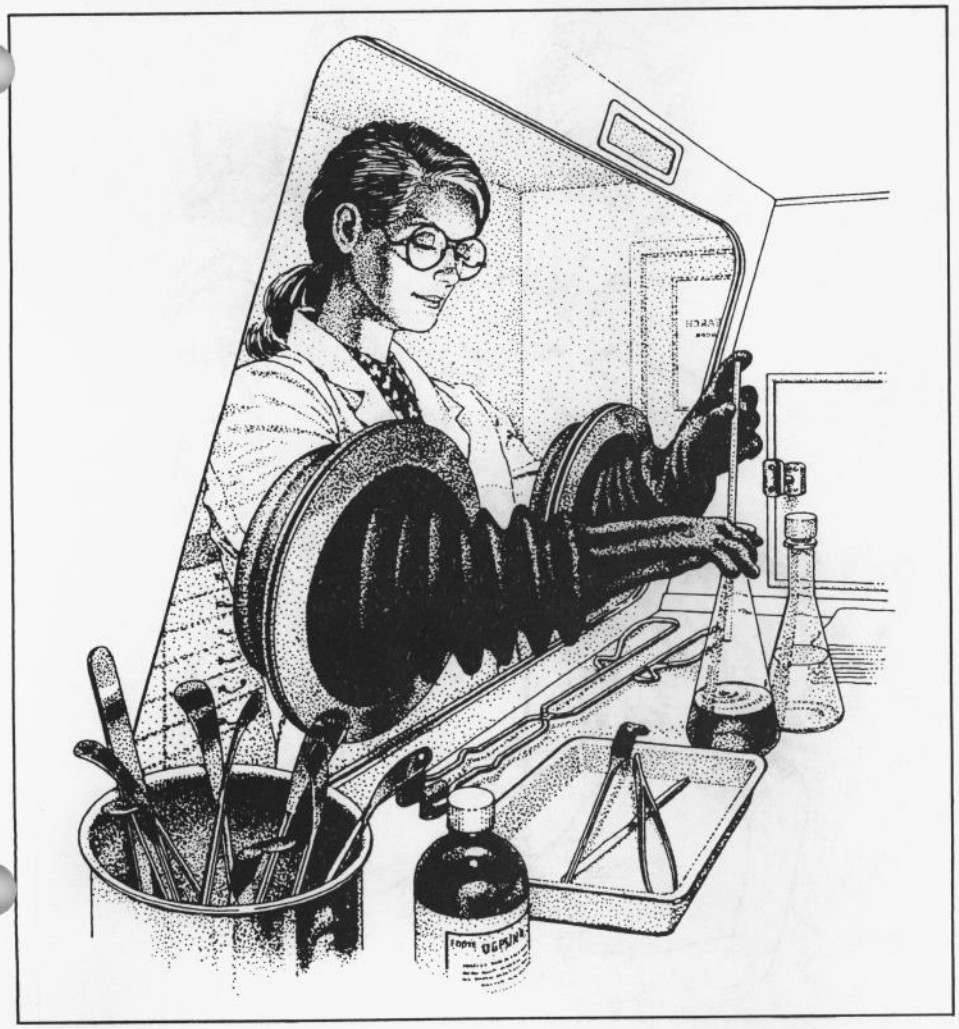

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†The Human Retrovirus Subcommittee of the International Committee on the Taxonomy of Viruses has proposed the name human immunodeficiency virus (HIV) for these viruses (Science 1986;232:697).

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AGENT SUMMARY STATEMENT: HTLV-III/LAV

As of August 15, 1986, no cases of acquired immunodeficiency syndrome (AIDS) that meet the CDC case definition and can be attributed to an inadvertent laboratory exposure have been reported in laboratory workers (*5*). One laboratory worker (*7*) was included among the health-care workers who have had HTLV-III/LAV antibody detected in their serum after sustaining a needlestick injury (*2,3,6–10*), but the source of the infection could not be established. Persons who are infected with HTLV-III/LAV may be asymptomatic, may have AIDS-related complex, or may manifest symptoms of overt AIDS (*11*).

In 1985, two different reagent production laboratories reported that several laboratory workers may have been inadvertently exposed to an aerosol of concentrated HTLV-III/LAV; one worker was cut by a piece of glass from a broken carboy that contained HTLV-III/LAV-infected cells and culture fluid. None of the potentially exposed persons had shown evidence of seroconversion after 6 months in one incident and 12 months in the other as a result of these occupational exposures.

Other reports dealing with HTLV-III/LAV infection in health-care personnel, including laboratory workers (*3,4,6,8–10*), indicate that the risk of bloodborne transmission from inadvertent exposure is considerably less for HTLV-III/LAV than for hepatitis B virus infection. These reports illustrate the need for complete evaluation by a physician and serologic testing of each laboratory worker definitely or possibly exposed to HTLV-III/LAV in a laboratory setting. It is recommended that the Public Health Service guidelines for health-care workers be followed in these instances (*2,3*).

Laboratory Hazards

HTLV-III/LAV has been isolated from blood, semen, saliva, tears, urine, cerebrospinal fluid, brain tissue, and cervical secretions and is likely to be present in other body fluids, secretions, and tissues of infected humans or experimentally infected nonhuman primates. Percutaneous or parenteral inoculation and direct contact of cuts, scratches, abrasions, or mucosal surfaces with suspensions of virus or specimens containing live virus are considered potential routes of infection. Possible transmission of infection via the parenteral route can occur through self-inoculation with needles, broken glass, or other sharp objects that contain HTLV-III/LAV. Spillage is a possible means of exposure and infection, especially spills accompanied by spraying or splashing of infected cell cultures, viral concentrates, and other infectious materials that may come into direct contact with abraded skin or mucous membranes of the eyes, nose, or mouth; however, there are no data documenting or suggesting that transmission of HTLV-III/LAV has occurred in this manner. Ingestion and inhalation have not been documented as modes of transmission of the virus.

Recommended Precautions

1. Biosafety Level (BSL) 2 standards and special practices, containment equipment, and facilities as described in the CDC-NIH biosafety manual are recommended for activities involving clinical specimens, body fluids, or tissues from humans or laboratory animals that may contain HTLV-III/LAV. *These are the same practices recommended for all clinical specimens.* Emphasis is placed on the following practices, which are included in the manual (*1*):
   a. Use of syringes, needles and other sharp instruments should be avoided if possible. Used needles and cutting instruments should be discarded into a puncture-resistant container with a lid. Needles should *not* be resheathed. purposefully bent, broken, removed from disposable syringes, or otherwise manipulated by hand.
   b. Gloves should be worn by all personnel engaged in activities that may involve skin contact with potentially infectious fluids, tissues, or cultures and by laboratory workers with dermatitis or other lesions on the hands who may have direct or indirect contact with potentially infectious materials.

Handwashing with soap and water should be a routine practice immediately after direct contact with potentially infectious materials and on completion of work, even when gloves are worn.

c. Generation of aerosols, splashes, and spills of potentially infectious materials should be avoided in procedures involving body fluids or tissues, during necropsy of cadavers, and in similar procedures on animals experimentally infected with HTLV-III/LAV. Laboratory workers should use a biological safety cabinet when propagating the virus to further reduce the risk of exposure. Although the major precautions are listed here, the CDC-NIH biosafety manual contains additional related precautions (see pages 11–13 for BSL 2 and pages 14–17 [*1*] for BSL 3 when large volumes or concentrates of HTLV-III/LAV are involved). In all instances, the laboratory director is responsible for assessing the biosafety level to be used.

d. Human serum from any source that is used as a control or reagent in a test procedure should be handled at BSL 2 (see pages 11–13 [*1*]). Appended to this Agent Summary Statement is a statement (Addendum 1) issued by CDC on the use of all human control or reagent sera shipped to other laboratories. The Food and Drug Administration requires that manufacturers of human serum reagents use a similarly worded statement.

e. Animal BSL 2 practices, containment equipment, and facilities are recommended for activities involving nonhuman primates experimentally infected with HTLV-III/LAV. Laboratory coats, gowns, or uniforms should be worn by laboratory workers, as is customary for other BSL 2 or 3 practices, depending on the nature of the work, concentration of the virus, and volume of material being handled. Because many animals bite, and some throw feces, urine, or expectorate at humans, animal-care personnel must wear coats, protective gloves, coveralls or uniforms, and face shields as appropriate to protect the skin and mucous membranes of the eyes, nose, and mouth from potential exposure to these substances when working with animals likely to manifest such behavior.

2. Activities such as growing research-laboratory-scale amounts of HTLV-III/LAV or related viruses or virus-producing cell lines, working with concentrated virus preparations, or conducting procedures that may produce droplets or aerosols should be performed in a BSL 2 facility with the additional practices and containment equipment recommended for BSL 3 (*12*).
3. Activities involving industrial-scale, large-volume, or high-concentration production and manipulation of HTLV-III/LAV are to be conducted with BSL 3 requirements (*12*).
4. All laboratory glassware, equipment, disposable materials, and wastes suspected or known to contain HTLV-III/LAV must be decontaminated, preferably in an autoclave, before washing, discarding, etc. Incineration of solid wastes may be used as an alternate method of disposal.
5. There is no evidence that laboratory clothing soiled with materials known or suspected to contain HTLV-III/LAV poses a transmission hazard, and the handling of such clothing is covered under BSL 2 practices. However, to be consistent with BSL 3 recommendations (*1*), when laboratory clothing becomes contaminated with HTLV-III/LAV preparations, it should be decontaminated before being laundered or discarded.
6. Work surfaces should be decontaminated at the end of each day on completion of procedures or when overtly contaminated. Many commonly used chemical disinfectants with such active ingredients as sodium hypochlorite, formaldehyde, glutaraldehyde, or phenols (*4,13–15*) can be used to decontaminate laboratory work surfaces; they can also be used to decontaminate some laboratory instruments, specific areas of contaminated laboratory clothing, and spills of infectious materials. Prompt decontamination of spills and other overt contamination should be standard practice.
7. The prudent and recommended approach to handling human serum known or suspected to contain HTLV-III/LAV is to use the same precautions that should be used routinely to prevent transmission of bloodborne infections, including hepatitis B (*16*). Available data on the effectiveness of heat to destroy HTLV-III/LAV suspected or known to be present in human serum are at variance because of variations in volume of serum, concentration of the virus, temperature, and duration of exposure to heat (*14,15,17*). Similarly, results of chemical analyses or antibody assays may vary when sera are heated before testing according to the analysis or assay being performed (*18–20*). However, there is agreement that testing heated serum for HTLV-III/LAV antibody by enzyme immunoassays often yields false-positive results (*21–23*).
8. No HTLV-III/LAV vaccine has been developed, and no drugs have been shown to be safe and effective for therapy. As part of an ongoing medical surveillance program for employees, all laboratory workers before being assigned to activities with a high potential for exposure should have a serum sample obtained and stored at −40 C (−40 F) for possible future testing. Subsequent serum samples should be obtained and stored in accordance with laboratory policy or following an inadvertent laboratory exposure involving materials described above. When indicated, these serum specimens should be tested by a qualified laboratory using currently recommended procedures for HTLV-III/LAV antibody. Furthermore, the physician requesting serologic testing of these serum specimens must first obtain informed consent from the laboratory worker and describe the confidentiality safeguards available to protect test results. The laboratory workers whose serum specimens are to be tested should understand how the test results are to be used, the implications of a positive or negative test result, and the limits, if any, of the confidentiality safeguards. An employee whose serum HTLV-III/LAV antibody test is reactive and whose subsequent tests and evaluation confirm the pres-

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Agent Summary Statement
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ence of HTLV-III/LAV infection should be counseled to follow the Public Health Service recommendations for preventing transmission (*24,25*).

9. In addition to HTLV-III/LAV, other primary, as well as opportunistic, pathogenic agents may be present in the body fluids and tissues of persons who are antibody positive or have AIDS-related complex or AIDS. Laboratory workers should follow accepted biosafety practices to ensure maximum protection against inadvertent laboratory infection with agents other than HTLV-III/LAV that may also be present in clinical specimens.

ADDENDUM

CDC cautionary notice for all human serum samples used as controls or reagents:

WARNING: Because no test method can offer complete assurance that laboratory specimens do not contain HTLV-III/LAV, hepatitis B virus, or other infectious agents, this specimen(s) should be handled at the BSL 2 as recommended for any potentially infectious human serum or blood specimen in the CDC-NIH manual, *Biosafety in Microbiological and Biomedical Laboratories*, 1984, pages 11–3.

One or more of the following statements should be included with the above warning statement:

- This specimen is negative for hepatitis B surface antigen (HBsAg).
- This specimen is negative for antibody to HTLV-III/LAV.
- This specimen is positive for hepatitis B surface antigen (HBsAg).
- This specimen is positive for antibody to HTLV-III/LAV.
- This specimen has NOT been tested for hepatitis B surface antigen (HBsAg).
- This specimen has NOT been tested for antibody to HTLV-III/LAV.
- This specimen has been heated at 56 C (133 F) for 30 minutes (which will not inactivate HBsAg but will inactivate HTLV-III/LAV).

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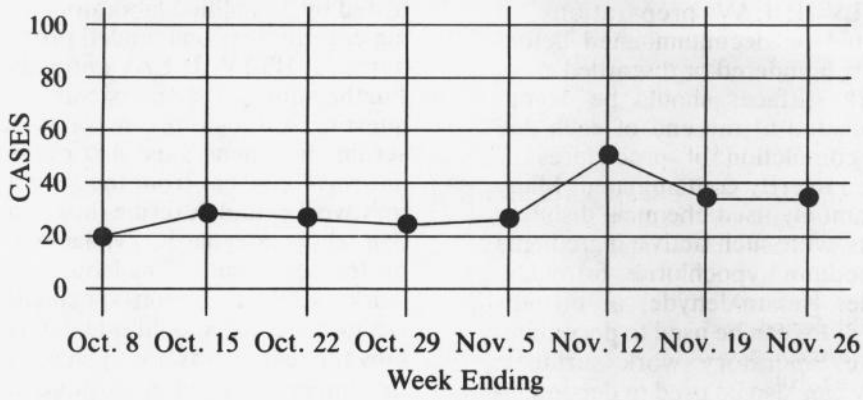
Influenza Surveillance Virginia 1986–1987



Reports of influenza-like illness from 34 sentinel physicians around Virginia increased only slightly in November. No outbreaks were detected. Regional outbreaks of influenza have been reported in other states. A virus resembling A/Taiwan/86 (H1N1) has been isolated from some case-patients. Influenza type B virus has also been isolated from patients in California and Texas.

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Reprinted from MMWR 1986;35:540-2, 547-9.

Have a Idea for the *Bulletin?*

The editor welcomes any reports of cases, outbreaks, or public health problems of interest to the Bulletin's *readers. Such accounts and any other comments or suggestions regarding the* Bulletin *should be addressed to: Editor,* Epidemiology Bulletin, *Office of Epidemiology, Room 700, 109 Governor Street, Richmond, Virginia 23219.*

Subject Index To Volume 86

Sexually Transmitted Diseases Treatment Guidelines

Chlamydia trachomatis Infection

Chlamydia trachomatis is the most prevalent sexually transmitted bacterial pathogen in the United States today. The importance of serious complications of chlamydial infections has been established. Although laboratory tests for detection of *C. trachomatis* are becoming widely available, diagnosis and treatment of these infections are frequently based on the clinical syndrome. The following guidelines are for laboratory-documented infections caused by nonlymphogranuloma venereum strains of *C. trachomatis*.

Treatment of Adults

For uncomplicated urethral, endocervical, or rectal infection:

Recommended Regimens

Tetracycline hydrochloride (HC1) 500 mg by mouth 4 times daily for 7 days

OR

Doxycycline 100 mg by mouth twice daily for 7 days

Alternative Regimens (for patients in whom tetracyclines are contraindicated or not tolerated)

Erythromycin base or stearate 500 mg by mouth 4 times daily for 7 days OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days.

Sulfonamides are also active against *C. trachomatis*. Although optimal dosages of sulfonamides for chlamydial infection have not been defined, **sulfamethoxazole** 1 gram by mouth twice daily for 10 days is probably effective.

Management of Sex Partners

All persons exposed to *C. trachomatis* infection should be examined for STD and promptly treated for exposure to *C. trachomatis* with one of the above regimens.

Follow-Up

When taken as directed, the tetracycline and erythromycin regimens listed above are highly effective (> 95% cure rates). Therefore, post-treatment *C. trachomatis* test-of-cure cultures may be omitted if laboratory resources are limited. Test-of-cure cultures may not become positive until 3–6 weeks after treatment. When they are positive, patients should be retreated with one of the above regimens and any interim sex partners should be treated.

Treatment for Chlamydial Urogenital Infections During Pregnancy

Treatment should be given to women who have proven infection with *C. trachomatis;* if diagnostic tests are not performed, treatment should be given to women with mucopurulent cervicitis and to women whose sex partners have nongonococcal urethritis or nongonococcal epididymitis.

The suggested treatment is **erythromycin base** 500 mg by mouth 4 times daily for 7 days on an empty stomach OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times daily for 7 days.

Erythromycin stearate in the same dosage as base may also be effective, but has not been studied. For women who cannot tolerate these regimens, one-half the daily dose (250 mg base, 400 mg ethylsuccinate) 4 times daily should be used for at least 14 days. The optimal dose and duration of antibiotic therapy for pregnant women has not been established. There are no completely studied alternative regimens for women who are allergic to erythromycin or those who cannot tolerate this antibiotic. Proven treatment failures should be retreated with erythromycin in either of the dosage schedules outlined above.

Simultaneous treatment of male sex partner(s) with tetracycline or doxycycline is an important component of the therapeutic regimen.

Pregnant women at particular risk for chlamydial infections should undergo diagnostic testing for *C. trachomatis* if possible at their first prenatal visit and during the third trimester. Important risk factors include the following: unmarried, age less than 20 years, residence in a socially disadvantaged community (e.g., inner city) and the presence of other sexually transmitted diseases.

Treatment for Established Chlamydial Conjunctivitis of the Newborn

For all cases of ophthalmia neonatorum appropriate tests should be done to rule out *Neisseria gonorrhoeae* as the cause.

The diagnosis of chlamydial conjunctivitis should be established by a laboratory test. Treatment consists of **oral erythromycin syrup** 50 mg/kg/day in 4 divided doses for 2 weeks. Topical therapy provides no additional benefit. If inclusion conjunctivitis recurs after stopping therapy, erythromycin treatment should be reinstituted for an additional 1 to 2 weeks.

Treatment for Chlamydial Pneumonia of Infancy

For established cases of lower respiratory disease due to *C. trachomatis,* the recommended therapy is **oral erythromycin syrup** 50 mg/kg/day in 4 divided doses for 14 days. The optimal duration for therapy has not been established.

Parents of newborn infants with chlamydial infection should be treated with one of the recommended regimens for chlamydial infection.

Reprinted from MMWR 1985;34(4S).

Prophylaxis in Hepatitis B Vaccine Recipients

Should prophylaxis be given to hepatitis B vaccine recipients following HBsAg-positive needlesticks?

When percutaneous, ocular, or mucous membrane exposure to a known HBsAg-positive source occurs in a person who has received one or more doses of hepatitis B (HB) vaccine, the need for additional prophylaxis will depend on the exposed person's antibody response to the vaccine. The exposed person should be tested promptly for anti-HBs. If testing for anti-HBs has already been done within 1 year, these results may be used for decision-making and testing need not be repeated. Adequate antibody response to the vaccine is defined as anti-HBs at a level of at least 10 sample ratio units (SRU) by radioimmunoassay (RIA) or positive by enzyme immunoassay (EIA). Low-level antibody response (<10 SRUs by RIA) is not considered adequate for protection. If the anti-HBs results cannot be known within 7 days of the exposure, no treatment is indicated since the cost of HBIG is high and the likelihood of non-response to HB vaccine is low.

1. Partially vaccinated persons (<3 doses):
   Test for anti-HBs; if adequate antibody levels are present, no HBIG is necessary and the vaccine series should be completed as scheduled. If anti-HBs is low or absent, the exposed person should be given a single dose of HBIG and complete the vaccine series as scheduled.
2. Fully vaccinated persons never tested for anti-HBs after vaccination:
   Test for anti-HBs; if adequate antibody levels are present, no treatment is necessary. If anti-HBs is low or absent, give one dose of HBIG immediately and one booster dose (20 ug) of HB vaccine.
3. Fully vaccinated persons known to have developed adequate antibody:
   Retest for anti-HBs only if previous testing occurred >1 year ago; if adequate antibody levels are present, no treatment is necessary. If anti-HBs is found to be low or absent, give one booster dose (20 ug) of HB vaccine.
4. Fully vaccinated person known to be non-responders:
   If the exposed person has been fully vaccinated but is known to have had low or absent anti-HBs on post vaccination testing, give one dose of HBIG immediately and one booster dose (20 ug) of HB vaccine.

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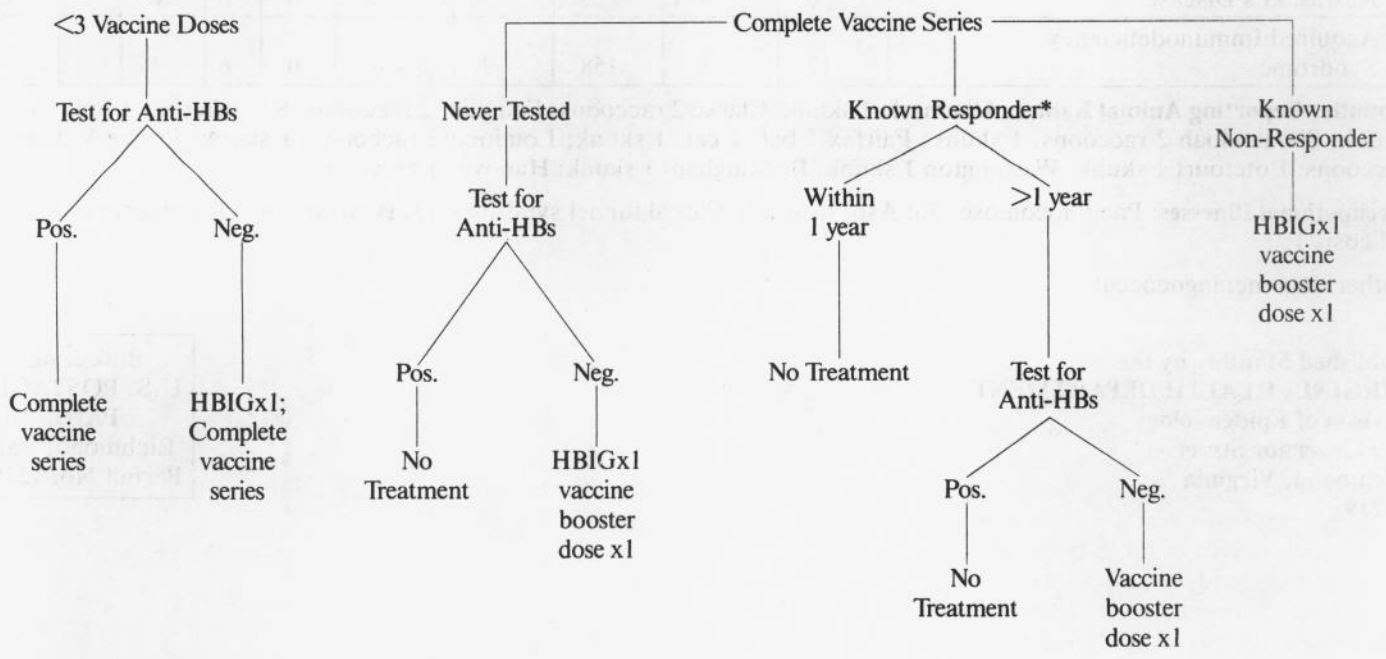
Reprinted from Centers for Disease Control: Hepatitis Surveillance Report No. 49 Issued January 1985

Post-Exposure Prophylaxis Of HBsAg-Positive Exposures In Recipients Of Hepatitis B Vaccine



**Adequate anti-HBs response = ≥ 10 SRU by RIA or positive by EIA.*

Cases of selected notifiable diseases, Virginia, for the period November 1, 1986 through November 30, 1986

Disease	State					Regions				
	This Month	Last Month	Total to Date 1986	Total to Date 1985	Mean 5 Year To Date	This Month N.W.	This Month N.	This Month S.W.	This Month C.	This Month E.
Measles	0	0	60	28	16	0	0	0	0	0
Mumps	6	3	44	47	53	2	0	1	3	0
Pertussis	5	2	41	20	25	5	0	0	0	0
Rubella	0	0	0	2	4	0	0	0	0	0
Meningitis—Aseptic	53	43	291	380	288	9	7	10	15	12
*Bacterial	22	16	225	233	208	6	2	4	3	7
Hepatitis A (Infectious)	28	16	132	161	150	2	8	6	1	11
B (Serum)	73	66	504	519	488	9	15	18	14	17
Non-A, Non-B	13	5	70	89	74	2	3	4	1	3
Salmonellosis	185	150	1390	1580	1397	23	40	32	49	41
Shigellosis	15	9	89	86	361	5	5	0	2	3
Campylobacter Infections	62	51	557	716	480	6	16	11	12	17
Tuberculosis	41	30	350	406	505	6	3	6	17	9
Syphilis (Primary & Secondary)	14	25	318	283	486	1	2	2	2	7
Gonorrhea	1734	1747	17520	17866	18942	—	—	—	—	—
Rocky Mountain Spotted Fever	0	6	51	24	62	0	0	0	0	0
Rabies in Animals	22	19	189	169	350	10	8	2	2	0
Meningococcal Infections	8	4	71	50	68	1	3	3	0	1
Influenza	109	3	4126	1001	1672	0	0	0	3	106
Toxic Shock Syndrome	0	1	9	8	7	0	0	0	0	0
Reyes Syndrome	0	0	2	2	6	0	0	0	0	0
Legionellosis	7	5	26	23	23	2	1	2	1	1
Kawasaki's Disease	0	1	23	30	22	0	0	0	0	0
Acquired Immunodeficiency Syndrome	17	8	158	97	—	0	6	1	8	2

Counties Reporting Animal Rabies: Albemarle 1 skunk; Clarke 2 raccoons; Fauquier 2 raccoons; King George 1 fox; Page 1 skunk; Shenandoah 2 raccoons, 1 skunk; Fairfax 1 bat, 1 cat, 1 skunk; Loudoun 2 raccoons, 1 skunk; Prince William 2 raccoons; Botetourt 1 skunk; Washington 1 skunk; Buckingham 1 skunk; Hanover 1 raccoon.

Occupational Illnesses: Pneumoconioses 36; Asbestosis 28; Carpal tunnel syndrome 13; Hearing loss 13; Poisoning-metal 1; Silicosis 1.

*other than meningococcal

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