LOUISIANA MORBIDITY REPORT

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EPIDEMIOLOGY
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UPDATE: UNIVERSAL PRECAUTIONS FOR PREVENTION OF TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS, HEPATITIS B VIRUS, AND OTHER BLOODBORNE PATHOGENS IN HEALTH-CARE SETTINGS *

INTRODUCTION:

The purpose of this report is to clarify and supplement the CDC publication entitled "Recommendations for Prevention of HIV Transmission in Health-Care Settings."(1)

In 1983, CDC published a document entitled "Guideline for Isolation Precautions in Hospitals" that contained a section entitled "Blood and Body Fluid Precautions". The recommendations in this section called for blood and body fluid precautions when a patient was known or suspected to be infected with bloodborne pathogens. In August 1987, CDC published a document entitled "Recommendations for Prevention of HIV Transmission in Health-Care Setting." In contrast to the 1983 document, the 1987 document recommended that blood and body fluid precautions be consistently used for all patients regardless of their bloodborne infection status. This extension of blood and body fluid precautions to all patients is referred to as "Universal Blood and Body Fluid Precautions" or "Universal Precautions." Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus (HBV), and other bloodborne pathogens.

Universal precautions are intended to prevent parenteral, mucous membrane, and nonintact skin exposures of health-care workers to bloodborne pathogens. In addition, immunization with HBV vaccine is recommended as an important adjunct to universal precautions for health-care workers who have exposures to blood.

Since the recommendations for universal precautions were published in August 1987, CDC and the Food and Drug Administration (FDA) have received requests for clarification of the following issues: 1) body fluids to which universal precautions apply, 2) use of protective barriers, 3) use of gloves for phlebotomy, 4) selection of gloves for use while observing universal precautions, and 5) need for making changes in waste management programs as a result of adopting universal precautions.

*Adapted from Wisconsin AIDS Update, Wisconsin State Health Dept., October 1988. MMWR, Vol. 37, No. 48.

(1) Reprinted from MMWR 1988; 37:277-282, 387-388.

BODY FLUIDS TO WHICH UNIVERSAL PRECAUTIONS APPLY:

Universal precautions apply to blood and to other body fluids containing visible blood. Occupational transmission of HIV and HBV to health-care workers by blood is documented. Blood is the single most important source of HIV, HBV, and other bloodborne pathogens in the occupational setting. Infection control efforts for HIV, HBV, and other bloodborne pathogens must focus on preventing exposures to blood as well as on delivery of HBV immunization.

Universal precautions also apply to semen and vaginal secretions. Although both of these fluids have been implicated in the sexual transmission of HIV and HBV, they have not been implicated in occupational transmission from patient to health-care worker. This observation is not unexpected, since exposure to semen in the usual health-care setting is limited, and the routine practice of wearing gloves for performing vaginal examinations protects health-care workers from exposure to potentially infectious vaginal secretions.

Universal precautions also apply to tissues and to the following fluids: cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. The risk of transmission of HIV and HBV from these fluids is unknown; epidemiologic studies in the health-care and community setting are currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial, and amniotic fluid, and HBsAg has been detected in synovial fluid, amniotic fluid, and peritoneal fluid. One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration. Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

BODY FLUIDS TO WHICH UNIVERSAL PRECAUTIONS DO NOT APPLY

Universal precautions do not apply to feces, nasal secretions, sputum, sweat, tears, urine, and vomitus unless they contain visible blood. The risk of transmission of HIV and HBV from these fluids and materials is extremely low or nonexistent. HIV has been isolated and HBsAg has been demonstrated in some of these fluids; however, epidemiologic studies in the health-care and community setting have not implicated these fluids or materials in the transmission of HIV and HBV infections. Some of the above fluids and excretions represent a potential source for nosocomial and community-acquired infections with other pathogens, and recommendations for preventing the transmission of nonbloodborne pathogens have been published.

PRECAUTIONS FOR OTHER BODY FLUIDS IN SPECIAL SETTINGS

Human breast milk has been implicated in perinatal transmission of HIV, and HBsAg has been found in the milk of mothers infected with HBV. However, occupational exposure to human breast milk has not been implicated in the transmission of HIV nor HBV infection to health-care workers. Moreover, the health-care worker will not have the same type of intensive exposure to breast milk as the nursing neonate. Whereas universal precautions do not apply to human breast milk, gloves may be worn by health-care workers in situations where exposures to breast milk might be frequent, for example, in breast milk banking.

Saliva of some persons infected with HBV has been shown to contain HBV-DNA at concentrations 1/1,000 to 1/10,000 of that found in the infected person's serum.

HBsAg-positive saliva has been shown to be infectious when injected into experimental animals and in human bite exposures. However, HBsAg-positive saliva has not been shown to be infectious when applied to oral mucous membranes in experimental primate studies or through contamination of musical instruments or cardiopulmonary resuscitation dummies used by HBV carriers. Epidemiologic studies of nonsexual household contacts of HIV-infected patients, including several small series in which HIV transmission failed to occur after bites or after percutaneous inoculation or contamination of cuts and open wounds with saliva from HIV-infected patients, suggest that the potential for salivary transmission of HIV is remote. One case report from Germany has suggested the possibility of transmission of HIV in a household setting from an infected child to a sibling through a human bite. The bite did not break the skin or result in bleeding. Since the date of seroconversion to HIV was not known for either child in this case, evidence for the role of saliva in the transmission of virus is unclear. Another case report suggested the possibility of transmission of HIV from husband to wife by contact with saliva during kissing. However, follow-up studies did not confirm HIV infection in the wife.

Universal precautions do not apply to saliva. General infection control practices already in existence — including the use of gloves for digital examination of mucous membranes and endotracheal suctioning, and handwashing after exposure to saliva — should further minimize the minute risk, if any, for salivary transmission of HIV and HBV. Gloves need not be worn when feeding patients and when wiping saliva from skin.

Special precautions, however, are recommended for dentistry. Occupationally acquired infection with HBV in dental workers has been documented, and two possible cases of occupationally acquired HIV infection involving dentists have been reported. During dental procedures, contamination of saliva with blood is predictable, trauma to health-care workers hands is common, and blood spattering may occur. Infection control precautions for dentistry minimize the potential for nonintact skin and mucous membrane contact of dental health-care workers to blood-contaminated saliva of patients. In addition, the use of gloves for oral examinations and treatment in the dental setting may also protect the patient's oral mucus membranes from exposures to the blood, which may occur from breaks in the skin of dental workers hands.

USE OF PROTECTIVE BARRIERS

Protective barriers reduce the risk of exposure of the health-care worker's skin or mucous membranes to potentially infective materials. For universal precautions, protective barriers reduce the risk of exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. Examples of protective barriers include gloves, gowns, masks, and protective eyewear. Gloves should reduce the incidence of contamination of hands, but they cannot prevent penetrating injuries due to needles or other sharp instruments. Masks and protective eyewear or face shields should reduce the incidence of contamination of mucous membranes of the mouth, nose, and eyes.

Universal precautions are intended to supplement rather than replace recommendations for routine infection control, such as handwashing and using gloves to prevent gross microbial contamination of hands. Because specifying the types of barriers needed for every possible clinical situation is impractical, some judgment must be exercised.

The risk of nosocomial transmission of HIV, HBV, and other bloodborne pathogens can be minimized if health-care workers use the following general guidelines:

1. Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. Do not recap used needles by hand; do not remove used needles from disposable syringes by hand; and do not bend, break, or otherwise manipulate used needles by hand. Place used disposable syringes and needles, scalpel blades, and other sharp items in puncture-resistant containers for disposal. Locate the puncture-resistant containers as close to the use area as is practical.

2. Use protective barriers to prevent exposure to blood, body fluids containing visible blood, and other fluids to which universal precautions apply. The type of protective barrier(s) should be appropriate for the procedure being performed and the type of exposure anticipated.

3. Immediately and thoroughly wash hands and other skin surfaces that are contaminated with blood, body fluids containing visible blood, or other body fluids to which universal precautions apply.

GLOVE USE FOR PHLEBOTOMY

Gloves should reduce the incidence of blood contamination of hands during phlebotomy (drawing blood samples), but they cannot prevent penetrating injuries caused by needles or other sharp instruments. The likelihood of hand contamination with blood containing HIV, HBV, or other bloodborne pathogens during phlebotomy depends on several factors: 1) the skill and technique of the health-care worker, 2) the frequency with which the health-care worker performs the procedure (other factors being equal, the cumulative risk of blood exposure is higher for a health-care worker who performs more procedures), 3) whether the procedure occurs in a routine or emergency situation (where blood contact may be more likely), and 4) the prevalence of infection with bloodborne pathogens in the patient population. The likelihood of infection after skin exposure to blood containing HIV or HBV will depend on the concentration of virus (viral concentration is much higher for hepatitis B than for HIV), the duration of contact, the presence of skin lesions on the hands of the health-care worker, and -- for HBV -- the immune status of the health-care worker. Although not accurately quantified, the risk of HIV infection following intact skin contact with infective blood is certainly much less than the 0.5% risk following percutaneous needlestick exposures. In universal precautions, all blood is assumed to be potentially infective for bloodborne pathogens, but in certain settings (eg, volunteer blood-donation centers) the prevalence of infection with some bloodborne pathogens (eg, HIV, HBV) is known to be very low. Some institutions have relaxed recommendations for using gloves for phlebotomy procedures by skilled phlebotomists in settings where the prevalence of bloodborne pathogens is known to be very low.

Institutions that judge that routine gloving for all phlebotomies is not necessary should periodically reevaluate their policy. Gloves should always be available to health-care workers who wish to use them for phlebotomy. In addition, the following general guidelines apply:

1. Use gloves for performing phlebotomy when the health-care worker has cuts, scratches, or other breaks in his/her skin.

2. Use gloves in situations where the health-care worker judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative patient.

3. Use gloves for performing finger and/or heel sticks on infants and children.

4. Use gloves when persons are receiving training in phlebotomy.

SELECTION OF GLOVES

The Center for Devices and Radiological Health, FDA, has responsibility for regulating the medical glove industry. Medical gloves include those marketed as sterile surgical or nonsterile examination gloves made of vinyl or latex. General purpose utility ("rubber") gloves are also used in the health-care setting, but they are not regulated by FDA since they are not promoted for medical use. There are no reported differences in barrier effectiveness between intact latex and intact vinyl used to manufacture gloves. Thus, the type of gloves selected should be appropriate for the task being performed.

The following general guidelines are recommended:

1. Use sterile gloves for procedures involving contact with normally sterile areas of the body.
2. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other patient care or diagnostic procedures that do not require the use of sterile gloves.
3. Change gloves between patient contacts.
4. Do not wash or disinfect surgical or examination gloves for reuse. Washing with surfactants may cause "wicking," ie, the enhanced penetration of liquids through undetected holes in the glove. Disinfecting agents may cause deterioration.
5. Use general-purpose utility gloves (e.g., rubber household gloves) for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored, or if they have punctures, tears, or other evidence of deterioration.

WASTE MANAGEMENT

Universal precautions are not intended to change waste management programs previously recommended by CDC for health-care settings.[1] Policies for defining, collecting, storing, decontaminating, and disposing of infective waste are generally determined by institutions in accordance with state and local regulations. Information regarding waste management regulations in health-care settings may be obtained from state or local health departments or agencies responsible for waste management.

MMWR EDITORIAL NOTE: Implementation of universal precautions does not eliminate the need for other category- or disease-specific isolation precautions, such as enteric precautions for infectious diarrhea or isolation for pulmonary tuberculosis. In addition to universal precautions, detailed precautions have been developed for the following procedures and/or settings in which prolonged or intensive exposures to blood occur: invasive procedures, dentistry, autopsies or morticians' services, dialysis, and the clinical laboratory. These detailed precautions are found in the August 21, 1987, "Recommendations for Prevention of HIV Transmission in Health-Care Settings".[1] In addition, specific precautions have been developed for research laboratories.[2]

References:

1. Centers for Disease Control. Recommendations for prevention of HIV transmission in health-care settings. MMWR 1987; 36 (suppl no.2S).

2. Centers for Disease Control. 1988 Agent summary statement for human immunodeficiency virus and report on laboratory-acquired infection with human immunodeficiency virus. MMWR 1988;37 (suppl no. S4:1S-22S).

LABORATORY TESTING FOR LYME DISEASE

The Office of Public Health Laboratory in New Orleans now has the capability of performing ELISA testing for IgG and IgM antibody interpretation. This will provide more rapid test results and may eliminate the necessity for a second blood specimen.

Physicians are requested to collect one red-topped tube of blood within seven to ten days after the onset of illness. If the blood is not obtained within this time frame, a second specimen may be required. It is important that the lab slip indicate the onset date of the suspected case's illness and the time interval between the onset of symptoms and the date of blood collection. The blood is to either be spun down and the sera sent or the whole blood sent refrigerated.

Contact your local health unit or the Epidemiology Section at 504-568-5005 for additional information and/or assistance.

(There have been four cases of Lyme disease reported in 1988 -- one each from Washington, Avoyelles, Tangipahoa and Rapides Parishes with onset dates from July to September. One case was imported from Mineral Springs, Arkansas).

INFLUENZA B IN LOUISIANA

Influenza activity in Louisiana is monitored by an active surveillance system on a weekly basis beginning in November and usually continues until the end of April. Sentinel physicians also participate in the surveillance by submitting throat swabs for laboratory analysis.

The first indication of activity began the week of 12/23/88. Activity continues to be sporadic throughout the state. The first laboratory confirmed case was reported on 12/29/88. Influenza B was isolated from a 10 year old white male from New Orleans with an onset of 12/6/88. To date, 17 confirmed cases (all influenza B) have been reported in Louisiana.

The state will provide laboratory testing free of charge for any suspected influenza cases. Physicians can obtain culture medium from the local parish health unit.

Amantadine hydrochloride is not effective in the chemoprophylaxis of influenza B. Parents should be instructed not to give aspirin to children with flu-like illness before checking with their physicians.

MEASLES

The first reported case of measles since September, 1986 was reported to the Vaccine Preventable Disease Section on December 26, 1988 by Dr. Hamsley. Containment procedures were begun immediately by Children's Hospital in New Orleans and by the Office of Public Health. There was a positive sero-conversion between the acute and convalescent sera drawn on 12/23/88 and 12/29/88.

The case was a 14-month old unimmunized child who arrived from Taiwan on 12/10/88. On 12/23/88 the child was hospitalized at Children's Hospital. Rash onset was 12/22/88 with a four-day history of cough, coryza and conjunctivitis.

Potential exposure to other persons included hospital employees and patients at Children's Hospital and Dr. Robert Haydel's office in Houma, LA. Follow-up procedures were instituted. To date there have been no additional rash-like illnesses resulting in secondary cases.

LOUISIANA AIDS UPDATE

	CASES	DEATHS	PERCENT
1988 (thru 12/31/88)	258	96	36
TOTAL, ALL YEARS	1076	683	63

The following is a revised lists of reportable diseases/conditions that will become effective as of Januarary 1, 1989

REPORTABLE COMMUNICABLE DISEASES

Acquired Immune Deficiency Syndrome
Amebiasis
Anthrax
Aseptic meningitis
Blastomycosis
Botulism*
Brucellosis
Campylobacteriosis
Chancroid**
Cholera*
Chlamydial infection**
Diphtheria*
Encephalitis (specify primary or post-infectious)
Erythema infectiosum (Fifth Disease)
Foodborne illness*
Genital warts**
Gonorrhea**
Granuloma Inguinale**
Hepatitis, Viral (specify type)
Herpes (genitalis/neonatal)**
Legionellosis
Leprosy
Leptospirosis
Lyme Disease
Lymphogranuloma Venereum**
Malaria
Measles (rubeola)*
Meningitis, Haemophilus
Meningococcal infection (including meningitis)*
Mumps
Mycobacteriosis, atypical***
Ophthalmia neonatorum**
Pertussis (whooping cough)
Plague*
Poliomyelitis
Psittacosis
Rabies (animal & man)
Rocky Mountain Spotted Fever
Rubella (German measles)*
Rubella (congenital syndrome)
Salmonellosis
Shigellosis
Syphilis**
Tetanus
Trichinosis
Tuberculosis***
Tularemia
Typhoid fever
Typhus fever, murine (fleaborne, endemic)
Yellow fever*
Vibrio infections (other than cholera)

*Report suspected cases immediately by telephone. In addition, all cases of rare or exotic communicable diseases and all outbreaks shall be reported.
**Report on STD-43 form
***Report on CDC 72.5 (f 5.2431) card

All reportable diseases and conditions other than the Venereal Diseases and Tuberculosis should be reported on an EPI-2430 card and forwarded to the local parish health unit or the Epidemiology Section, P.O. Box 60630, New Orleans, Louisiana 70160.

OTHER REPORTABLE CONDITIONS

Cancer
Complications of abortion
Congenital hypothyroidism
Lead poisoning
Phenylketonuria
Reye Syndrome
Severe under nutrition (severe anemia, failure to thrive)
Sickle cell disease (newborns)
Spinal cord injury
Sudden infant death syndrome (SIDS)

Health Hints For The International Travelers *

INTRODUCTION

This section includes practical information on how to avoid potential health problems. Some of these recommendations are common-sense precautions; others have been scientifically documented.

Personal and specific preventive measures against certain diseases may require advance planning and advice from a physician concerning immunization and prophylaxis. If more specific information is needed, travelers should contact their local health department or physician.

Travelers who take prescription medications should carry an adequate supply accompanied by a signed and dated statement from a physician; the statement should indicate the major health problems and dosage of such medications, to provide information for medical authorities in case of emergency. The traveler should take an extra pair of glasses or lens prescription, and a card, tag, or bracelet that identifies any physical condition that may require emergency care.

IF MEDICAL CARE IS NEEDED ABROAD

If medical care is needed abroad, travel agents or the American Embassy or Consulate can usually provide names of hospitals, physicians, or emergency medical service agencies. Prior to departure, travelers should contact their own insurance companies concerning their coverage.

MOTION SICKNESS

Travelers with a history of motion sickness or sea sickness can attempt to avoid symptoms by taking anti-motion-sickness pills or antihistaminics before departure.

HEALTH PROBLEMS FOR PREGNANT WOMEN TRAVELING ABROAD

The problems that a pregnant woman might encounter during international travel are basically the same as problems that other international travelers have. These have to do with exposure to infectious diseases and availability of good medical care. There is the additional potential problem that air travel late in pregnancy might precipitate labor.

Information on vaccination and malaria prophylaxis during pregnancy may be obtained from your local health department or private physician.

Potential health problems vary from country to country; therefore, if the traveler has specific questions, she should be advised to check with the embassy or local consulate general office of the country in question before traveling.

HANDICAPPED AIR TRAVELERS

The Airport Operators Council International, Incorporated, publishes "Access Travel: A Guide to Accessibility of Terminals." The 40-page guide lists design features, facilities, and services for handicapped persons in 472 airport terminals in over 50 countries. Single copies are available at no cost from the Architectural and Transportation Barriers Compliance Board. For a copy, write Access America, Washington, D.C. 20202-2101.

ANTHRAX-CONTAMINATED GOATSKIN HANDICRAFTS

Anthrax is a disease caused by a bacterial organism that produces spores that are highly resistant to disinfection. These infectious spores may persist on a contaminated item for many years. Anthrax spores have been found on goatskin handicrafts from Haiti.

Travelers to Caribbean countries are advised not to purchase Haitian goatskin

Source: Health Information for International Travel - 1988. U.S. Dept. of Health and Human Services, Centers for Disease Control.

handicrafts. Because of the risk, importation of goatskin handicrafts from Haiti will not be permitted at U.S. ports of entry; they will be confiscated and destroyed.

RISKS FROM FOOD AND DRINK

Contaminated food and drink are common sources for the introduction of infection into the body. Among the more common infections that travelers may acquire from contaminated food and drink are Escherichia coli infections, shigellosis or bacillary dysentery, giardiasis, cryptosporidiosis, and hepatitis A. Other less common infectious disease risks for travelers include typhoid fever and other salmonelloses, cholera, infections caused by rotaviruses and Norwalk-like viruses, and a variety of protozoan and helminth parasites (other than those that cause giardiasis and cryptosporidiosis). Many of the infectious diseases transmitted in food and water can also be acquired directly through the fecal-oral route.

Water

Water that has been adequately chlorinated, using minimum recommended water-works standards as practiced in the United States, will afford significant protection against viral and bacterial waterborne diseases. However, chlorine treatment alone, as used in the routine disinfection of water, may not kill some enteric viruses and the parasitic organisms that cause giardiasis and amebiasis. In areas where chlorinated tap water is not available, or where hygiene and sanitation are poor, travelers should be advised that only the following may be safe to drink:

1. Beverages, such as tea and coffee, made with boiled water
2. Canned or bottled carbonated beverages, including carbonated bottled water and soft drinks
3. Beer and wine

Where water may be contaminated, ice (or containers for drinking) also should be considered contaminated. Thus, in these areas ice should not be used in beverages. If ice has been in contact with containers used for drinking, the containers should be thoroughly cleaned, preferably with soap and hot water, after the ice has been discarded.

It is safer to drink directly from a can or bottle of a beverage than from a questionable container. However, water on the outside of cans or bottles of beverages might be contaminated. Therefore, wet cans or bottles should be dried before being opened, and surfaces which are contacted directly by the mouth in drinking should first be wiped clean. Where water may be contaminated, travelers should avoid brushing their teeth with tap water.

Treatment of Water

Boiling is by far the most reliable method to make water of uncertain purity safe for drinking. Water should be brought to a vigorous boil and allowed to cool to room temperature - do not add ice. At very high altitudes, for an extra margin of safety, boil for several minutes or use chemical disinfection. Adding a pinch of salt to each quart, or pouring the water several times from one container to another will improve the taste.

Chemical disinfection with iodine is an alternative method of water treatment when it is not feasible to boil water. Two well-tested methods for disinfection with iodine are the use of tincture of iodine (Table 1), and the use of tetraglycine

TABLE 1. TREATMENT OF WATER WITH TINCTURE OF IODINE

Tincture of Iodine (from Medicine chest or first aid kit)	Drops* to be added per quart or liter	
	Clear Water	Cold or Cloudy Water**
2%	5	10

*1 drop = 0.05 ml; let stand for 30 minutes. Water is safe to use.
**Very turbid or very cold water may require prolonged contact time: let stand up to several hours pior to use, if possible.

hydroperiodide tablets (Globaline, Potable-Agua, Coghlan's*, etc.). The tablets are available from pharmacies and sporting goods stores. The manufacturer's instructions should be followed. If water is cloudy, the number of tables should be doubled; if water is extremely cold, an attempt should be made to warm the water, and the recommended contact time should be increased to achieve reliable disinfection. Cloudy water should be strained through a clean cloth into a container to remove any sediment or floating matter, and then the water should be treated with heat or iodine. Chlorine, in various forms, has also been used for chemical disinfection. However, its germicidal activity varies greatly with pH, temperature, and organic content of the water to be purified, and is less reliable than iodine.

There are a variety of portable filters currently on the market which according to the manufacturers' data will provide safe drinking water. Although the iodide-impregnated resins and the microstrainer type filters will kill and/or remove away microorganisms, there are very few published reports in the scientific literature dealing both with the methods used and the tests employed to evaluate the efficacy of these filters against water-borne pathogens. Until there is sufficient independent verification of the efficacy of these filters, CDC makes no recommendation regarding their use.

As a last resort, if no source of safe drinking water is available or can be obtained, tap water that is uncomfortably hot to touch is usually safe. After allowing such hot water to cool to room temperature in a thoroughly cleaned container, it may be used for brushing teeth, as well as for drinking.

Food

To avoid illness, food should be selected with care. All raw food is subject to contamination. Particularly in areas where hygiene and sanitation are inadequate, the traveler should be advised to avoid salads, uncooked vegetables, unpasteurized milk and milk products, such as cheese, and to eat only food that has been cooked and is still hot, or fruit that has been peeled by the traveler. Undercooked and raw meat, fish, and shellfish may carry various intestinal pathogens.

The easiest way to guarantee a safe food source for an infant less than 6 months of age is to have the child breast-feed. If the infant has already been weaned from the breasts, formula prepared from commercial powder and boiled water is the safest and most practical food.

Some species of fish and shellfish can contain poisonous biotoxins, even when well cooked. The most common type of fish poisoning in travelers is ciguatera fish poisoning. Red snapper, grouper, barracuda, amberjack, sea bass, and a wide range of tropical reef fish contain the toxin at unpredictable times. The potential for ciguatera poisoning exists in all subtropical and tropical insular areas of the West Indies, Pacific and Indian Oceans where the implicated fish species are consumed.

* Use of tradenames is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services

TRAVELER'S DIARRHEA

Epidemiology

Travelers' diarrhea (TD) is a syndrome characterized by a twofold or greater increase in the frequency of unformed bowel movements. Commonly associated symptoms include abdominal cramps, nausea, bloating, urgency, fever, and malaise. Episodes of TD usually begin abruptly, occur during travel or soon after returning home, and are generally self-limited. The most important determinant of risk is the destination of the traveler. Attack rates in the range of 20 to 50 percent are commonly reported. High-risk destinations include most of the developing countries of Latin America, Africa, the Middle East, and Asia. Intermediate risk destinations include most of the Southern European countries and a few Caribbean islands. Low risk destinations include Canada, Northern Europe, Australia, New Zealand, the United States and a number of the Caribbean islands.

TD is slightly more common in young adults than in older people. The reasons for this difference are unclear, but may include a lack of acquired immunity, more adventurous travel styles, and different eating habits. Attack rates are similar in men and women. The onset of TD is usually within the first week, but may occur at any time during the visit, and even after returning home.

TD is acquired through ingestion of fecally contaminated food and/or water. Both cooked and uncooked foods may be implicated if improperly handled. Especially risky foods include raw meat, raw seafood, and raw fruits and vegetables. Tap water, ice, and unpasteurized milk and dairy products may be associated with increased risk of TD; safe beverages include bottled carbonated beverages (especially flavored beverages), beer, wine, hot coffee or tea, or water boiled or appropriately treated with iodine or chlorine.

The eating place appears to be an important variable, with private homes, restaurants, and street vendors listed in order of increasing risk.

TD typically results in four or five loose or watery stools per day. The median duration of diarrhea is 3 to 4 days. Ten percent of the cases persist longer than 1 week, approximately 2 percent longer than 1 month, and less than 1 percent longer than 3 months. Persistent diarrhea is thus quite uncommon and may differ considerably from acute TD with respect to etiology and risk factors. Travelers may experience more than one attack of TD during a single trip. Approximately 15 percent experience vomiting, and 2 to 10 percent may have diarrhea accompanied by fever or bloody stools, or both. Rarely is TD life-threatening.

Etiology

Infectious agents are the primary cause of TD. Travelers from industrialized countries to developing countries frequently develop a rapid, dramatic change in the type of organisms in their gastrointestinal tract. These new organisms often include potential enteric pathogens. Those who develop diarrhea have ingested an inoculum of virulent organisms sufficiently large to overcome individual defense mechanisms, resulting in symptoms.

Enteric Bacterial Pathogens

Enterotoxigenic Escherichia coli (ETEC) are the most common causative agents of TD in all countries where surveys have been conducted.

Salmonella gastroenteritis is a well-known disease that occurs throughout the world. In the industrialized nations, this large group of organisms is the most common cause of outbreaks of food-associated diarrhea. In the developing countries, the proportion of cases of TD caused by salmonellae varies but is not high. Salmonellae also can cause dysentery characterized by bloody mucus-containing small-volume stools.

Shigellae are well known as the cause of bacillary dysentery. However, few of the infected travelers have dysentery, but most have watery diarrhea. The shigellae caused TD in about 5 to 15 percent of travelers in the few countries that have been studied.

Campylobacter jejuni is a common cause of diarrhea throughout the world. Recent, limited data have shown that C. jejuni is responsible for a small percentage of the reported cases of TD, some with bloody diarrhea. Additional studies are needed to determine how frequently it causes TD.

Vibrio parahaemolyticus is associated with ingestion of raw or poorly cooked seafood and has caused TD in passengers in Caribbean cruise ships and in Japanese people traveling in Asia. How frequently it causes disease in other areas of the world is unknown.

Other potential bacterial pathogens include Aeromonas hydrophila, Yersinia enterocolitica, Pleisiomonas shigelloides, Vibrio cholerae (non-01), and Vibrio fluvialis.

Viral Enteric Pathogens - Rotavirus and Norwalk-like Virus

Along with the newly acquired bacteria, the traveler may also acquire many viruses. In six studies, for example, 0 to 36 percent of diarrheal illnesses (median 22 percent) were associated with rotaviruses in the stools. However, a comparable number of asymptomatic travelers also had rotaviruses, and up to 50 percent of symptomatic persons with rotavirus infections also had nonviral pathogens. Ten to fifteen percent of travelers develop serologic evidence of infection with Norwalk-like viruses. The roles of adenoviruses, astroviruses, coronaviruses, enteroviruses, or other viral agents in causing TD are even less clear. Although viruses are commonly acquired by travelers, they do not appear to be frequent causes of TD in adults.

Parasitic Enteric Pathogens

The few studies that have included an examination for parasites reveal that 0 to 9 percent have Giardia lamblia or Entamoeba histolytica. Cryptosporidium has recently been recognized in sporadic cases of TD.

Dientamoeba fragilis, Isospora belli, Balantidium coli, or Stronglyoides stercoralis may cause occasional cases of TD. While not major causes of acute TD, these parasites should be sought in persisting, unexplained cases.

Unknown Causes

No data have been presented to support noninfectious causes of TD such as changes in diet, jet lag, altitude, and fatigue. Current evidence indicates that in all but a few instances e.g., drug-induced or preexisting gastrointestinal disorders an infectious agent or agents cause diarrhea in tourists. However, even with the application of the best current methods for detecting bacteria, viruses, and parasites in various studies 20 to 50 percent of cases of TD remain without recognized etiologies.

PREVENTION

There are four possible approaches to prevention of TD. They include instruction regarding food and beverage preparation, immunization, use of nonantimicrobial medications, and prophylactic antimicrobial drugs.

Data indicate that meticulous attention to food and beverage preparation, as mentioned above, can decrease the likelihood of developing TD. Most travelers, however, encounter great difficulty in observing the requisite dietary restrictions.

No available vaccines and none that are expected to be available in the next 5 years are effective against TD.

Several antimicrobial agents have been advocated for prevention of TD. Available controlled studies indicate that prophylactic use of difenoxine, the active metabolite of diphenoxylate (Lomotil*), actually increases the incidence of TD in addition to producing other undesirable side effects. No antiperistaltic agents e.g., Lomotil* and Imodium* are effective in preventing TD. No data support the prophylactic use of activated charcoal.

Bismuth subsalicylate, taken in liquid form as the active ingredient of Pepto-Bismol* (2 oz. four times daily), has decreased the incidence of diarrhea by 60 percent in one study. Available data are not extensive enough to exclude a risk to the traveler from the use of such large doses of bismuth subsalicylate over a period of several weeks. In patients already taking salicylates for arthritis, large concurrent doses of bismuth subsalicylate can produce toxic serum concentrations of salicylate. On the basis of its modest potential benefit achieved with large doses, together with its uncertain risks, bismuth subsalicylate is not recommended for prophylaxis of TD.

Controlled data are available on the prophylactic value of several antimicrobial drugs. Enterovioform* and related halogenated hydrozyquinoline derivatives, e.g., clioquinol, iodoquinol, Mexaform* Intestopan*, and others, are not helpful in preventing TD, may have serious neurological side effects, and should never be used for prophylaxis of TD.

Carefully controlled studies have indicated that two agents, doxycycline and trimethoprim/sulfamethoxazole (TMP/SMX), when taken prophylactically, are consistently effective in reducing the incidence of TD by 50 to 86 percent in various areas of the developing world. One study shows that trimethoprim alone is also effective.

The benefits of widespread prophylactic use of doxycycline or TMP/SMX or TMP alone in several million travelers must be weighed against the potential drawbacks. The known risks include allergic and other side effects (such as common skin rashes, photosensitivity of the skin, blood disorders, Stevens-Johnson syndrome and staining of the teeth in children) as well as other infections that may be induced by antimicrobial therapy (such as antibiotic-associated colitis, Candida vaginitis, and Salmonella enteritis). Because of the uncertain risk of widespread administration of these antimicrobial agents, their prophylactic use is not recommended. Nor is there any basis for recommending their use prophylactically for special groups of travelers. Furthermore, there is no documented evidence that there are any groups of disease entities that are worsened sufficiently by an episode of TD to the risk the rare undesirable side effects of prophylactic antimicrobial drugs. On the basis of apparent risk/benefit ratios, prophylactic antimicrobial agents are not recommended for travelers. Available data support only the recommendation that travelers be instructed in regard to sensible dietary practices as a prophylactic measure. This recommendation is justified by the excellent results of early treatment of TD as outlined below. Some travelers may wish to consult with their physician and may elect to use prophylactic antimicrobial agents for travel under special circumstances, once the risks and benefits are clearly understood.

TREATMENT

Individuals with TD have two major complaints for which they desire relief - abdominal cramps and diarrhea. Many agents have been proposed to control these symptoms, but few have been demonstrated to be effective by rigorous clinical trials.

* Use of tradenames is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services

Non-specific Agents

A variety of "adsorbents" have been used in the treatment of diarrhea. For example, activated charcoal has been found to be ineffective in the treatment of diarrhea. Kaolin and pectin have been widely used for diarrhea. The combination appears to give the stools more consistency but has not been shown to decrease cramps and frequency of stools nor to shorten the course of infectious diarrhea.

Lactobacillus preparations and yogurt have also been advocated, but no evidence supports these treatments for TD.

Bismuth subsalicylate preparation (1 oz. every 30 minutes for eight doses) decreased the rate of stooling by one-half in a study of travelers with diarrhea when compared with a placebo group. However, there was no difference between the two groups in stool output in the first 4 hours of the study. There is concern about taking, without supervision, large amounts of bismuth and salicylate, especially in individuals who may be intolerant to salicylates, who have renal insufficiency, or who take salicylates for other reasons.

Antimotility Agents

Antimotility agents are widely used in the treatment of diarrhea of all types. Natural opiates (paregoric, deodorized tincture of opium, and codeine) have long been used to control diarrhea and cramps. Synthetic agents, diphenoxylate and loperamide, come in convenient dosage forms and provide prompt symptomatic but temporary relief. However, they should not be used in patients with high fever or with blood in the stool. These drugs should be discontinued if symptoms persist beyond 48 hours. Diphenoxylate and loperamide should not be used in children under the age of 12.

Antimicrobial Treatment

Travelers who develop diarrhea with three or more loose stools in an 8-hour period, especially if associated with nausea, vomiting, abdominal cramps, fever, or blood in the stools, may benefit from antimicrobial treatment. A typical 3- to 5-day illness can often be shortened to 1 to 1-1/2 days by effective antimicrobial agents. Those best studied to date are daily TMP/SMX (160 mg TMP and 800 mg SMX) or TMP alone, 200 mg taken twice daily. Preliminary evidence suggests that doxycycline, taken 100 mg twice daily, is also effective. Three days of treatment is recommended, although 2 days or fewer may be sufficient. Nausea and vomiting without diarrhea should not be treated with antimicrobial drugs.

Travelers should consult a physician, rather than attempt self-medication, if the diarrhea is severe or does not resolve within several days; if there is blood and/or mucus in the stool; if fever occurs with shaking chills; or if there is dehydration with persistent diarrhea.

Oral Fluids

Most cases of diarrhea are self-limited and require only simple replacement of fluids and salts lost in diarrheal stools. Fluid and electrolyte balance can be maintained by potable fruit juices, soft drinks preferably caffeine-free, and salted crackers. Iced drinks and noncarbonated bottled fluids made from water or uncertain quality should be avoided. Dairy products aggravate diarrhea in some people and should be

TABLE 2. FORMULA FOR TREATMENT OF DIARRHEAL DISEASE

Prepare 2 separate glasses of the following:

Glass Number 1	
Orange, apple, or other fruit juice (rich in potassium)	8 ounces
Honey or corn syrup (contains glucose necessary for absorption of essential salts)	1/2 teaspoon
Salt, table (contains sodium and chloride)	8 ounces
Glass Number 2	
Water	8 ounces
Soda, baking (contains sodium bicarbonate)	1/2 teaspoon

Drink alternatively from each glass until thrist is quenched. Supplement as desired with carbonated beverages, water, or tea made with boiled or carbonated water. Avoid solid foods and milk until recovery occurs. It is important that infants continue breast-feeding and receive water as desired while receiving these salt solutions.

avoided. Travelers may prepare their own fruit juice from fresh fruit. A good formula for the treatment of the more common diarrheal diseases is provided in Table 2. This formula can be used whether or not antidiarrheal drugs are taken. Individuals with severe dehydration may require special fluid and electrolyte replacement in the form of oral replacement solutions such as those recommended by the World Health Organization.

Infants with Diarrhea

The greatest risk to the infant with diarrhea is dehydration. Dehydration can often be prevented by feeding the infant thin porridges and soups which normally contain salt, in addition to the infant's usual food. Infants with diarrhea who exhibit signs of mild dehydration, e.g. thirst and restlessness, should be given an oral rehydration solution (ORS), such as the one produced by the World Health Organization. The packet of salts and carbohydrate should be added to a liter of boiled or treated water, once prepared, it should be kept for no longer than 12 hours at room temperature, or 24 hours refrigerated. The dehydrated child will drink ORS avidly; ORS is given ad lib to the child as long as the dehydration persists. The infant who vomits the ORS will usually keep it down if the ORS is offered in frequent small sips. Breast-feeding, or formula, gruel, and soup feeding should be continued throughout the illness.

Immediate medical attention is required for the infant with diarrhea who develops signs of moderate to severe dehydration (Table 3), bloody diarrhea, fever greater than 102°F, or persistent vomiting. While medical attention is being obtained, the infant should be offered ORS.

Precautions in Children and Pregnant Women

Although children do not make up a large proportion of travelers to high-risk areas, some children do accompany their families. Teenagers should follow the advice given to adults, with possible adjustments of doses of mediciation. Physicians should be aware of the risks of tetracyclines to children under 12 years. There is a paucity of data available about usage of antidiarrheal drugs in children. Drugs should be prescribed with caution for pregnant women and nursing mothers.

TABLE 3. ASSESSMENT OF THE DEHYDRATION LEVELS IN INFANTS

	Signs		
	Mild	Moderate	Severe
General Condition	Thirsty Restless Agitated	Thirsty Restless Irritable	Withdrawn Somnolent or comatose
Pulse	Normal	Rapid and Weak	Rapid and Weak
Anterior Fontanelle	Normal	Sunken	Very Sunken
Eyes	Normal	Sunken	Very Sunken
Tears	Present	Absent	Absent
Urine	Normal	Reduced and Concentrated	None for several hours
Weight Loss	4-5%	6-9%	10% or more

* Jiana Brothers Packaging Co., Inc. Kansas City, Missouri. Use of names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services

Human Parvovirus B-19 (Fifth Disease) and Pregnancy*

Parvovirus B-19 was isolated in 1975 and was subsequently implicated as the causative agent of fifth disease (erthythema infectiosum) in 1983. The entire spectrum of human parvovirus infection (HPV B-19) is still being defined.

The highest attack of fifth disease occurs in school age children. The incubation period varies from four to fourteen days but can be as long as twenty days and the secondary attack rate may be as high as 50 to 60% among susceptible persons. The school outbreaks usually begin in mid to late winter but can occur at any time of the year. Fifth disease appears to occur cyclically. Studies suggest person-to-person transmission by exposure to infectious respiratory secretions and a person is believed to be infectious approximately five days before onset of illness and to a lesser degree two days after. There may also be a short period of viremia.

The spectrum of disease in school children may range from asymptomatic to a full-blown three-stage illness involving an intensely red facial rash giving the distinctive "slapped cheek" appearance. The second stage may appear one to four days later with a symmetrical maculopapular rash appearing on the arms, moving to involve the trunk, buttocks and thighs. In the third stage, lasting from one to three weeks, the rash occurs and fluctuates in intensity with exposure to extreme temperature, sunlight and emotional stress. Fifty to 60% of symptomatic patients have a prodromal phase manifest by fever, malaise, myalgias, upper respiratory or gastrointestinal symptoms lasting 1-4 days.

Since 1984, numerous reports have linked B-19 infection with fetal deaths. However, most of the 170 or more cases of B-19 infection during pregnancy reported in the literature have led to no abnormalities in the infant. There is no evidence to link congenital abnormalities with B-19 infection. Current understanding is that only B-19 IgG antibody negative women are at risk of fetal loss due to maternal B-19 infection. Serologic studies show that in the U.S. the adult population has a B-19 IgG antibody positivity rate of 30-60%. In addition, the risk of fetal loss due to B-19 infection, seems to be greatest in the first half of pregnancy. Mothers of school-age children and teachers are at particular risk of exposure. Available data is very limited but suggests the risk of fetal death to a woman with B-19 infection in the first half of pregnancy is probably less than 5%. When this risk estimate is combined with the secondary attack rate of 50% in a household there is an estimated 2.5% risk of fetal death in a susceptible woman by way of a household contact. With a secondary attack rate of about 15% in the school setting, a susceptible teacher in the first half of pregnancy has an estimated risk of less than 1% by way of contact with an infected student. These figures are based on very limited data and should be considered only rough estimates at best.

Formal approaches to the management of pregnant, susceptible women with continuing exposure to B-19, such as a teacher in a school where a fifth disease outbreak is occurring, must be based on estimations of risk and consideration of options by the pregnant woman and her physician. In cases of household and school exposure, it would be helpful to determine the antibody status of the exposed pregnant woman, however; the resources to provide antibody testing are not readily available.

Further studies are underway to determine rates of infection after different types of exposure and ways to prevent fetal death subsequent to maternal B-19 infection. If an exposure situation comes to your attention,

*Adapted from Communicable Disease Bulletin, Oklahoma Dept. of Health. October 3, 1988. Vol. 88, No. 19.

contact your local health unit or the Epidemiology Section, Office of Public Health in New Orleans at (504) 568-5005.

Blood Bank Screening for HTLV- 1*

Blood centers have recently begun screening all blood donations for evidence of Human T Lymphotropic Virus 1 (HTLV-1), a second human retrovirus. The first retrovirus involved in blood center screening was the human immunodeficiency virus 1 (HIV), the virus that causes AIDS, formerly called HTLV-III. HTLV-1 was identified in 1978 and has been found to be associated with adult T-cell leukemia (ATL), tropical spastic paraparesis (TSP) also known as HTLV-1 associated with myelopathy (HAM).

ATL is a malignancy of T-lymphocytes that has a long incubation period that may be from years to decades and differs from the classic chronic lymphocytic leukemia of T-cell origin in several aspects. The clinical course of ATL is more aggressive, with a shorter survival time and cutaneous (skin) involvement is common but the leukemia cells do not infiltrate into the epidermis. Hypercalcemia and hepatosplenomegaly are frequent occurrences, with hypercalemia being the most important prognostic determinant.

TSP, also known as HAM, is a neurologic disorder resulting in mild paralysis and muscle spasticity which affects the lower trunk and limbs. The onset of symptoms is insidious, the course of the disease is slowly progressive and chronic, and the patient remains cognitively intact. TSP is clinically similar to multiple sclerosis (MS).

HTLV-1 infections have been found in Japan, parts of Africa, the Caribbean and to a lesser extent in certain regions of the United States. In the U.S., HTLV-1 antibody seroprevalence is higher among blacks born in the southeastern states and outside the U.S. In a recent study of sera from 40,000 blood donors in the U.S., HTLV-1 antibodies were found in 10 blood donors (0.025%) using both a screening test and confirmatory procedures.

In a number of studies, the prevalence of antibodies to HTLV-1 increased with age and was higher in females. The HTLV-1 is transmitted by way of sexual contact, blood, and possibly from mother to baby either transplacentally, at birth or via breast milk.

In a Japanese study, blood transfusions have been implicated as a significant means of HTLV-1 transmission. Approximately 63% of recipients of HTLV-1 antibody positive blood seroconverted but none to date have developed ATL or TSP.

Much like HIV antibody testing, the seriologic testing for HTLV-1 consists of an initial enzyme-linked immunosorbent assay (ELISA or EIA) and if that test is repeatedly positive, it is followed by a validating or confirmatory test.

If health care providers need additional information on this topic, please contact the Epidemiology Section (504) 568-5005 or P.O. Box 60630, New Orleans, LA 70160.

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* Adapted from Wisconsin Aids Update, Wisconsin State Health Dept., October 1988 amd MMWR, Vol. 37/No. 48.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS REPORTED MORBIDITY SEPTEMBER, 1988	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1988)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1987	0	0	360	42	0	59	110	375	3	0	19	304	184	0	670	0	12026	563	12
TOTAL TO DATE 1988	0	0	268	17	2	88	144	260	5	10	47	494	254	4	428	78	11750	667	7
TOTAL THIS MONTH	0	0	16	1	0	22	21	20	0	1	4	55	24	1	67	25	1413	90	0
ACADIA															2		4		
ALLEN								1											
ASCENSION						1											12	1	
ASSUMPTION																	7		
AVOYELLES																	2		1
BEAUREGARD																	2	1	
BIENVILLE																	1		1
BOSSIER						1						1	1		1	1	8		1
CADDO						2		2				10	1		8	1	211	2	1
CALCASIEU			2					1				1	1		6		39		
CALDWELL															2				
CAMERON							4												
CATAHOULA																	5		
CLAIBORNE																	6		
CONCORDIA															1				
DESOTO							1									1	1	1	1
EAST BATON ROUGE						3	6	1		1	1	7	3		5	1	172	8	
EAST CARROLL																	4		
EAST FELICIANA													1		1		4		
EVANGELINE			1												1				
FRANKLIN																	3		
GRANT																	1		
IBERIA								1				3		1	2		20	1	
IBERVILLE						1											1		
JACKSON																	1		
JEFFERSON			3			1	3	1			1	2			7	1	57	12	
JEFFERSON DAVIS															1		4		
LAFAYETTE			1					2			1	3	1		4		27		
LAFOURCHE												2			1	1	8		
LASALLE							1												
LINCOLN								1									3	2	
LIVINGSTON						1						1					3	1	
MADISON								1									3		
MOREHOUSE													2				4		
NATCHITOCHES													1			3	7		
ORLEANS			8	1		5	2	2			1	11	1		7	6	537	47	
OUACHITA													5		1		60		
PLAQUEMINES																	4		
POINTE COUPEE																	7		
RAPIDES			1					2									49	2	1
RED RIVER																3			
RICHLAND													1				2		
SABINE																	2		
ST. BERNARD							1										5		
ST. CHARLES																2	4	1	
ST. HELENA																	1		
ST. JAMES																4	2		
ST. JOHN						1										1	3	1	
ST. LANDRY												1					9		
ST. MARTIN												1					11	1	
ST. MARY																	5		
ST. TAMMANY							2					1	1		4		15		
TANGIPAHOA								1				1	2				3		
TENSAS																	4		
TERREBONNE						5	1					4			3		26	5	
UNION													1				3		
VERMILION								2				1					4		
VERNON								1									13	1	1
WASHINGTON												3	2		6		3	1	
WEBSTER															2		14	1	
WEST BATON ROUGE						1											1	1	
WEST CARROLL								1									1		
WEST FELICIANA												2			1		3		
WINN															1		2		
OUT OF STATE																			

*Includes Rubella, Congenital Syndrome.
**Includes 21 cases of Hepatitis Non A, Non B.
***Acquired outside United States unless otherwise stated.
From January 1, 1988 - September 30, 1988, the following cases were also reported: 8-Amebiasis, 2-Leptospirosis, 2-Rocky Mountain Spotted Fever, 1-Cholera, 1-Reye Syndrome.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS REPORTED MORBIDITY OCTOBER, 1988	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1988)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1987	0	0	557	47	0	71	119	412	4	1	21	394	205	0	814	0	12807	635	13
TOTAL TO DATE 1988	0	0	281	17	3	103	163	302	6	10	51	542	291	4	511	123	12786	745	10
TOTAL THIS MONTH	0	0	13	0	1	15	19	42	1	0	4	48	37	0	83	45	1047	78	3
ACADIA								2									3		
ALLEN													1						
ASCENSION							1						1				2		
ASSUMPTION																	4		
AVOYELLES													1			1	2		1
BEAUREGARD																	1		
BIENVILLE																			1
BOSSIER								3							3	1	2		1
CADDO								8				17	1		14		73		3
CALCASIEU			4		1								3		6		21		
CALDWELL																			
CAMERON							3												
CATAHOULA																	2		
CLAIBORNE																	1		1
CONCORDIA																	1		
DESOTO															1	2			1
EAST BATON ROUGE			1			1	3	8			2	7	1		7		100	7	
EAST CARROLL												1							
EAST FELICIANA																			
EVANGELINE													1				1		
FRANKLIN																	1		
GRANT																	1		
IBERIA															2		6	1	
IBERVILLE									1									1	
JACKSON																	3		
JEFFERSON			2			4	2	4			1	4	4		7	5	69	4	
JEFFERSON DAVIS																	2		
LAFAYETTE			1			2	1	1					1		7		9	2	
LAFOURCHE												1	1		1	1	15		
LASALLE																	1	1	
LINCOLN																3	7	6	
LIVINGSTON								1				1			1				
MADISON																	5	2	
MOREHOUSE													1				9		
NATCHITOCHES													1			1	1		
ORLEANS			4			4	6	9				10	3		18	16	460	44	
OUACHITA													4		4		47		
PLAQUEMINES												2					3		
POINTE COUPEE													1						
RAPIDES								1							2	1	24	6	1
RED RIVER						1										5	1	1	
RICHLAND																	8		
SABINE													1						
ST. BERNARD												1					1		
ST. CHARLES							2								1	2	4		
ST. HELENA																			
ST. JAMES												1				2	4		
ST. JOHN						1						1	1		1	2	4		
ST. LANDRY												1	2				6	1	
ST. MARTIN																	2		
ST. MARY							1	1				1	1				11		
ST. TAMMANY											1				2	1	21	1	
TANGIPAHOA													1		2		7		
TENSAS																	1		
TERREBONNE						2		2					2		2	1	15		
UNION													3				4		
VERMILION																	2		
VERNON			1					1									58		1
WASHINGTON															2	1	12		
WEBSTER								1					1				7		
WEST BATON ROUGE																	1		
WEST CARROLL																	2		
WEST FELICIANA																			
WINN																		1	
OUT OF STATE																			

*Includes Rubella, Congenital Syndrome
**Includes 24 cases of Hepatitis Non A, Non B.
***Acquired outside United States unless otherwise stated.
From January 1, 1988 - October 31, 1988, the following cases were also reported: 8-Amebiasis, 1-Cholera, 2-Leptospirosis, 1-Reye Syndrome, 2-Rocky Mountain Spotted Fever.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS REPORTED MORBIDITY NOVEMBER, 1988	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1988)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1987	0	0	650	49	0	78	140	457	5	1	21	445	247	0	884	0	13487	704	13
TOTAL TO DATE 1988	0	0	301	18	4	117	195	333	7	12	55	612	321	4	576	123	14046	829	10
TOTAL THIS MONTH	0	0	20	1	1	14	32	31	1	2	4	70	30	0	65	0	1260	84	0
ACADIA												1	1				4	1	
ALLEN																			
ASCENSION												1					2		
ASSUMPTION																	2		
AVOYELLES								1									2	1	1
BEAUREGARD																	1		
BIENVILLE																	1		1
BOSSIER						1									3		10	1	1
CADDO			1			1	2					18	4		6		146	3	3
CALCASIEU								2							1		43	1	
CALDWELL																	3		
CAMERON							1												
CATAHOULA													1		1		1		
CLAIBORNE																	1		1
CONCORDIA													1						
DESOTO																	1		1
EAST BATON ROUGE						2	9	1			1	12			7		218	7	
EAST CARROLL																	3		
EAST FELICIANA							1										4	1	
EVANGELINE																	6		
FRANKLIN													2				5		
GRANT																	1		
IBERIA												3					11	1	
IBERVILLE			1														3		
JACKSON																	3		
JEFFERSON			4	1		3	5	6				8	5		7		38	4	
JEFFERSON DAVIS								1							1		4		
LAFAYETTE			6							1	1	4	1		5		36		
LAFOURCHE															1		8		
LASALLE															2				
LINCOLN						1							1		2		10	5	
LIVINGSTON																			
MADISON																	10	2	
MOREHOUSE								1									3	1	
NATCHITOCHES								1									6		
ORLEANS			4			3	2	14		1	1	13	5		11		460	45	
OUACHITA													3		2		51		
PLAQUEMINES			2					1											
POINTE COUPEE																	4	1	
RAPIDES															1		53	3	1
RED RIVER																			
RICHLAND											1						2		
SABINE						1													
ST. BERNARD							1					1							
ST. CHARLES							1												
ST. HELENA							1												
ST. JAMES			1														1		
ST. JOHN												1					2		
ST. LANDRY								1				3			1		16		
ST. MARTIN															2		4		
ST. MARY															1		2		
ST. TAMMANY			1		1		2	1				2	1		6		5	1	
TANGIPAHOA												1			2		12		
TENSAS																			
TERREBONNE												2	1		2		20	4	
UNION						1							1				7		
VERMILION							1	1					1		1		3	1	
VERNON																	12		1
WASHINGTON									1								10		
WEBSTER						1							1				4	1	
WEST BATON ROUGE																	4		
WEST CARROLL																			
WEST FELICIANA																			
WINN																	1		
OUT OF STATE																	1		

*Includes Rubella, Congenital Syndrome
**Includes 25 cases of Hepatitis Non A, Non B.
***Acquired outside United States unless otherwise stated.
From January 1, 1988 - November 30, 1988, the following cases were also reported: 8-Amebiasis, 1-Cholera, 2-Leptospirosis, 1-Reye Syndrome, 2-Rocky Mountain Spotted Fever.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS REPORTED MORBIDITY DECEMBER, 1988	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONELLOSIS	MALARIA	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE 1988)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1987	0	0	701	49	0	88	159	519	5	1	24	546	293	0	975	6	13828	783	13
TOTAL TO DATE 1988	0	0	331	20	4	127	213	384	7	13	61	680	359	4	596	197	15563	925	13
TOTAL THIS MONTH	0	0	30	2	0	10	18	51	0	1	6	68	38	0	20	74	1532	96	3
ACADIA								1				1				1	3		
ALLEN							1												
ASCENSION											1						4	1	
ASSUMPTION						1										2	1		
AVOYELLES															1		2		1
BEAUREGARD																	5		
BIENVILLE																	2		1
BOSSIER												5	1				6		1
CADDO								3				34	4		2	30	209	4	5
CALCASIEU												1	3			1	56	1	
CALDWELL								1									1		
CAMERON							1												
CATAHOULA																	3		
CLAIBORNE																	1		1
CONCORDIA																1	3		
DESOTO																1			2
EAST BATON ROUGE			3	1			6	2		1		6	5		4		156	7	
EAST CARROLL																			
EAST FELICIANA				1								1					3		
EVANGELINE																	1		
FRANKLIN																	7		
GRANT																	1		
IBERIA								1				2					8	1	
IBERVILLE													2				4		
JACKSON																	1	2	
JEFFERSON			2			2	1	4			1	1	3		1	1	84	7	
JEFFERSON DAVIS								1									1		
LAFAYETTE			14					5				3			1		42		
LAFOURCHE			3					1								3	8	1	
LASALLE																			
LINCOLN																3	1		
LIVINGSTON						1	1	1											
MADISON																	2		
MOREHOUSE																			
NATCHITOCHES																1	1		
ORLEANS			4			4	1	16			1	8	9		4	6	676	62	
OUACHITA													3				37		
PLAQUEMINES													1				1	2	
POINTE COUPEE											1		1				1	1	
RAPIDES								2				1					78	2	1
RED RIVER																6			
RICHLAND																	3		
SABINE																4			
ST. BERNARD							2					1				5	5		
ST. CHARLES												1					2		
ST. HELENA																			
ST. JAMES																			
ST. JOHN						1									1	1	1		
ST. LANDRY			1				1	6				1	2		1		9	3	
ST. MARTIN																	6		
ST. MARY								2								1	6		
ST. TAMMANY							2						1				9		
TANGIPAHOA								1				1	2				4		
TENSAS																			
TERREBONNE			1			1	1					1			2	1	12	1	
UNION																	3		
VERMILION								2							3				
VERNON			1					1									40		1
WASHINGTON			1				1				2		1				9	1	
WEBSTER								1								6	3		
WEST BATON ROUGE																	7		
WEST CARROLL																			
WEST FELICIANA																	1		
WINN																	3		
OUT OF STATE																			

*Includes Rubella, Congenital Syndrome

**Includes 25 cases of Hepatitis Non A, Non B.

***Acquired outside United States unless otherwise stated.

From January 1, 1988 - December 31, 1988, the following cases were also reported: 8-Amebiasis, 1-Brucellosis, 1-Cholera, 2-Leptospirosis, 1-Reye Syndrome, 2-Rocky Mountain Spotted Fever.

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