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EPIDEMIOLOGY

PUBLIC HEALTH STATISTICS

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DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF PREVENTIVE AND PUBLIC HEALTH SERVICES
DIVISION OF RECORDS AND STATISTICS
P.O. BOX 60630 NEW ORLEANS, LOUISIANA 70160

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504/342-6711

EXPANSION OF THE CDC SURVEILLANCE DEFINITION FOR AIDS

SUSAN HASSIG, DrPH

The Centers for Disease Control (CDC) and the Council of State and Territorial Epidemiologists (CSTE) recently met and adopted a new and expanded version of the surveillance definition for AIDS (1). The revision was developed to meet a number of objectives:

- 1) to track more effectively the severe morbidity associated with infection with human immunodeficiency virus (HIV);
- 2) to simplify the reporting of AIDS cases;
- 3) to increase the sensitivity and specificity of the case definition through greater diagnostic application of laboratory evidence of HIV infection; and
- 4) to maintain consistency with current diagnostic practice, which in some cases includes presumptive diagnosis of an AIDS-related disease.

The two older definitions of AIDS were developed early in the epidemic and reflected the level of knowledge at the time of their generation. The first AIDS definition was developed prior to knowledge

of the viral etiology of the syndrome, and required that individuals meet strict diagnostic and exclusionary criteria (e.g. no history of steroid or chemotherapy prior to diagnosis) (2). The second definition (developed in 1985) retained the diagnostic and exclusionary criteria, but expanded the list of "acceptable" diseases or conditions in the presence of serologic evidence of HIV infection (3).

The most recent version, effective September 1, 1987, changes all three facets of the previous definitions. First, it removes the exclusion criteria regarding previous therapies and malignancies if there is laboratory evidence of HIV infection. Second, it allows for presumptive (without tissue confirmation) diagnosis of many diseases with evidence of HIV infection. Lastly, it again expands the list of diseases and conditions considered to be AIDS-indicative.

The new definition affects both children and adults, but there are some differences in its application to these two groups. First, multiple or recurrent serious bacterial infections and lymphoid interstitial pneumonitis/pulmonary lymphoid hyperplasia are accepted as indicative of AIDS in children but not in adults. Secondly, for children <15

months of age, whose infection is believed to be due to perinatal transmission from their infected mother, the methodology for documenting HIV infection has become more stringent. This is due to the persistence of passively acquired maternal antibody beyond the immediate perinatal period.

The list of AIDS-indicative diseases has been expanded to include the following, when the patient has laboratory evidence of HIV infection and the diseases are diagnosed in a definitive manner:

- 1) candidiasis of the trachea, bronchus or lungs;
- 2) Kaposi's sarcoma in persons over age 60;
- 3) disseminated infection with Mycobacterium tuberculosis;
- 4) recurrent Salmonella (non-typhoid) septicemia;
- 5) HIV wasting syndrome ("slim disease"); and
- 6) HIV encephalopathy ("HIV dementia").

The last two conditions have fairly complex definitions which can be summarized briefly as follows:

HIV wasting syndrome - profound involuntary weight loss of >10% of baseline body weight plus either chronic diarrhea or chronic weakness and fever for more than 30 days. The fever and/or diarrhea may not be attributable to any other illness or condition (e.g. cancer, TB, giardiasis, etc.).

HIV encephalopathy - clinical findings of disabling cognitive and/or motor dysfunction interfering with occupation or activities of daily living, including but

not limited to change in mental status, loss of memory, changes in personality, etc. Again, other illnesses or conditions which could cause the condition must be ruled out through cerebrospinal fluid exam, CT scan, MR imaging autopsy.

The CDC has developed guidelines for the presumptive diagnosis of a number of familiar AIDS-indicative diseases. The diseases which may be diagnosed without tissue confirmation (with evidence of HIV infection) are:

- 1) esophageal candidiasis;
- 2) cytomegalovirus retinitis;
- 3) disseminated mycobacteriosis;
- 4) Kaposi's sarcoma;
- 5) lymphoid interstitial pneumonitis;
- 6) Pneumocystis carinii pneumonia; and
- 7) toxoplasmosis of the brain.

The details of the suggested presumptive criteria can be found in the MMWR Supplement of August 14, 1987, or can be obtained by contacting AIDS Surveillance personnel at the State Health Department.

The change in the definition was effective immediately upon its release. The CDC and CSTE have also recommended application of the definition retrospectively to patients who did not previously meet the diagnostic criteria. As of October 31, Louisiana has had 67 cases of AIDS reported who meet only the new case definition (4). These cases constitute approximately 11% of the total reported case load in the State. We encourage the reporting of any cases (historical or current) which fulfill the new criteria. Further information regarding case reporting (and report forms

themselves) are available by contacting:

AIDS Surveillance
Epidemiology Section
P.O. Box 60630
Room 615
New Orleans, Louisiana 70160

Phone:

(504) 568-5005

or

Linc 621-5005

Acquired Immunodeficiency Syndrome. MMWR 1987;36:Suppl 1, 1-15.

2. World Health Organization. Acquired Immunodeficiency Syndrome (AIDS): WHO/CDC case definition for AIDS. WHO Wkly Epidemiol Rec 1986; 61:69-72.

3. CDC. Revision of the case definition of Acquired Immune Deficiency Syndrome (AIDS) - United States. MMWR 1985;34:373-375.

4. LA Dept of Health and Human Resources. AIDS Surveillance Report: November, 1987. (unpublished data).

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LOUISIANA AIDS UPDATE

	CASES	DEATHS	PERCENT
1987 (thru 10/31/87)	190	72	38
TOTAL, ALL YEARS	620	405	65

CRITERIA FOR PATIENT ELIGIBILITY FOR FEDERALLY FUNDED AZIDOTHYMININE (AZT)

Department of Health and Human Resources (DHHR) has been awarded a federal grant in the amount of \$301,076 for the purchase of azidothymidine which has been found in some cases to prolong the life of persons with AIDS. The state does not guarantee funding beyond that of this grant. DHHR will use these federal dollars for AZT funding on a first come first serve basis. This medication will be available to persons who meet the following criteria:

- 1) The patient must have been diagnosed with AIDS or Advanced AIDS Related Complex (ARC).
- 2) The patient must be ineligible for any non-placebo controlled AZT study. Eligibility for current studies may be determined by calling (504) 584-3605, the number of LSU-Tulane AIDS treatment and Evaluation Unit in New Orleans.
- 3) The patient must be willing to be followed as felt necessary by his/her physician. Poor patient compliance

can be reason for discontinuing medication.

- 4) The patient's financial status is within the definition of 200% of the federal poverty level as follows:

1 person household - \$ 900/mo.

2 person household - \$1233/mo.

3 person household - \$1530/mo.

4 person household - \$1867/mo.

- 5) The patient must have no other financial means for access to AZT.

Comment:

Physicians who wish to refer patients for AZT must be sure that their patient meets the above criteria.

If you wish to call for additional information the Epidemiology Section number is (504) 568-5005.

*AIDS AND MOSQUITOES

Recently, much concern has surrounded the possible role of mosquitoes in the transmission of the human immunodeficiency virus (HIV), the virus that causes AIDS. In this article, we clarify the mechanisms by which mosquitoes can transmit viral agents, and examine available published data pertinent to such transmission.

Arthropod vectors can transmit pathogens biologically or mechanically. In biological transmission, the arthropod is essential for the growth or development of the pathogen. Such transmission can be categorized as:

- 1) "cyclo-propagative," where the organisms undergo cyclical changes and multiply in the arthropod vector (e.g., Plasmodium species which cause malaria);
- 2) "cyclo-developmental," where the organisms undergo cyclical changes in the arthropod, but do not multiply (e.g., Wuchereria bancrofti, the agent of bancroftian filariasis); and
- 3) "propagative," where the organisms multiply without cyclical changes (e.g., arthropod-borne viruses, such as western encephalitis virus).

Specifically, for mosquito-transmitted viral diseases the virus must enter the mosquito and propagate. Virus is then disseminated in the mosquito and subsequently concentrates in the salivary gland. Infection of the human host results at the time of feeding from introduction of virus-containing mosquito saliva. Studies involving both natural

feeding and intrathoracic inoculation of extreme concentrations (1,000 to 1 million times human infection levels) of HIV into mosquitoes have shown that HIV does not propagate in mosquitoes (personnel communication, Thomas Monath, M.D., Division of Vector-borne Viral Diseases, Centers for Disease Control). Therefore, the possibility of biological transmission of HIV is extremely remote. This is not unexpected, since most viruses that infect humans (e.g., measles, mumps, rubella, hepatitis B virus, cytomegalovirus, and Epstein-Barr virus) have not been demonstrated to be biologically transmitted through mosquitoes.

The second mode of transmission, mechanical transmission, can occur with viral agents and results when the arthropod is a carrier. Transmission of the pathogen generally occurs through contamination of its mouth parts or regurgitation of blood into the new host. This type of transmission could theoretically result if a mosquito bit an HIV-infected person and then subsequently bit an uninfected person. When considering this type of transmission for HIV, several important factors need to be taken into consideration. These include the volume of infected blood required to result in transmission, mosquito feeding habits, and available epidemiologic data substantiating this hypothesis. Each of these three factors will be separately addressed.

First, in examining the volume of blood required for transmission, currently available data for health-care workers are applicable (1-5). These studies indicate that

* SOURCE:

Minnesota Department of Health, Disease Control Newsletter,
Vol. 13, No. 7, pp 53-55.

the likelihood of HIV transmission resulting from a needle-stick or non-perenteral mucous membrane exposure is extremely small, supporting the fact that substantial volume of blood is required before transmission will occur. The amount of blood contaminating the mouth parts of mosquitoes is likely to be less than the amount of blood resulting from exposure to a contaminated needle, as seen in the hospital setting. Also in the health-care setting, hepatitis B virus (HBV) has been demonstrated to be much more likely to be transmitted through needle-stick injury than HIV, indicating that exposure to a smaller volume of blood will transmit HBV. Hepatitis B surface antigen (HBsAg) has been demonstrated in wild-caught African mosquitoes (6), yet there has been no evidence of transmission of HBV by mosquitoes. In one study, mosquitoes were allowed to feed on chimpanzees infected with HBV (7). The feeding was interrupted and the mosquitoes were allowed to complete their feeding on non-infected susceptible chimpanzees. Although homogenates of mosquitoes showed the presence of HBsAg, the exposed chimpanzees remained uninfected, suggesting no risk of mosquito-related mechanical transmission of HBV. Since mechanical transmission has not been demonstrated for HBV, it is even less likely that such transmission would occur with HIV due to the larger volume of blood required.

The second point to consider is the feeding habits of the mosquito. Mosquitoes do not regurgitate blood consumed from a previous host, and they have relatively small mouth parts, allowing for less blood contamination. Both characteristics reduce the likelihood of mechanical transmission. In addition, mosquitoes are theoretically more likely to complete a blood meal because they induce a painless bite, unlike a biting fly, so they generally do not need to seek a subsequent host to complete an interrupted blood meal.

The third important point is the current available information on the epidemiology of HIV infection. Several epidemiologic observations do not support mosquito transmission of HIV. First, in the United States, HIV infection has occurred in persons with known risk factors for acquiring infection and has not occurred randomly, as would be expected if arthropods were transmitting HIV. Studies in Belle Glade, Florida, which has a very high incidence of AIDS and where mosquito transmission has been postulated, have shown that the AIDS cases reported from that region are related to intravenous drug abuse or heterosexual transmission, and not due to mosquito transmission (8-10). Second, in Africa, AIDS is largely a disease of sexually active young adults living in urban areas; the seroprevalence is much lower in rural areas. A recent study in Zaire has demonstrated a seroprevalence for HIV antibody of 0.8% in healthy members of rural villages, where mosquito transmission of disease is likely to occur (11). In contrast, studies have demonstrated HIV antibody seroprevalence rates ranging from 27% to 88% for high-risk groups in urban African areas (12). Also, older African children (those not at risk for perinatal HIV transmission) do not appear to be at risk for acquiring HIV. This demographic pattern in Africa is quite different than that for malaria, a known vector-borne disease (13-15). Finally, household studies of HIV transmission have demonstrated that persons living with someone with AIDS or someone infected with HIV are not at increased risk of acquiring infection (16-18), which would be expected if mosquitoes or other arthropods were important for transmission.

In summary, HIV has not been demonstrated to propagate in the mosquito host, and no available data support biological transmission. Second, mechanical transmission is not supported by the volume of blood required to cause infection, the feeding habits of mosquitoes, or the

currently available epidemiologic data. For further information, contact the AIDS Surveillance Program in the Epidemiology Section at (504) 568-5005.

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* PREVENTING FOOD OUTBREAKS FROM POULTRY

Reports from the United States Department of Agriculture have recently stated that nearly 40 percent of the United States poultry supply is contaminated with salmonella. For public health purposes, one should assume that 100 percent of the poultry is contaminated with salmonella bacteria. The following public health controls are suggested to prevent foodborne disease outbreaks associated with poultry.

Temperature is the first and best control. All poultry products must be stored at 45°F or colder. This does not kill the bacteria but slows its growth. If the poultry is frozen, thaw slowly under refrigeration or cold running water. It may also be thawed as part of a continuous cooking process in an oven. In cooking poultry products, heat all parts to at least 165°F to kill live bacteria. If the poultry product is to be kept hot, it must be kept at 140°F or more which prevents new bacterial growth.

Efforts must be made not to contaminate

other food products with bacteria from poultry products (especially food that will not be further cooked). Proper washing and sanitizing of all surfaces coming in contact with poultry such as cutting boards, knives and counter tops (the sanitizer can be a one half ounce of chlorine bleach in one gallon of water) should be done before processing any other food items. Care should be taken not to store raw poultry products in close proximity to ready-to-eat foods, such as salads.

Special precautions should be taken with leftovers. When cooling poultry, rapidly cool to below 45°F from the hot storage temperature of over 140°F. Then when reheating, rapidly reheat the poultry to 165°F to kill all new salmonella cells.

These general temperature controls together with common sanitary precautions will provide safe poultry products and prevent the possibility of a foodborne disease outbreak.

*SOURCE:

David Stull, C.P.S., M.P.A., Bureau of Community Sanitation
Missouri Department of Health, Missouri Epidemiologist, Vol,
IX, No. 3 May/June, 1987

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS	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 1987)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
REPORTED MORBIDITY SEPTEMBER, 1987																			
TOTAL TO DATE 1986	4	0	3	13	5	75	105	192	3	15	17	78	308	1	216	5	14187	677	18
TOTAL TO DATE 1987	0	0	368	42	0	60	114	381	3	0	21	326	185	0	1714	0	11572	550	12
TOTAL THIS MONTH	0	0	158	12	0	11	17	42	0	0	6	114	20	0	154	0	1184	73	3
ACADIA								2							3		6		
ALLEN												1					5		
ASCENSION			1												3		5	4	
ASSUMPTION																			
AVOUELLES							1										3		1
BEAUREGARD							2												
BIENVILLE																	1	1	
BOSSIER				1			1	1				7			7		12		2
CADDO				4		4	1	1			2	18	2		27		148	2	2
CALCASIEU							2	2				3	1		7		58	2	
CALDWELL			1														1		
CAMERON																	1		
CATAHOULA																			
CLAIBORNE																	5		1
CONCORDIA			146														3	2	
DESOTO															1		3		1
EAST BATON ROUGE			1			2	1						2		11		51	12	
EAST CARROLL																	7		
EAST FELICIANA			1																
EVANGELINE								1				1					3		
FRANKLIN												1					2		
GRANT												1			2				
IBERIA							1	1				1			3		28		
IBERVILLE								1				1							
JACKSON						1	1								2		2		
JEFFERSON			4			1	1	6				9			14		50	4	
JEFFERSON DAVIS											1		1				8		
LAFAYETTE						1		2				1	1		16		46	1	
LAFOURCHE												1			2		18	2	
LASALLE																			
LINCOLN															2		5		3
LIVINGSTON											1		2				1		
MADISON			1														8	5	
MOREHOUSE				2								1					18	2	
NATCHITOCHES															2		2		
ORLEANS						1	1	19				26	4		17		381	17	
OUACHITA				3			3	2				17	2		13		57		
PLAQUEMINES																			
POINTE COUPEE															1				
RAPIDES				2			1					12			3		69	1	2
RED RIVER																			
RICHLAND																	7		
SABINE															1				
ST. BERNARD								1					1		1		2		
ST. CHARLES																	8		
ST. HELENA																			
ST. JAMES												2					1		
ST. JOHN																	5	1	
ST. LANDRY												1			1		14	5	
ST. MARTIN																	7	1	
ST. MARY													1		2		16		
ST. TAMMANY			3				1	1				6			5		15	3	
TANGIPAHOA												1					3	2	
TENSAS																	2		
TERREBONNE												1			2		25	3	
UNION												2	1				2		
VERMILION								1			1				4		3	1	
VERNON																	40		
WASHINGTON						1							2				7		
WEBSTER								1			1				2		15		
WEST BATON ROUGE																		2	
WEST CARROLL																			
WEST FELICIANA																			
WINN																	3		
OUT OF STATE																	2		

From January 1, 1987 - September, 1987, the following cases were also reported:

2-Amebiasis, 1-Brucellosis, 5-Cholera, 5-Leptospirosis, 7-Reye Syndrome, 3-Tularemia

* Includes Rubella, Congenital Syndrome.

** Includes 17 cases of Hepatitis Non A, Non B.

*** Acquired outside United States unless otherwise stated.

SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS	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 1987)
	MEASLES	RUBELLA	MUMPS	PERTUSSIS	TETANUS														
REPORTED MORBIDITY OCTOBER, 1987																			
TOTAL TO DATE 1986	4	0	3	13	5	84	125	223	4	17	19	211	337	1	300	5	15778	785	19
TOTAL TO DATE 1987	0	0	567	47	0	72	124	419	4	1	23	418	206	0	870	0	12817	635	13
TOTAL THIS MONTH	0	0	199	5	0	12	10	38	2	1	2	92	21	0	156	0	1257	85	1
ACADIA						2						1					10		
ALLEN			60									8			1		2		
ASCENSION									1			1			3		10		
ASSUMPTION																	2	1	
AVOUELLES								1							2		6		1
BEAUREGARD																	1		
BIENVILLE																	2		
BOSSIER						1						3			13		9	1	2
CADDO						6	2	1				8	1		20		188	1	3
CALCASIEU							1				1	3	2		9		75	6	
CALDWELL																			
CAMERON													1						
CATAHOULA																	3		
CLAIBORNE																	5		1
CONCORDIA			113																
DESOTO															1		1		1
EAST BATON ROUGE			8					1	1		1	1			15		139	15	
EAST CARROLL								1									3		
EAST FELICIANA																	2		
EVANGELINE												1			2		4	1	
FRANKLIN															1		4		
GRANT													1				2		
IBERIA												2			1		21		
IBERVILLE								1									6	1	
JACKSON																			
JEFFERSON			7				2	11				8			18		91	6	
JEFFERSON DAVIS			5										1				4		
LAFAYETTE								1							8		42	3	
LAFOURCHE				1		1		1				2					19	2	
LASALLE															1		2		
LINCOLN			2			1							1		3		5		3
LIVINGSTON							1												
MADISON																	9	2	
MOREHOUSE													1				15		
NATCHITOCHES						1											2		
ORLEANS			2	1			1	5		1		37	1		15		306	30	
OUACHITA				2			1	1				7	3		12		29	7	
PLAQUEMINES				1											1		1	1	
POINTE COUPEE																	5		
RAPIDES			1									6	1		2		67		2
RED RIVER								1											
RICHLAND																	2		
SABINE															1				
ST. BERNARD																	3		
ST. CHARLES																	2	2	
ST. HELENA													1						
ST. JAMES																	4		
ST. JOHN																	3		
ST. LANDRY								1				1	2		1		7	2	
ST. MARTIN															1		6		
ST. MARY												1	1		2		4		
ST. TAMMANY			1				1	2				1	3		6		21	1	
TANGIPAHOA								3									11		
TENSAS																	1		
TERREBONNE								3							11		36		
UNION															2		1		
VERMILION								1							2		6	2	
VERNON								1									22		
WASHINGTON								1							1		12		
WEBSTER												1	1		1		9		
WEST BATON ROUGE							1	1									5	1	
WEST CARROLL																	4		
WEST FELICIANA																	1		
WINN																	3		
OUT OF STATE																	2		

From January 1, 1987 - October 31, 1987, the following cases were also reported:

2-Amebiasis, 1-Bruceellosis, 5-Cholera, 5-Leptospirosis, 7-Reye Syndrome, 3-Tularemia

* Includes Rubella, Congenital Syndrome.

** Includes 20 cases of Hepatitis Non A, Non B.

*** Acquired outside United States unless otherwise stated.

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