# Texas Preventable Disease NW COLLECTION <br> BUREAU OF EPIDEMIOLOGY <br> 1100 West 49th Stree <br> Human T-Cell Leukemia Virus Infection in Patients with Acquired Immune Deficiency Syndrome: Preliminary Observations <br> Chains of Measles Transmission -- United States, 1982 <br> Leading Work-related Diseases and Injuries - <br> AIDS Cases in Texas by Year of Diagnosis 

## HUMAN T-CELL LEUKEMIA VIRUS INFECTION IN PATIENTS WITH ACQUIRED IMMUNE DEFICIENCY SYNDROME: PRELIMINARY OBSERVATIONS

The following article first appeared in the Centers for Disease Control (CDC) publication, Morbidity and Mortality Weekly Report (MMWR), Vol. 32/No. 18, May 13, 1983.


#### Abstract

Recent evidence suggests that human T-cell leukemia virus (HTLV) infections occur in patients with acquired immune deficiency syndrome (AIDS). HTLV has been isolated from peripheral blood T-lymphocytes from several patients with AIDS, and a retrovirus, related to but clearly distinct from HTLV, has been isolated from cells from a lymph node of a patient with lymphadenopathy syndrome (LAS), a syndrome that may precede AIDS itself. Also, HTLV nucleic acid sequences have been detected by nucleic acid hybridization in lymphocytes from two ( $6 \%$ ) of 33 AIDS patients. In addition, antibodies to antigens expressed on the cell surface of HTLV-infected lymphocytes have been detected by an indirect immunofluorescent technique in sera from 19 ( $25 \%$ ) of 75 AIDS patients, including patients with Kaposi's sarcoma alone (10/34), Pneumocystis carinii pneumonia alone ( $7 / 30$ ), or patients with both diseases (2/11). Similar antibodies were detected in six ( $26 \%$ ) of 23 patients with LAS. Such antibodies were rarely found in sera collected from homosexual men in New York City who served as controls during a case-control study in the fall of 1981 (1/81), homosexual men from whom sera were collected in 1978 during visits to a Chicago venereal disease clinic (0/118), and blood donors from a mid-Atlantic state who gave blood in 1977 but were unselected for sexual preference (1/137).


MMWR Editorial Note: HTLV agents are retroviruses that have recently been associated with certain types of adult T-cell lymphoreticular neoplasms of man. HTLV-1 has been associated with acute T-cell leukemia and a related, but clearly different, viral agent, HTLV-2, with "hairy-cell" T-cell leukemia.

Retroviruses are ribonucleic acid (RNA) viruses containing the enzyme, reverse transcriptase, which allows production of a deoxyribonucleic acid (DNA) copy of their RNA genome. The DNA copy can then be integrated into the genome of the cell. Infections with retroviruses other than HTLV have been associated with a variety of neoplastic diseases in animals including chickens, cats, cattle, and gibbons. The feline retrovirus also causes immune suppression.

HTLV agents are the only presently known retroviruses associated with human diseases. Clinically, however, the diseases previously associated with HTLV in endemic areas do not resemble AIDS. Infections are thought rarely to result in malignancies. HTLV may spread from some infected persons to their very close contacts, and concern has been expressed that it may be transmissible by blood or blood derivatives. HTLV infects and immortalizes* T-helper lymphocytes, and the virus can be isolated from

[^0]infected patients by co-cultivation of their lymphocytes with uninfected human $T$ lymphocytes.

In the above studies, the reported low frequency of detecting HTLV sequences may reflect depletion of infected T-helper lymphocytes, since patients initially positive for such sequences have had negative tests several months later.

HTLV-infected cells express specific virus structural and virus-indicated cellular proteins. Antibodies reactive with these virus-specific proteins are moderately prevalent ( $12 \%$ of blood donors) in residents of southwest Japan, an area with a relatively high prevalence of adult T-cell leukemia, and in residents of some Caribbean Islands ( $4 \%$ of St. Vincent blood donors). They have rarely been found in healthy Americans or western Europeans although these population groups have not been studied extensively.

While the above serologic findings associate AIDS with antibody to HTLV-specific cell surface-associated antigens, such antibodies were identified in only about one quarter of the AIDS patients tested. This relatively low frequency of antibody in AIDS patients might represent a lack of test sensitivity, too stringent criteria for positive tests, infection of AIDS patients with an agent related to but not identical with HTLV, nonspecific polyclonal B-cell responses, inability of many AIDS patients to mount antibody responses to these antigens, collection of sera from patients at improper times during disease evolution, or combinations of these and other yet-to-be identified factors. Alternatively, HTLV or an HTLV-like agent might simply represent yet another opportunistic agent in these multiply infected AIDS patients.

Further study is required to determine if any etiologic relationship exists between HTLV and AIDS.

CHAINS OF MEASLES TRANSMISSION -- UNITED STATES, 1982
The following article first appeared in the Centers for Disease Control (CDC) publication, Morbidity and Mortality Weekly Report, Vol. 32/No. 21, June 3, 1983.

In 1982, a provisional total of 1,697 cases of measles was reported to CDC, a record low incidence rate of 0.7 cases per 100,000 population for all ages. Fifteen states reported no measles cases all year, and an additional seven states reported only imported cases. Ninety-four percent of the nation's 3,138 counties reported no measles all year.

October 1, 1982, was the target date for eliminating indigenous transmission of measles. To investigate the remaining chains of transmission, CDC has reviewed reporting forms from 556 measles cases, $33 \%$ of the 1982 total, submitted by 11 of the 28 states reporting cases. Each form was reviewed for patient age, immunity status, and day-care-center attendance. Cases were grouped using CDC's measles classification system. Of 556 persons with measles, 209 ( $37.6 \%$ ) were preschoolers (less than 5 years old), and 281 ( $50.5 \%$ ) were school-aged ( $5-19$ years old). Overall, 337 $(60.6 \%)$ cases were not preventable because the patients were either too young or too old for routine vaccination or because they had evidence of immunity. Of the 219 ( $39.4 \%$ ) preventable cases, 109 occurred among children who attended schools or daycare centers and were thus readily accessible to control measures. The other llo were not readily accessible -- not school-aged and not known to attend a day-care center.

CDC has also reviewed detailed, written reports of the 14 major outbreaks in 1982. Of 1,697 measles cases, $53 \%$ occurred in 14 separate outbreaks or chains of transmission (defined as consisting of two or more generations)*. The other $37 \%$ occurred

[^1]sporadically. The 14 outbreaks were reported from nine states and ranged in size from nine to 419 cases in two to 16 generations. Most were of short duration.

Sources were identified for 11 of the 14 outbreaks: eight were foreign importations, two were out-of-state importations, and one was indigenous from a child with a medical exemption. In eight outbreaks for which data were available, $42 \%$ of subsequent first-generation cases were preventable. At least six of the 14 chains of transmission could have been prevented because the index cases were imported in persons who had not been appropriately vaccinated. In contrast, none of the outbreaks had an indigenous, preventable source. In eight outbreaks for which data were available, the duration of the outbreak was directly related to the proportion of preventable first-generation cases ( $r=0.95$ ).

Provisional data for the first quarter of 1983 show a 2-fold increase in measles morbidity over the same period in 1982; however, the chains of transmission have been limited. Approximately $85 \%$ of the cases reported have occurred in nine discrete outbreaks, and $53 \%$ of the cases reported have occurred among college and university students. Ninety-nine percent of counties reported no measles during the first quarter of 1983.

MMWR Editorial Note: Failure to vaccinate - rather than vaccine failure - was the major risk factor for sustained transmission in 1982. Unvaccinated susceptibles were important in sustaining measles transmission. The outbreaks with the greatest proportion of preventable cases in the first generation after the index case continued for the longest period of time, suggesting that the overall immunity levels were lower in areas with high proportions of preventable first-generation cases. The outbreaks were sustained because enough preventable cases, in unvaccinated susceptibles, joined with vaccine failures to increase the total supply of susceptibles.

Although measles in 1983 has affected less than three per 100,000 college students and less than $1 \%$ of college campuses, campus outbreaks have focused attention on susceptibility among college students. Colleges can help remedy this situation by establishing vaccination requirements for all students born after 1956. In addition, efforts should be made to identify and immunize remaining susceptibles in high schools, especially those in eleventh and twelfth grades.

Indigenous measles has been eliminated from most of the United States. The remaining chains of transmission are limited in size and extent. Analysis of the chains demonstrates that the measles elimination strategy is valid. The major emphasis must now be placed on improving vaccination among preschoolers and college students, while continually enforcing school requirements, and on aggressively responding to the remaining chains of transmission.

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## LEADING WORK-RELATED DISEASES AND INJURIES - UNITED STATES

The following article was adapted from the Centers for Disease Control publication Morbidity and Mortality Weekly Report, Vol. 32/No.14, ending April 15, 1983.

The National Institute for Occupational Safety and Health (NIOSH) has developed a suggested list of the ten leading work-related diseases and injuries. Problems in the first category, occupational lung diseases, were recently published in Texas Preventable Disease News, week no. 19; a discussion of the second category, musculoskeletal injuries, appears below.

MUSCULOSKELETAL INJURIES
In 1982, musculoskeletal injuries accounted for 580,000 ( $18 \%$ ) of the estimated 3.2 million emergency-room-treated occupational injuries in the United States. Physical demands of many jobs make the musculoskeletal system highly vulnerable to a variety
of occupational injuries and illnesses. Manual handling of materials, repetitive motions, and vibration are especially important etiologic factors in the development of these disorders.

Injuries associated with the manual handling of materials (e.g., unaided lifting and lowering): Low back injuries, often due to improper manual handling of materials, are the largest single subset of musculoskeletal injuries. The Bureau of Labor Statistics recently reported that approximately one million workers sustained back injuries in 1980 and that back injuries account for one of every five injuries and illnesses in the workplace. Approximately one fourth of all workers' compensation indemnity expenditures in eight states were for back injuries.

Repetitive motion-associated trauma: Repetitive motion can cause "cumulative trauma disorders," including carpal tunnel syndrome, tendinitis, ganglionitis, tenosynovitis, bursitis, and epicondylitis. These disorders may be caused or aggravated by repeated twisting or awkward postures, particularly when combined with high force. The population at risk includes persons employed in such industries or occupations as construction, food preparation, clerical work, product fabrication, and mining.

Data from the National Occupational Hazard Survey suggest that $15 \%-20 \%$ of workers in these jobs are potentially at risk of cumulative trauma disorders. Data from the Bureau of Labor Statistios indicate that in 1980 approximately 23,200 occupational injuries were associated with repeated trauma.

Vibration-associated injuries: An estimated seven million workers in such occupations as vehicle operation are intermittently exposed to whole-body vibration, which significantly stresses the musculoskeletal system. Although the effects are poorly understood, preliminary data suggest that low back pain, vertebrogenic pain, and degenerative disk disease may be associated with whole-body vibration.

An estimated 1.2 million workers are exposed to "segmental" vibration (i.e., vibration principally of a part or parts of the body) of which the principal sources are handheld power tools, such as chain saws and jackhammers. These exposures are associated with "vibration syndrome," characterized by intermittent numbness and blanching of the fingers with reduced sensitivity to heat, cold, and pain. Vibration syndrome may affect up to $90 \%$ of workers in such occupations as chipping, grinding, and chain sawing.

MMWR Editorial Note: Musculoskeletal injuries can be prevented or reduced with such appropriate intervention measures as:

1. Substitution. Machines, such as hoists, cranes, and dollies, can substitute for workers in some aspects of the manual handing of materials.
2. Improved equipment design. Research has shown that improved design of some vibrating tools virtually eliminates hazardous vibration; suspension or isolation systems may be added to vehicles to greatly reduce whole body vibration.
3. Task design. Manual tasks can be altered to minimize biomechanical stress to the worker.
4. Worker education. Injuries due to musculoskeletal stresses may be reduced by preplacement strength testing, training in proper ways to do a task, and on-site programs of exercise and physical therapy.
5. Variation of work practices. Periodic rotation of workers into jobs with different physical demands may help reduce the sequelae of biomechanical stress.
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AIDS CASES IN TEXAS BY YEAR OF DIAGNOSIS

| $\frac{1980}{1}$ | $\frac{1981}{5}$ | $\frac{1982}{21}$ | $\frac{1983}{42}$ |
| :---: | :---: | :---: | :---: |



HEEK NO: 39 ENDING: OCTOBER


PUBLIC HEALTH REGION 4 ABILENE, TX PHONE: 915/673-5231 POPULATION = 678,887 COUNTIES

PUBLIC HEALTH REGION 5 ARLINGTON, TX PHONE: 817A460-3032 POPULATION = $3,481,003$

| COUNTIES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| COLLIN |  |  | * |  |  |  | * |  |  | * |  |  | * | 2 |  | * | 3 |  |
| COOKE |  |  | * | 2 |  |  | * |  |  | * |  |  | * |  |  | * | 6 |  |
| DALLAS | 3 |  | * | 7 | 5 | 8 | * |  |  | * |  |  | * | 497 | 61 | * | 53 | 5 |
| DENTON |  |  | * | 2 |  |  | * |  |  | * |  |  | * | 3 | 1 | * | 21 |  |
| ELLIS |  |  | * | 1 |  |  | * |  |  | * |  |  | * |  |  | * |  |  |
| ERATH |  |  | * |  |  |  | * |  |  | * |  |  | * |  |  | * | 10 |  |
| GRAYSON |  |  | * |  |  | 3 | * |  |  | * |  |  | * | 6 |  | * |  |  |
| HUNT |  |  | * |  |  |  | * |  |  | * |  |  | * | 1 |  | * |  |  |
| JOHNSON |  |  | * |  |  |  | * |  |  | * |  |  | * |  |  | * | 1 | 1 |
| KALF MAN |  |  | * |  |  |  | * |  |  | * |  |  | * | 1 |  | * |  |  |
| NAVARRO |  |  | * |  |  |  | * |  |  | * |  |  | * | 10 | 1 | * |  |  |
| PARKER | 1 |  | * | 2 |  |  | * |  |  | * |  |  | * |  |  | * |  |  |
| TARRANT | 1 |  | * | 5 |  | 2 | * |  | 1 | * |  |  | * | 24 | 4 | * |  | 1 |
| CASES THIS WEEK | 5 |  | * | 19 | 5 | 13 | * |  | 1 | * |  |  | * | 544 | 67 | * | 94 | 7 |
| CUMULATIVE 1983 | 201 | 48 | * | 825 | 287 | 475 | * | 1 | 9 | * | 1 | 61 | * | 17,857 | 1.393 | * | 6,328 | 272 |
| OTHER COUNTIES: | NO | COMMUNIC | AbLE | DISE | SS: | 1 |  | OTHER | DISEA | ASES | ONL.Y: | 1 |  | NOT | REPORT | NG: | 4 |  |




POPULATION $=1,451,983$

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|  |  | * |  |  | * | 7 |  | * | 235 |  |
|  |  | * |  |  | * | 4 | 1 | * | 10 |  |
|  |  | * |  |  | * | 1 |  | * |  |  |
|  |  | * |  |  | * | 2 |  | * |  | 1 |
|  |  | * |  |  | * |  |  | * |  | 1 |
|  |  | * |  |  | * | 1 |  | * |  |  |
|  |  | * |  |  | * | 1 |  | * |  |  |
|  |  | * |  |  | * | 1 | 1 | * | 11 |  |
|  |  | * |  |  | * | 26 | 4 | * | 1 |  |
|  |  | * |  |  | * | 1 |  | * | 9 | 1 |
|  |  | * |  |  | * | 2 | 1 | * |  |  |
|  |  | * |  |  | * | 161 | 1 | * | 11 |  |
|  |  | * |  |  | * | 1 |  | * |  |  |
|  |  | * |  |  | * |  | 2 | * |  |  |
|  |  | * |  |  | * | 208 | 10 | * | 277 | 3 |
|  | 9 | * | 1 | 10 | * | 4.475 | 477 | * | 10.939 | 6.7 |
| OTHER | DISE | ASES | ONLY: | 2 |  | NOT | REPORTI | NG: | 10 |  |


| PUBLIC HEALTH REGION 7 | TYLER, TX |  | PHONE: |  | 14/595-3585 |  | POPULATION = | 866,604 |  |  |  |  |  |
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| COUNTIES |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | * |  |  | * |  | - |  | * |  |  | * |  |
| ANDERSON |  | * |  |  | * |  | * |  | * | 3 |  | * |  |
| BOWIE |  | * |  |  | * |  | * |  | * | 2 |  | * |  |
| CASS |  | * |  |  | * |  | * |  | * | 6 |  | * |  |
| CHEROKEE | . | * |  |  | * |  | * |  | * | 1 |  | * |  |
| GREGG |  | * |  |  | * |  | 1 * |  | * |  |  | * |  |
| HARRIS ON | 3 | * |  |  | * |  | 1 |  | * | 7 |  | * |  |
| HENDER SON |  | * |  |  | * |  | * |  | * |  |  | * | 22 |
| LAMAR |  | * |  |  | * |  | * |  | * |  |  | * |  |
| MARION |  | * |  |  | * |  | * |  | * | 1 |  | * |  |
| SMITH |  | * |  |  | 1 * |  | * |  | * | 10 | 2 | * | 56 |
| VAN ZANDT |  | * |  |  | 1 * |  | * |  | * |  |  | * |  |
| MOOD |  | * |  |  | * |  | * |  | * |  | 1 | * |  |
| CASES THIS WEEK | 3 | * |  |  |  |  | $1 *$ |  | * | 30 | 3 | * | $78$ |
| CUAULATIVE 1983 | 256 | * | 29 | 18 | 69 * |  | 12 * | 7 | * | 2,181 | 191 | * | 4.200 |
| OTHER COUNTIES: | NO COMMUNIC | ABLE | DISEASE | S: | 2 | OTHER | DISEASES ONLY: | 0 |  | NOT | REPORTI | N6: | 9 |


| ASEPTIC | MENINGO- |  | PATITI | 5 : | IMMU | ZABLE: | 1 | RICKE | AL: |  |  |  |  | M1 |  |
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| MENIN- | COCCAL | A | B |  | I |  | 1 | ENDEM |  |  | PES |  | FLU | $\varepsilon$ | TUBER- |
| GITIS | INFEC | INFEC | SERUM | UNSPEC | Imeasles | RUBELLA | 1 | TYPH. | RMSF | GC | SYPH | 1 | FLU-L | LIKE | CULOSIS |

PUBLIC HEALTH REGION 8 HARLINGEN, TX PHONE: 512/423-0130 POPULATION = 1413.993

COUNTIES

CALHOUN<br>CAMERON<br>HIDALGO<br>KLEBERG<br>NUECES<br>SAN PATRICIO<br>VICTORIA<br>WEBB<br>CASES THIS WEEK<br>CUMULATIVE 1983

OTHER COUNTIES:

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|  |  | * | 2 |  | 5 |
|  |  | * | 1 |  | 6 |
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|  |  | * |  | 2 | 2 |
|  |  | * |  |  |  |
|  |  | * |  |  |  |
|  |  | * |  |  |  |
|  |  | * | 3 | 2 | 13 |
| 57 | 10 | * | 173 | 83 | 437 |

NO COMAUNICABLE DISEASES: 3

POPULMTION $=1.413 .993$


OTHER DISEASES ONLY: 1
NOT REPORTING:
14

PUBLIC HEALTH REGION 9 UVALOE, TX COUNTIES
ATASCOSA
BEXAR
DIMMIT
GILLESPIE
GUADALUPE
KARNES
KERR
MAVERICK
UVALDE
ZAVALA
CASES THIS WEEK
CUMULATIVE 1983

OTHER COUNTIES:

PHONE: 512/278-7173


POPULATION $=1,443,279$


PUBLIC HEALTH REGION 10 TYLERF TX
COUNTIES

## ANGELINA

HOUSTON
JASPER
JEFFERSON
NACOGDOCHES
SAN JACINTO

PHONE: 214/595-3585

## * * * * *

POPULATION $=683.950$

| $*$ |  |  |
| ---: | ---: | ---: |
| $*$ | 1 |  |
| $*$ | 1 | 1 |
| $*$ | 26 | 3 |
| $*$ | 1 | 1 |

$\square$



 HENTM- HEPATITIS: 1 IMMUNIZABLE: $\mid$ RICKETTSIAL: $\mid$ VENEREAL: $\mid$ MISC. : HENIN COCCAL A B ENDEM GITIS INFEC INFEC SERUM UNSPEC JMEASLES RUBELLA TYPH RMSF GC PES FLU \& SYPH FLU-LIKE TUBERTYPH GC CULOSIS

OTHER REPORTING SOURCES
ARMED FORCES v.A. HOSPITALS

CASES THIS NEEK CUHULATIVE 1983

$\begin{array}{rr}* & 19 \\ * & \\ * & \\ * & 19 \\ * & 1.911\end{array}$
*
*
*
*
$115 * 5,05$

| ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS) |  | 4 |  | 42 |
| :---: | :---: | :---: | :---: | :---: |
| AMEBIASIS | 12 | 16 | 360 | 298 |
| ANTHRAX | 0 | 0 | 0 | 0 |
| BOTULISM | 0 | 0 | 0 | 2 |
| BRUCELLOSIS | 1 | 0 | 16 | 60 |
| CHICKENP OX | 20 | 14 | 9824 | 13726 |
| CHOLERA | 0 | 0 | 0 | 0 |
| DIPHTHERIA | 0 | 0 | 1 | 0 |
| ENCEPHALITIS, ST. LOUIS | 1 | 0 | 10 | 1 |
| ENCEPHALITIS, WESTERN EQUINE | 0 | 0 | 3 | 0 |
| ENCEPHALITIS, VENEZUELAN EQUINE | 0 | 0 | 0 | 0 |
| ENCEPHALITIS, ALL OTHER | 3 | 4 | 119 | 87 |
| LEPROSY (HANSENS DISEASE) | 0 | 1 | 24 | 25 |
| LEPTOSPIROSIS | 1 | 0 | 11 | 0 |
| MALARIA | 0 | 0 | 0 | 0 |
| MALARIA ACQUIRED OUTSIDE USA | 2 | 1 | 43 | 36 |
| MUMPS | 5 | 4 | 169 | 165 |
| PERTUSSIS | 5 | 5 | 61 | 70 |
| Plague | 0 | 0 | 1 | 0 |
| POLIOHYELITIS, PARALYTIC | 0 | 0 | 0 | 0 |
| PSITTACOSIS | 0 | 0 | 6 | 5 |
| - FEVER | 0 | 0 | 1 | 0 |
| RABIES IN MAN | 0 | 0 | 0 | 0 |
| RELAPSING FEVER | 0 | 0 | 1 | 0 |
| RHEUMATIC FEVER | 0 | 0 | 7 | 11 |
| RUBELLA CONGENITAL SYNDROME | 0 | 0 | 0 | 0 |
| SALMONELLOSIS | 81 | 68 | 1585 | 1676 |
| SHIGELLOSIS | 34 | 77 | 1639 | 1300 |
| STREP THROAT \& SCARLET FEVER | 563 | 693 | 36407 | 28866 |
| REYE SYNDROME |  | 0 |  | 14 |
| TETANUS | 0 | 0 | 5 | 6 |
| TRICHINOSIS | 2 | 0 | 2 | 1 |
| TULAREMIA | 1 | 0 | 7 | 8 |
| TYPHOID FEVER | 0 | 1 | 19 | 37 |
| TYPHUS, EPIDEMIC | 0 | 0 | 0 | 0 |
| YELLOH FEVER | 0 | 0 | 0 | 0 |
| RABIES IN ANIMALS | 19 | 11 | 587 | 599 |


[^0]:    *The term "immortalize" refers to the capacity of HTLV to alter a normal human cell so that the cell will reproduce indefinitely in appropriate media.

[^1]:    *In this study, a generation was defined as 14 days.

