

# Morbidity and Mortality



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE  
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EPIDEMIOLOGIC NOTES AND REPORTS  
HUMAN BRUCELLOSIS DUE TO STRAIN 19  
*BRUCELLA ABORTUS* - Oklahoma

On April 23, 1974, a 32-year-old veterinarian accidentally injected an unknown quantity of *Brucella* vaccine (containing *Brucella abortus* strain 19) into his left palm. The needle had already been used to vaccinate a calf. Within an hour after the accident he began taking oral tetracycline, 500 mg 4 times/day. One and 1/2 hours after the incident he noted pain and swelling in his hand, and by the next day, it was markedly swollen and erythematous and so painful that he was unable to perform his usual activities. He also complained of fever, headache, nausea, and fatigue, which lasted several days. On April 25, a maculopapular rash appeared on his left

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forearm, that lasted 3-4 days. By April 28 the pain and edema in his hand had greatly subsided.

After 10 days of tetracycline therapy, he developed erythema and small urticaria-like lesions on the exposed parts of his body; the rash was most marked on the dorsum of his

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
(Cumulative totals include revised and delayed reports through previous weeks)

| DISEASE                                     | 28th WEEK ENDING |                  | MEDIAN<br>1969-1973 | CUMULATIVE, FIRST 28 WEEKS |         |                     |
|---|------------------|------------------|---------------------|----------------------------|---------|---------------------|
|   | July 13,<br>1974 | July 14,<br>1973 |                     | 1974                       | 1973    | MEDIAN<br>1969-1973 |
| Aseptic meningitis                          | 73               | 126              | 120                 | 1,129                      | 1,337   | 1,162               |
| Brucellosis                                 | 6                | 7                | 4                   | 83                         | 100     | 100                 |
| Chickenpox                                  | 926              | 1,115            | —                   | 95,970                     | 141,557 | —                   |
| Diphtheria                                  | 1                | 7                | 4                   | 148                        | 107     | 90                  |
| Encephalitis:                               |                  |                  |                     |                            |         |                     |
| Primary: Arthropod-borne and unspecified    | 14               | 44               | 32                  | 449                        | 617     | 602                 |
| Post-Infectious                             | 13               | 7                | 9                   | 148                        | 166     | 181                 |
| Hepatitis, Viral:                           |                  |                  |                     |                            |         |                     |
| Type B                                      | 172              | 144              | 144                 | 4,966                      | 4,205   | 4,205               |
| Type A                                      | 760              | 960              | 960                 | 23,064                     | 27,269  | 29,876              |
| Type unspecified                            | 141              | —                | —                   | 4,539                      | —       | —                   |
| Malaria                                     | 5                | 8                | 52                  | 89                         | 129     | 1,423               |
| Measles (rubeola)                           | 256              | 247              | 325                 | 18,639                     | 22,967  | 25,507              |
| Meningococcal infections, total             | 32               | 27               | 27                  | 826                        | 912     | 1,561               |
| Civilian                                    | 32               | 26               | 26                  | 804                        | 889     | 1,379               |
| Military                                    | —                | 1                | 1                   | 22                         | 23      | 156                 |
| Mumps                                       | 524              | 855              | 941                 | 41,690                     | 51,729  | 62,905              |
| Pertussis                                   | 38               | —                | —                   | 698                        | —       | —                   |
| Rubella (German measles)                    | 176              | 162              | 418                 | 8,868                      | 25,044  | 36,353              |
| Tetanus                                     | 1                | 3                | 3                   | 31                         | 42      | 60                  |
| Tuberculosis, new active                    | 624              | 617              | —                   | 16,556                     | 17,056  | —                   |
| Tularemia                                   | 3                | 7                | 8                   | 72                         | 85      | 78                  |
| Typhoid fever                               | 14               | 9                | 9                   | 197                        | 393     | 160                 |
| Typhus, tick-borne (Rky. Mt. spotted fever) | 47               | 30               | 23                  | 377                        | 312     | 202                 |
| Venereal Diseases:                          |                  |                  |                     |                            |         |                     |
| Gonorrhea                                   | 16,726           | 16,750           | —                   | 460,053                    | 420,004 | —                   |
| Syphilis, primary and secondary             | 507              | 438              | —                   | 12,854                     | 13,137  | —                   |
| Rabies in animals                           | 47               | 49               | 56                  | 1,486                      | 2,019   | 2,019               |

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

|                              | Cum. |                                    | Cum. |
|------------------------------|------|------------------------------------|------|
| Anthrax                      | 2    | Poliomyelitis, total:              | 2    |
| Botulism: Calif. 2           | 8    | Paralytic:                         | 2    |
| Congenital rubella syndrome: | 34   | Psittacosis: Fla. 1, Md. 1, Neb. 1 | 16   |
| Leprosy:                     | 59   | Rabies in man:                     | —    |
| Leptospirosis: Hawaii 1      | 23   | Trichinosis:                       | 59   |
| Plague:                      | 1    | Typhus, murine: NYC 1              | 12   |

## HUMAN BRUCELLOSIS – Continued

forearms, hand, and fingers. This was interpreted as a photosensitivity reaction to tetracycline, and his therapy was discontinued. He refused treatment with streptomycin. An interview 2 weeks after discontinuation of tetracycline therapy revealed that he had remained afebrile, but he noted the recurrence of mild pain in the left thumb and index finger.

The patient claimed that prior to the accident, he had never inoculated himself with *Brucella* vaccine or had clinical brucellosis. A serum specimen drawn 1 day after the inoculation was negative for *Brucella* agglutinating antibody. However, a convalescent specimen drawn 19 days later was positive at 1:40.

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## Editorial Note

Accidental exposure to strain 19 *B. abortus* is probably not an infrequent event, although few reported cases are found in the recent medical literature (1-3). The 2 most common types of exposure are (1) accidental inoculation of reconstituted vaccine into the hand, and (2) splashing of vaccine into the conjunctiva of the vaccinator. Illness is usually manifest in 1 of 2 ways:

1. A systemic illness very much like that due to "natural" strains of *B. abortus* may occur after an incubation period of 1-3 weeks.

2. A marked local reaction, including pain, erythema, edema, and occasionally sloughing of skin, may begin within hours after the injection. Some authors feel that this represents an accelerated delayed-type hypersensitivity reaction to brucellae or their components (e.g. endotoxin) (4).

The pronounced, local reaction reportedly occurs almost exclusively among persons who have a history of (a) clinical brucellosis, (b) serologic evidence of previous infection, or (c) a previous accidental exposure to strain 19. The case reported above is unusual since an accelerated reaction occurred in the absence of clinical or laboratory evidence of previous infection. However, the negative *Brucella* titer during the acute phase of the illness does not preclude a prior subclinical infection. Although *B. abortus* was not isolated from the patient's blood or wound, the clinical and serologic evidence are compatible with brucellosis due to *B. abortus* strain 19.

## References

1. Spink WW: The significance of bacterial hypersensitivity in human brucellosis; studies on infection due to strain 19 *Brucella abortus*. *Ann Int Med* 47:861-874, 1957
2. Sadusk JF Jr, Broune AS, Born JL: Brucellosis in man, resulting from *Brucella abortus* (strain 19) vaccine. *JAMA* 164:1325-1328, 1957
3. Joffe B, Diamond MT: Brucellosis due to self-inoculation. *Ann Int Med* 65:564-565, 1966
4. Spink WW: Host-parasite relationship in brucellosis. *Lancet* 2:161-164, 1964.

## WOUND BOTULISM – Idaho, Utah, California

## Case 1

On May 25, 1974, a 25-year-old man from Rupert, Idaho, sustained a compound fracture-dislocation of his left ankle in a motorcycle accident in a rural area of Idaho. Later that day, after open surgical reduction of the fracture and closure of a laceration over the medial malleolus, a cast was applied. The patient was discharged from the hospital the next day. Two days later he developed pain in the ankle and was hospitalized again; the cast was removed the following day. Aerobic culture of purulent material from the wound yielded alpha-hemolytic streptococci; anaerobic cultures were not performed. The patient was treated in the hospital with warm soaks, elevation of the leg, and large intravenous doses of penicillin; cephalothin and gentamicin were later added.

On June 1, the patient experienced mild dysphagia. Two days later he complained of diplopia and symmetrical weakness of his extremities. He subsequently developed dysphagia, dysphonia, dyspnea, and urinary retention. Physical examination revealed a temperature of 104° F, symmetrical motor weakness in the distribution of cranial nerves 3, 4, 6, 7, and 9-12, marked weakness of his extremities without sensory deficit, absent deep tendon reflexes in both arms, and hypoactive reflexes in both legs. On June 5, he had a respiratory arrest from which he was successfully resuscitated; a tracheostomy was performed, and he was put on a respirator. His course was subsequently complicated by aspiration pneumonia.

On June 13, a diagnosis of wound botulism was considered. On June 14, the patient developed a severe urticarial reaction following a skin test with bivalent botulinum antitoxin. However, a skin test with trivalent botulinum antitoxin was negative, and he was given 1 vial of this antitoxin intramuscularly. On June 15, after transfer to a hospital in Salt Lake City, he received a second vial.

On June 16, the left ankle wound and joint were explored. A gram stain of serosanguinous fluid revealed no organisms. Anaerobic culture of the material yielded *Clostridium botulinum* type A. Identification of other microorganisms isolated from the wound is in progress. Pre- and post-treatment serum specimens were negative for botulinum toxin. An electromyogram performed on June 16 revealed decreased amplitude of the muscle action potential in response to a single stimulus and 30% facilitation with a stimulus frequency of 30 per second; these findings were compatible with the diagnosis of botulism.

Neurologic improvement was first noted on June 21. The patient remains hospitalized but continues to improve.

Epidemiologic investigation revealed that the patient had no history of eating home-canned or spoiled food during the 2 weeks prior to the onset of his illness.

## Case 2

On June 21, 1974, a 33-year-old woman sustained lacerations of her forehead and left calf in an automobile acci-

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TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDING JULY 13, 1974 AND JULY 14, 1973 (28th WEEK)

| AREA                 | ASEPTIC MENINGITIS | BRUCELLOSIS | CHICKENPOX | DIPHTHERIA |     | ENCEPHALITIS                             |      |                 | HEPATITIS, VIRAL |        |                  | MALARIA |    |
|----------------------|--------------------|-------------|------------|------------|-----|--|------|-----------------|------------------|--------|------------------|---------|----|
|                      |                    |             |            |            |     | Primary: Arthropod-borne and Unspecified |      | Post Infectious | Type B           | Type A | Type Unspecified |         |    |
|                      |                    |             |            |            |     | 1974                                     | 1973 | 1974            | 1974             | 1974   | 1974             |         |    |
| UNITED STATES        | 73                 | 6           | 926        | 1          | 148 | 14                                       | 44   | 13              | 172              | 760    | 141              | 5       | 89 |
| NEW ENGLAND          | 3                  | -           | 131        | -          | -   | -  | 1    | -               | 2                | 29     | 9                | -       | 5  |
| Maine *              | -                  | -           | 5          | -          | -   | -  | -    | -               | -                | 10     | 3                | -       | -  |
| New Hampshire *      | 1                  | -           | 8          | -          | -   | -  | -    | -               | -                | 3      | -                | -       | -  |
| Vermont              | -                  | -           | 8          | -          | -   | -  | -    | -               | -                | 3      | -                | -       | -  |
| Massachusetts        | -                  | -           | -          | -          | -   | -  | 1    | -               | -                | 3      | 6                | -       | 1  |
| Rhode Island         | 2                  | -           | 32         | -          | -   | -  | -    | -               | 2                | 5      | -                | -       | 3  |
| Connecticut          | -                  | -           | 78         | -          | -   | -  | -    | -               | -                | 5      | -                | -       | 1  |
| MIDDLE ATLANTIC      | 2                  | -           | 126        | -          | 1   | 1  | 2    | 1               | 31               | 107    | 29               | -       | 13 |
| Upstate New York     | 2                  | -           | 64         | -          | -   | 1  | -    | -               | 10               | 27     | 8                | -       | 3  |
| New York City        | -                  | -           | 61         | -          | -   | -  | -    | -               | 4                | 17     | -                | -       | 5  |
| New Jersey           | -                  | -           | NN         | -          | -   | -  | -    | -               | 10               | 29     | 17               | -       | 3  |
| Pennsylvania         | -                  | -           | 1          | -          | 1   | -  | 2    | 1               | 7                | 34     | 4                | -       | 2  |
| EAST NORTH CENTRAL   | 2                  | -           | 359        | -          | 2   | 3  | 3    | 2               | 25               | 121    | 14               | -       | 9  |
| Ohio                 | 1                  | -           | 54         | -          | 1   | 2  | 1    | 1               | 3                | 33     | -                | -       | 4  |
| Indiana              | -                  | -           | 24         | -          | -   | -  | -    | -               | -                | 20     | -                | -       | -  |
| Illinois             | -                  | -           | -          | -          | 1   | -  | -    | 1               | 13               | 31     | 12               | -       | 2  |
| Michigan             | 1                  | -           | 139        | -          | -   | 1  | 2    | -               | 8                | 27     | 2                | -       | 2  |
| Wisconsin            | -                  | -           | 142        | -          | -   | -  | -    | -               | 1                | 10     | -                | -       | 1  |
| WEST NORTH CENTRAL   | 10                 | 2           | 39         | -          | -   | 1  | 7    | 1               | 5                | 40     | 8                | -       | 3  |
| Minnesota            | 1                  | -           | -          | -          | -   | 1  | -    | 1               | 2                | 21     | -                | -       | 1  |
| Iowa                 | 9                  | -           | 10         | -          | -   | -  | 1    | -               | -                | -      | -                | -       | -  |
| Missouri             | -                  | 1           | -          | -          | -   | -  | 2    | -               | 3                | 4      | 3                | -       | 1  |
| North Dakota         | -                  | -           | 2          | -          | -   | -  | -    | -               | -                | -      | -                | -       | -  |
| South Dakota         | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 2      | -                | -       | 1  |
| Nebraska             | -                  | -           | 3          | -          | -   | -  | -    | -               | -                | 1      | -                | -       | -  |
| Kansas               | -                  | 1           | 24         | -          | -   | -  | 4    | -               | -                | 12     | 5                | -       | -  |
| SOUTH ATLANTIC       | 13                 | 2           | 68         | -          | 1   | 2  | 7    | 2               | 17               | 125    | 18               | 3       | 17 |
| Delaware             | 1                  | -           | 5          | -          | -   | -  | -    | -               | 1                | 3      | 3                | -       | 2  |
| Maryland             | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 1      | -                | -       | 2  |
| District of Columbia | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 6      | -                | -       | 3  |
| Virginia *           | -                  | 1           | -          | -          | -   | -  | -    | -               | 3                | 4      | -                | -       | -  |
| West Virginia *      | -                  | -           | 58         | -          | -   | -  | -    | -               | -                | 4      | -                | -       | 4  |
| North Carolina       | 1                  | -           | NN         | -          | 1   | -  | -    | 1               | 2                | 17     | 10               | 1       | 1  |
| South Carolina       | 4                  | -           | 5          | -          | -   | 1  | -    | -               | -                | 5      | 1                | -       | -  |
| Georgia              | 1                  | 1           | -          | -          | -   | -  | -    | -               | -                | 25     | -                | 1       | 1  |
| Florida              | 6                  | -           | -          | -          | -   | 1  | -    | 1               | 11               | 64     | 4                | 1       | 5  |
| EAST SOUTH CENTRAL   | 4                  | -           | 58         | -          | -   | 2  | 2    | 1               | 4                | 67     | 3                | -       | 3  |
| Kentucky             | 1                  | -           | 55         | -          | -   | -  | -    | -               | 1                | 27     | 2                | -       | 2  |
| Tennessee            | 3                  | -           | NN         | -          | -   | 1  | 1    | -               | 3                | 34     | 1                | -       | 1  |
| Alabama              | -                  | -           | -          | -          | -   | 1  | 1    | -               | -                | 3      | -                | -       | -  |
| Mississippi          | -                  | -           | 3          | -          | -   | -  | -    | 1               | -                | 3      | -                | -       | -  |
| WEST SOUTH CENTRAL   | 17                 | -           | 82         | -          | 9   | 3  | 16   | 3               | 17               | 113    | 8                | -       | 5  |
| Arkansas             | -                  | -           | 3          | -          | -   | -  | -    | -               | 6                | 6      | 2                | -       | -  |
| Louisiana *          | 12                 | -           | NN         | -          | -   | -  | -    | 2               | 7                | 23     | 6                | -       | 1  |
| Oklahoma *           | ---                | ---         | ---        | ---        | --- | ---                                      | 16   | ---             | ---              | ---    | ---              | ---     | 1  |
| Texas                | 5                  | -           | 79         | -          | 9   | 3  | -    | 1               | 4                | 84     | -                | -       | 3  |
| MOUNTAIN             | -                  | 1           | 36         | -          | 27  | -  | -    | -               | 2                | 33     | 27               | -       | 4  |
| Montana              | -                  | -           | 16         | -          | -   | -  | -    | -               | -                | -      | 12               | -       | -  |
| Idaho                | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 3      | 1                | -       | -  |
| Wyoming              | -                  | -           | -          | -          | -   | -  | -    | -               | -                | -      | -                | -       | -  |
| Colorado             | -                  | -           | 6          | -          | -   | -  | -    | -               | 2                | 5      | 9                | -       | 2  |
| New Mexico           | -                  | 1           | 14         | -          | 10  | -  | -    | -               | -                | 9      | -                | -       | 1  |
| Arizona              | -                  | -           | -          | -          | 17  | -  | -    | -               | -                | 4      | 5                | -       | -  |
| Utah                 | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 2      | -                | -       | -  |
| Nevada               | -                  | -           | -          | -          | -   | -  | -    | -               | -                | 10     | -                | -       | 1  |
| PACIFIC              | 22                 | 1           | 27         | 1          | 108 | 2  | 6    | 3               | 69               | 125    | 25               | 2       | 30 |
| Washington           | 6                  | -           | 4          | 1          | 99  | -  | 1    | -               | 7                | 9      | 4                | -       | -  |
| Oregon               | -                  | -           | 2          | -          | -   | -  | -    | -               | 5                | 9      | 3                | -       | -  |
| California *         | 16                 | 1           | -          | -          | 5   | 2  | 5    | 3               | 53               | 103    | 17               | 2       | 30 |
| Alaska               | -                  | -           | 4          | -          | 4   | -  | -    | -               | 2                | 1      | 1                | -       | -  |
| Hawaii               | -                  | -           | 17         | -          | -   | -  | -    | -               | 2                | 3      | -                | -       | -  |
| Guam *               | -                  | -           | -          | -          | -   | -  | -    | -               | -                | -      | -                | -       | 2  |
| Puerto Rico          | -                  | -           | 19         | -          | -   | -  | -    | -               | -                | 1      | 7                | -       | -  |
| Virgin Islands       | -                  | -           | -          | -          | -   | -  | -    | -               | -                | -      | -                | -       | -  |

\*Delayed reports: Aseptic Meningitis: La. delete 3, Okla. 2  
 Brucellosis: Okla. 1  
 Chickenpox: Me. 2, N.H. 6, Okla. 2, Calif. 28

Hepatitis B: N.H. 1, Okla. 2, 1973 Pa. 2  
 Hepatitis A: W. Va. delete 3, La. delete 1  
 Okla. 5, Guam 15, 1973 Pa. 2  
 Hepatitis, unspecified: Va. delete 1, Okla. 4, Guam 22

## Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
FOR WEEKS ENDING JULY 13, 1974 AND JULY 14, 1973 (28th WEEK) - Continued

| AREA                 | MEASLES (Rubeola) |            |        | MENINGOCOCCAL INFECTIONS,<br>TOTAL |            |      | MUMPS |              | PERTUSSIS | RUBELLA |              | TETANUS      |
|----------------------|-------------------|------------|--------|------------------------------------|------------|------|-------|--------------|-----------|---------|--------------|--------------|
|                      | 1974              | Cumulative |        | 1974                               | Cumulative |      | 1974  | Cum.<br>1974 | 1974      | 1974    | Cum.<br>1974 | Cum.<br>1974 |
|                      |                   | 1974       | 1973   |                                    | 1974       | 1973 |       |              |           |         |              |              |
| UNITED STATES        | 256               | 18,639     | 22,967 | 32                                 | 826        | 912  | 524   | 41,690       | 38        | 176     | 8,868        | 31           |
| NEW ENGLAND          | 14                | 870        | 7,265  | 1                                  | 42         | 41   | 75    | 5,612        | -         | 4       | 886          | -            |
| Maine *              | 1                 | 39         | 64     | -                                  | 2          | 1    | -     | 769          | -         | -       | 242          | -            |
| New Hampshire        | -                 | 197        | 852    | 1                                  | 8          | 6    | 5     | 270          | -         | -       | 15           | -            |
| Vermont              | -                 | 57         | 116    | -                                  | 1          | 2    | 1     | 28           | -         | -       | 17           | -            |
| Massachusetts        | 11                | 358        | 3,853  | -                                  | 12         | 11   | 11    | 890          | -         | 3       | 312          | -            |
| Rhode Island         | -                 | 57         | 598    | -                                  | 7          | 3    | 52    | 2,265        | -         | -       | 18           | -            |
| Connecticut          | 2                 | 162        | 1,782  | -                                  | 12         | 18   | 6     | 1,390        | -         | 1       | 282          | -            |
| MIDDLE ATLANTIC      | 144               | 7,577      | 2,189  | 4                                  | 109        | 124  | 57    | 3,301        | 4         | 12      | 973          | 2            |
| Upstate New York     | 58                | 792        | 721    | 1                                  | 46         | 44   | 12    | 783          | 2         | 1       | 216          | 1            |
| New York City        | 20                | 501        | 835    | -                                  | 14         | 24   | 10    | 528          | 2         | 7       | 115          | -            |
| New Jersey *         | 36                | 5,431      | 341    | 3                                  | 35         | 28   | 6     | 638          | -         | 2       | 425          | 1            |
| Pennsylvania         | 30                | 853        | 292    | -                                  | 14         | 28   | 29    | 1,352        | -         | 2       | 217          | -            |
| EAST NORTH CENTRAL   | 46                | 7,248      | 8,074  | 5                                  | 97         | 118  | 113   | 12,021       | 2         | 28      | 2,916        | 5            |
| Ohio                 | 10                | 2,987      | 278    | 2                                  | 33         | 51   | 20    | 2,949        | -         | 3       | 479          | 2            |
| Indiana              | 3                 | 205        | 589    | 1                                  | 9          | 4    | 14    | 921          | -         | 6       | 468          | -            |
| Illinois             | 18                | 1,793      | 1,921  | -                                  | 10         | 23   | 7     | 1,031        | 1         | -       | 456          | 2            |
| Michigan             | 12                | 1,858      | 4,212  | 2                                  | 31         | 35   | 37    | 5,249        | 1         | 12      | 1,105        | 1            |
| Wisconsin            | 3                 | 405        | 1,074  | -                                  | 14         | 5    | 35    | 1,871        | -         | 7       | 408          | -            |
| WEST NORTH CENTRAL   | 10                | 662        | 428    | -                                  | 65         | 71   | 13    | 2,604        | 4         | -       | 204          | 7            |
| Minnesota            | -                 | 78         | 18     | -                                  | 21         | 4    | -     | 35           | 1         | -       | 10           | 1            |
| Iowa *               | 4                 | 124        | 275    | -                                  | 11         | 17   | 2     | 1,608        | -         | -       | 14           | -            |
| Missouri             | 6                 | 256        | 48     | -                                  | 18         | 30   | 6     | 352          | 1         | -       | 32           | 2            |
| North Dakota         | -                 | 25         | 56     | -                                  | 2          | 3    | 4     | 21           | -         | -       | 11           | 1            |
| South Dakota         | -                 | 27         | -      | -                                  | 3          | 4    | -     | 2            | 2         | -       | 25           | -            |
| Nebraska             | -                 | 2          | 4      | -                                  | 1          | 6    | 1     | 74           | -         | -       | 6            | -            |
| Kansas               | -                 | 150        | 27     | -                                  | 9          | 7    | -     | 512          | -         | -       | 106          | 3            |
| SOUTH ATLANTIC       | 15                | 433        | 1,134  | 10                                 | 166        | 152  | 49    | 4,942        | 3         | 45      | 953          | 8            |
| Delaware             | -                 | 6          | 8      | -                                  | 3          | 1    | 2     | 83           | -         | -       | 24           | -            |
| Maryland             | -                 | 21         | 2      | -                                  | 17         | 20   | 1     | 89           | -         | -       | 1            | -            |
| District of Columbia | -                 | 3          | 4      | -                                  | -          | 4    | 3     | 46           | -         | 1       | 4            | -            |
| Virginia             | -                 | 21         | 408    | -                                  | 28         | 27   | 5     | 481          | -         | -       | 38           | 3            |
| West Virginia        | 7                 | 121        | 182    | -                                  | 6          | 4    | 10    | 2,822        | -         | 4       | 144          | -            |
| North Carolina       | -                 | 4          | 4      | 1                                  | 37         | 33   | NN    | NN           | 1         | -       | 53           | -            |
| South Carolina       | 5                 | 44         | 55     | 2                                  | 15         | 10   | -     | 105          | -         | 37      | 545          | 1            |
| Georgia              | -                 | 4          | 146    | -                                  | 7          | 19   | -     | -            | 2         | -       | 2            | -            |
| Florida              | 3                 | 209        | 325    | 7                                  | 53         | 34   | 28    | 1,316        | -         | 3       | 142          | 4            |
| EAST SOUTH CENTRAL   | 4                 | 173        | 585    | 4                                  | 92         | 85   | 102   | 5,226        | 11        | 16      | 465          | 2            |
| Kentucky             | 3                 | 113        | 361    | 1                                  | 37         | 31   | 44    | 2,133        | 2         | 9       | 169          | -            |
| Tennessee            | -                 | 33         | 165    | 3                                  | 42         | 33   | 46    | 2,250        | 6         | 7       | 225          | 1            |
| Alabama              | 1                 | 14         | 5      | -                                  | 9          | 14   | 8     | 475          | 3         | -       | 56           | -            |
| Mississippi          | -                 | 13         | 54     | -                                  | 4          | 7    | 4     | 368          | -         | -       | 15           | 1            |
| WEST SOUTH CENTRAL   | 1                 | 162        | 619    | 6                                  | 142        | 140  | 41    | 2,848        | 8         | 5       | 287          | 2            |
| Arkansas             | -                 | 6          | 68     | -                                  | 10         | 13   | 3     | 124          | 1         | -       | 8            | -            |
| Louisiana *          | -                 | 13         | 84     | 1                                  | 28         | 26   | 2     | 178          | 4         | -       | 59           | 1            |
| Oklahoma *           | ---               | 23         | 50     | ---                                | 13         | 22   | ---   | 347          | ---       | ---     | 33           | -            |
| Texas                | 1                 | 120        | 417    | 5                                  | 91         | 79   | 36    | 2,199        | 3         | 5       | 187          | 1            |
| MOUNTAIN             | 2                 | 717        | 548    | 2                                  | 26         | 27   | 13    | 987          | -         | 3       | 377          | -            |
| Montana              | 2                 | 371        | 15     | -                                  | 1          | 6    | 1     | 167          | -         | -       | 63           | -            |
| Idaho                | -                 | 50         | 237    | -                                  | 2          | 4    | 1     | 155          | -         | -       | 12           | -            |
| Wyoming              | -                 | 1          | 73     | -                                  | 3          | -    | -     | 9            | -         | -       | -            | -            |
| Colorado             | -                 | 29         | 96     | 2                                  | 6          | 6    | 9     | 477          | -         | -       | 155          | -            |
| New Mexico           | -                 | 52         | 111    | -                                  | 2          | 3    | 2     | 157          | -         | 3       | 100          | -            |
| Arizona              | -                 | 12         | 14     | -                                  | 5          | 4    | -     | -            | -         | -       | -            | -            |
| Utah                 | -                 | 3          | 1      | -                                  | 4          | 2    | -     | 18           | -         | -       | 14           | -            |
| Nevada               | -                 | 199        | 1      | -                                  | 3          | 2    | -     | 4            | -         | -       | 33           | -            |
| PACIFIC              | 20                | 797        | 2,125  | -                                  | 87         | 154  | 61    | 4,149        | 6         | 63      | 1,807        | 5            |
| Washington           | -                 | 55         | 987    | -                                  | 8          | 16   | 5     | 1,506        | -         | -       | 325          | -            |
| Oregon               | -                 | -          | 444    | -                                  | 9          | 12   | 13    | 723          | 2         | 8       | 190          | 1            |
| California           | 20                | 685        | 613    | -                                  | 64         | 120  | 39    | 1,775        | 4         | 55      | 1,278        | 4            |
| Alaska *             | -                 | -          | 65     | -                                  | 3          | 6    | 1     | 96           | -         | -       | -            | -            |
| Hawaii               | -                 | 57         | 16     | -                                  | 3          | -    | 3     | 49           | -         | -       | 14           | -            |
| Guam *               | -                 | 11         | 20     | -                                  | 1          | -    | -     | 329          | -         | -       | 5            | -            |
| Puerto Rico          | 15                | 526        | 1,680  | -                                  | 4          | 7    | 36    | 797          | -         | 2       | 19           | 3            |
| Virgin Islands       | -                 | 22         | -      | -                                  | -          | -    | -     | 30           | -         | -       | -            | 1            |

\*Delayed reports: Measles: Me. 1, Iowa 8, Alaska delete 1, Guam 4  
Meningococcal infections: Alaska 1  
Mumps: Me. 4, Guam 14  
Pertussis: Okla. 1  
Rubella: N.J. delete 1, La. delete 3, Guam 1





**BOTULISM – Continued**

dent in Oakland, California. The calf laceration extended into muscle. The lacerations were initially cleaned and dressed at home; later that day the patient went to a hospital emergency room where they were again cleaned and sutured. On June 23, she noted pain and swelling in the region of the calf laceration. On June 26, she experienced blurred vision, and over the next 3 days she developed diplopia, dysphagia, dysphonia, and dyspnea. She was hospitalized on the evening of June 30.

On July 1, she had a low grade fever (peak oral temperature of 99.6°F), a normal sensorium, and evidence of motor impairment in the distribution of cranial nerves 3, 4, 6, 7, 9, 10, and 12. Her peripheral muscle strength and deep tendon reflexes were slightly diminished bilaterally, and her sensory examination was normal. The patient's white blood cell count was 9,800 with 64% polymorphonuclear leukocytes and 6% bands. A lumbar puncture revealed normal spinal fluid, and a Tensilon\* test resulted in slight transient improvement in her ptosis.

On July 2, a diagnosis of wound botulism was considered. Treatment consisted of high-dose intravenous penicillin therapy initiated on July 1 and extensive debridement of the left calf wound. The patient subsequently received a total of 5 vials of trivalent botulinum antitoxin on July 2 and 3.

Results of electromyography on July 3 were compatible with a diagnosis of botulism. Neurologic improvement, first noted on July 4, has continued, and the patient has not required ventilatory assistance. Her vital capacity increased from 1200 cc on July 1 to 1850 cc on July 9.

A gram stain of purulent material aspirated from the wound on July 1 revealed gram-positive bacilli. Anaerobic culture of this material has yielded *C. botulinum* type B, *Clostridium perfringens*, and 2 other, as yet unidentified, organisms. Type B botulinum toxin was detected in a pre-treatment serum specimen; 3 post-treatment serum specimens were negative for toxin.

Epidemiologic investigation revealed that the patient had consumed no home-canned or spoiled foods during the 2 weeks prior to the onset of her illness; her husband and children remain well.

The patient, a passenger in the front seat at the time of the accident, remained in the car but struck her leg on the

car tape recorder. Anaerobic cultures obtained from the car are currently being processed.

(Reported by Don C. Pates, M.D., Howard W. Crawford, M.D., private physicians, Rupert; James M. Lansche, M.D., private neurologist, Pocatello; John Mather, M.D., State Epidemiologist, Idaho State Department of Environmental and Community Services; Gerald Moress, M.D., private physician, Salt Lake City; Taira Fukushima, M.D., Director, Bureau of Disease Prevention, Utah State Division of Health; Eugene Eisenberg, M.D., Richard C. Nagel, M.D., private physicians, Berkeley; Thaddeus F. Midura, Ph.D., and Genevieve S. Nygaard, Microbial Diseases Laboratory, Ronald R. Roberto, M.D., Medical Epidemiologist, and James Chin, M.D., Chief, Infectious Disease Section, California State Department of Health; the Anaerobe Section, Enterobacteriology Branch, Bacteriology Division, Bureau of Laboratories, CDC; and 2 EIS Officers.)

**Editorial Note**

These are the 13th and 14th reported cases of wound botulism in the United States since 1943 and the 3rd and 4th cases reported to CDC this year (1-3). The California case is the second caused by *C. botulinum* type B.

The necessity for thorough debridement of wounds in patients with suspected wound botulism cannot be overemphasized. The first patient had been receiving high doses of penicillin for 4 days prior to development of neurologic symptoms, suggesting that antibiotics alone will not eradicate the organism. The second patient began to improve neurologically 2 days after adequate wound debridement and antitoxin administration.

The immediate appearance of a severe urticarial reaction following a skin test with bivalent botulinum antitoxin in the first patient, who subsequently received a skin test and 2 vials of trivalent antitoxin without complications, is consistent with the observation that allergic reactions more frequently follow administration of the bivalent preparation (4).

In contrast to most previous cases of wound botulism, the second patient's wound was not grossly contaminated with dirt. She was wearing clean slacks at the time of the accident.

**References**

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\*Inclusion of trade names does not imply endorsement by the Public Health Service or the U.S. Department of Health, Education, and Welfare.

**BOVINE ANTHRAX – Texas**

Between June 25 and July 17, 1974, an estimated 175-200 cattle have died of probable anthrax in eastern Falls County, Texas. Two horses, 1 mule, and 1 goat have also died of suspect anthrax. Presently, no confirmed cases have been reported from premises (farms) outside Falls County. No human anthrax cases have been reported. *Bacillus anthracis* was isolated in pure culture from at least 3 affected animals from 2 herds. Criteria for identification of *B. anthracis* included

(1) staining characteristics, (2) typical appearance of non-hemolytic colonies on blood agar, (3) nonmotility, and (4) susceptibility to gamma phage and penicillin.

Control measures include (1) burning of carcasses, (2) quarantine of livestock in the eastern half of Falls County, and (3) a proposed vaccination campaign which will include cattle, horses, sheep, and goats.

An additional 10-13 bovine deaths occurred in a single

**ANTHRAX – Continued**

consignment of cattle in the Oklahoma City Stockyards which were reportedly shipped from Sulphur Springs, Texas. Laboratory examination of specimens is underway to determine if these deaths were due to anthrax. Movement of livestock from Texas into Oklahoma is currently prohibited. In Oklahoma City, only cattle from the affected consignment are quarantined.

Arkansas has also prohibited movement of cattle from Texas.

(Reported by *H. Q. Sibley, D.V.M., Executive Director, Carl Watson, D.V.M., Area 8 Veterinarian, and James B. Young, D.V.M., Staff Veterinarian, Texas Animal Health Commission; A. B. Rich, D.V.M., Director, Division of Veterinary Public Health, Texas State Health Department; William L. Sippel, D.V.M., Ph.D., Executive Director, Howard W. Whitford, D.V.M., Staff Bacteriologist, Texas Veterinary Medical Diagnostic Laboratory; Stanley W. Ferguson, Ph.D., State Epidemiologist, Oklahoma State Department of Health; John W. Holcombe, D.V.M., State Public Health Veterinarian, Okla-*

*homa State Department of Agriculture; Richard M. Thomas, D.V.M., Ph.D., Director, Livestock and Poultry Commission, State of Arkansas Department of Commerce; and the Bacterial Zoonoses Branch, Bacterial Disease Division, Bureau of Epidemiology, CDC.)*

**Editorial Note**

Animal anthrax is generally considered to be a soil-borne disease which may reach epizootic proportions during periods of unusual climatic conditions. Cutaneous anthrax has previously been reported in persons having direct contact with carcasses of animals dying from anthrax (1). Although ingestion of contaminated meat is another potential source of human infection, this mode of transmission is rare in countries, such as the United States, where animals are inspected for evidence of disease before and after slaughter.

**Reference**

1. Brachman PS: Human anthrax in the United States. *Antimicrob Agents Chemother*, 1965, pp. 111-114

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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting outbreaks or case investigations of current interest to health officials.

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