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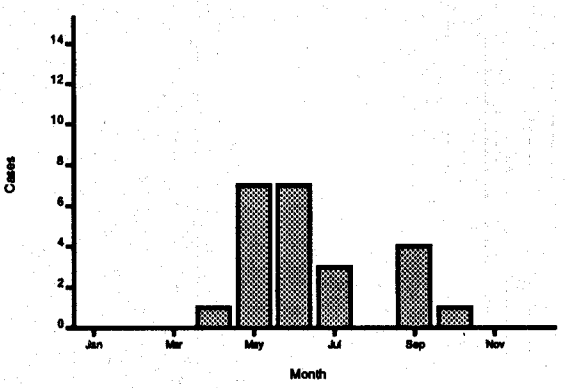
Tickborne Diseases——An Update

Ehrlichiosis

Since 1986, there have been 23 human ehrlichiosis cases identified in Virginia. Although this newly recognized and somewhat puzzling disease is not officially reportable, the Office of Epidemiology (804/786-6261) welcomes reports of suspected cases. Because the signs and symptoms of this disease can be vague and resemble other diseases, it is likely that only a small proportion of the actual cases are recognized and reported.

More ehrlichiosis cases were reported in 1988 and 1989 than in 1986, 1987, or 1990. For all years combined, the earliest cases had onset in April and the latest in October with a peak in the second quarter of the year (Figure 1). Age of cases ranged from 5 years to 87 years with a mean of 46. The majority were adults (79%) with 35% reported in people over 60 years of age. Males (19) were more commonly reported than females (4). Over 90% of the cases reported a tick bite between 4 days and 5 weeks prior to onset of symptoms. The patients reported their tick exposures from throughout the state, but a cluster of cases was observed in the Franklin City/Southampton County area.

Figure 1. Ehrlichiosis in Virginia, by Month of Illness Onset, 1986-1990.



The most common signs and symptoms were: fever—91%, headache—70%, malaise—57%, rigors—52%, myalgia—39%, anorexia—39%, rash—30%, nausea—30%, vomiting—30%, diarrhea—26%, and cough—26%. The description of the rashes varied, but was not typical for Rocky Mountain spotted fever. Illnesses lasted between 4 and 25 days. The range of hospital stays was 3 to 16 days for the 18 people who were hospitalized. Although a variety of antibiotics were used, patients treated with tetracycline consistently had favorable responses, usually within three days.

The most common clinical laboratory abnormalities were leukopenia, thrombocytopenia, and elevated liver enzymes. All diagnoses were based on serologic testing of acute and convalescent phase serum specimens. Results of serologic testing for RMSF, epidemic typhus, and Q fever were usually negative.

A newly developed antigen test (using a polymerase chain reaction) may allow for more rapid confirmation of diagnosis, but this test is not commercially available and is still being evaluated. The Centers for Disease Control (CDC), however, is interested in testing acute phase specimens from selected patients, where the clinical suspicion is high and the patient has not been on prolonged antibiotics. Dr. Suzanne Jenkins in the Office of Epidemiology, Virginia Department of Health, (804) 786-6261, can advise you on how to submit a blood sample from such a patient for antigen testing, and on testing any tick found on the patient (also part of an experimental protocol).

Rocky Mountain spotted fever

In 1990 there were 25 cases of Rocky Mountain spotted fever reported in Virginia. The earliest had

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onset in March and the latest in September with the majority (16) reported in the months of June, July, and August. Age of cases ranged from 5 years to over 60 years. More males (16) than females (9) were reported. Although cases were reported from throughout the state, over half of them (13) occurred in the Central Region. Seventeen cases reported a tick bite (10) or exposure to a tick infested area (7). Only 10 cases had a rash reported. Although Lyme disease has preempted the headlines, the importance of RMSF should not be discounted; two RMSF deaths occurred in 1990.

Lyme disease

In 1990, 129 cases meeting the Centers for Disease Control's case definition for Lyme disease were reported. This is more than double the number of cases (54) reported in 1989, but this increase is probably related to a change in the definition of endemic counties in Virginia, not to an actual increase in disease. Onsets were reported in every month of the year, but 63% occurred in May, June and July. The age of cases ranged from 1 year to over 60 years; 84 (65%) were greater than 30 years of age. Unlike the distribution seen with most other tickborne diseases, more females (66) than males were reported. The Eastern Region reported 56% of the cases. The other four regions reported between 6 and 13% of the cases. This observation coincides with limited tick and animal surveys that show ticks and animals from the Eastern Region are more likely to have evidence of infection with the causative organism, *B. burgdorferi*.

The diagnosis of Lyme disease, especially the acute form, depends more on the clinical picture than on serology. The case definition being used for Lyme disease surveillance was printed in the October 1990 issue of the *Bulletin*. Please note that in order to be defined as a case, the erythema migrans must be at least 5 cm in size and must be diagnosed by a physician.

Laboratory support

Serologic testing for all three diseases is available from the Virginia Department of General Services, Division of Consolidated Laboratory Services, 1 North 14th Street, Richmond, VA 23219.

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Submitted by Suzanne R. Jenkins, VMD, MPH, Zoonotic Disease Control, VDH.

Lyme disease hotline—updated and on-line

The Lyme disease hotline has been revised and updated with information. Individuals with touchtone telephones can utilize this information by dialing (404) 332-4555 to reach the Voice Information Service at CDC in Atlanta. Pressing the appropriate touch tone numbers when requested to do so will connect the caller with general and topic-specific information on Lyme disease as well as a number of other infectious disease problems. Normal long distance service rates are charged to the caller's phone by his/her telephone service provider.

National Lyme disease in pregnancy registry

Gestational Lyme disease and its effect on the fetus continues to be controversial. Few scientific studies have been reported and many basic questions, including magnitude of risk, remain to be answered. CDC plans to contract for a new epidemiologic study of this issue in the current fiscal year. In addition, CDC is encouraging clinicians to register their Lyme disease patients who are pregnant. The National Lyme Disease in Pregnancy Registry was established in 1985 (MMWR 1985;34:376-384). The registry is anonymous. The essential requirements for registration are a brief clinical history and information on the resulting birth outcome. Culture media and shipping costs will be supplied by CDC for the collection of clinical samples related to adverse birth outcomes. For more information, or to register patients, please contact Dr. Roy Campbell at (303) 221-6474.

Cholera Epidemic in South America

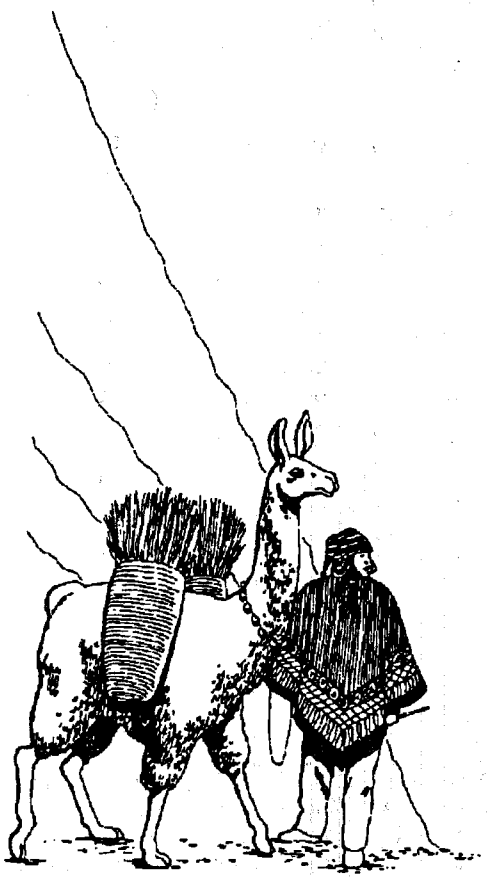
In late January 1991, epidemic cholera appeared in several cities of coastal Peru after being absent from South America for nearly 100 years. By the end of April 1991, it had spread to most areas of Peru and Ecuador, and to areas of Chile and Colombia, and had affected over 160,000 persons. It is likely to spread to other areas in Latin America.

Cholera is a diarrheal illness caused by infection with the bacterium *Vibrio cholerae* 01. In cases of severe illness, patients can rapidly lose fluid, and may die due to dehydration within hours after onset. With rapid replacement of fluid and electrolyte losses, patients respond dramatically, and the mortality rate is less than 1 percent. The bacterium that causes cholera is spread by contaminated food and water.

Epidemiologic investigations in Peru have indicated that the principal means of transmission are through municipal water supplies,

ice made from that water, foods and beverages bought from street vendors, and vegetables irrigated with fresh sewage. Previous experience in other cholera epidemics and anecdotes from this epidemic also suggest that raw and undercooked seafood are important in the transmission.

The risk of cholera to United States (U.S.) travelers visiting areas of endemic and epidemic disease in other parts of the world has been extremely low. As of May 6, 1991, several cases of cholera related to the South American epidemic have been confirmed in the U.S. A traveler to Peru drank tap water, drank beverages made with ice, and ate cold crab salad, and then developed moderate watery diarrhea. A traveler to Ecuador was hospitalized with cholera after eating raw oysters, ceviche, and drinking beverages with ice. In addition, cholera was confirmed in a number of persons who became ill after eating cold salad made from a crab purchased in Ecuador, cooked there, and brought to the U.S. in a traveler's baggage. These illnesses underscore the need for careful selection of food and drink while traveling in endemic and epidemic areas, and the risks of bringing perishable foods back from such areas. There have been no reported deaths among returning travelers to date.



It is important for travelers to areas of epidemic and endemic cholera to take precautions to avoid exposure to contaminated food and water. As with other, less severe forms of travelers' diarrhea, careful attention to food and water sources is the most important preventive measure. In particular: 1) Do not drink unboiled or untreated water. Carbonated bottled water and carbonated soft drinks are usually safe, providing no ice is added. 2) Avoid food and beverages from street vendors. 3) Do not eat raw or partially cooked fish and shellfish, including ceviche. 4) Do not eat uncooked vegetables. Travelers should eat only foods that are cooked and still hot; and fruit they peel themselves. Perishable foods including shellfish and other seafood should not be brought into the U.S. by returning travelers.

The vaccine for cholera confers only brief and incomplete protection and is not recommended for travelers. There are no cholera vaccine requirements for entry or exit into any South American country or the U.S. Travelers who develop watery diarrhea, or diarrhea and vomiting, during or within 1 week after travel to an area with known cholera should seek medical attention immediately. Physicians should request that specimens be cultured on media appropriate for *Vibrio cholerae*. Physicians are encouraged to report all cases or suspected cases of cholera to their local health departments, and to forward suspect *Vibrio cholerae* isolates to the state public health laboratory (Division of Consolidated Laboratory Services, 1 North 14th St, Richmond, VA 23219) for confirmation.

Although some travelers returning to the U.S. may be infected, the risk of transmission of cholera in the U.S. is considered to be low given the general level of sanitation in this country.

Adapted from Advisory Memorandum No. 98, Division of Quarantine, CDC, May 7, 1991.

Diphtheria in Moscow

During 1990, over 300 diphtheria cases and 18 deaths (including three deaths in children) were reported in Moscow, over double the figures for 1989. This resurgence is believed to have resulted from a drop in childhood vaccination levels in recent years. Diphtheria also remains endemic in parts of the Soviet Union outside of Moscow.

Proof of diphtheria immunity is not required for international travel. However, the Immunization Practices Advisory Committee (ACIP) recommends that travelers to areas where diphtheria is occurring should be immunized. The schedule for immunization against diphtheria in children <7 years old requires a four dose primary series of diphtheria toxoid and a booster at 4-6 years of age. The vaccine usually administered to infants and children <7 years old is Diphtheria and Tetanus Toxoids and Pertussis Vaccine (DTP). Diphtheria and Tetanus Toxoids for pediatric use (DT) should be substituted for DTP in children for whom pertussis vaccine is contraindicated. Infants traveling to areas where diphtheria is endemic or epidemic should receive three doses of DTP or DT prior to travel. The first dose should be given no sooner than 4 weeks of age (optimally 6-8 weeks) and the next 2 doses at intervals of 4- to 8- weeks.

The primary schedule for persons ≥7 years of age requires three doses of Tetanus and Diphtheria Toxoids, for adult use (Td); the second dose is given 4-8 weeks after the first; and the third dose, 6-12 months after the second. Two doses of Td received at intervals of at least 4 weeks may provide some protection, while a single dose is of little benefit. Persons in whom the primary schedule was interrupted should complete the rest of the series using vaccine appropriate for age.

A Td booster should be given whenever 10 or more years have elapsed since completion of a primary series or the last diphtheria toxoid-containing booster dose. ACIP recommendations (MMWR 34:27, 1985) on diphtheria prevention should be consulted for further details.

Reprinted from Advisory Memorandum No. 97, Division of Quarantine, Centers for Disease Control, January 31, 1991.

Cases of Selected Notifiable Diseases, Virginia, May 1 through May 31, 1991.

Disease	Total Cases Reported This Month						Total Cases Reported to Date in Virginia		
	State	Regions					This Yr	Last Yr	5 Yr Avg
		NW	N	SW	C	E			
AIDS	58	8	17	15	8	10	294	259	151
Campylobacter	29	10	4	4	9	2	143	174	170
Gonorrhea	1793	-	-	-	-	-	7202	7621	6752
Hepatitis A	14	0	6	2	4	2	78	115	117
Hepatitis B	15	1	3	2	1	8	93	93	137
Hepatitis NANB	1	0	1	0	0	0	10	15	23
Influenza	0	0	0	0	0	0	672	762	2006
Kawasaki Syndrome	1	0	1	0	0	0	15	10	9
Legionellosis	3	1	2	0	0	0	7	6	4
Lyme Disease	9	1	0	1	1	6	19	18	8
Measles	1	0	1	0	0	0	21	50	42
Meningitis, Aseptic	21	2	7	3	2	7	87	70	60
Meningitis, Bacterial*	7	0	0	4	0	3	55	69	86
Meningococcal Infections	3	0	0	2	0	1	16	26	34
Mumps	14	4	5	1	2	2	33	58	51
Pertussis	5	0	2	0	3	0	10	9	15
Rabies in Animals	26	5	8	0	7	6	113	82	124
Reye Syndrome	0	0	0	0	0	0	1	1	1
Rocky Mountain Spotted Fever	1	0	1	0	0	0	1	2	2
Rubella	0	0	0	0	0	0	0	0	
Salmonellosis	69	5	10	16	17	21	356	384	407
Shigellosis	27	1	7	16	3	0	146	59	98
Syphilis~	74	0	12	2	21	39	450	360	219
Tuberculosis	25	2	12	0	7	4	124	123	152

Localities Reporting Animal Rabies: Amelia 1 raccoon; Augusta 1 skunk; Fairfax 1 cat, 1 fox, 1 raccoon; Fauquier 1 raccoon; Frederick 1 skunk; Greene 1 raccoon; Hanover 2 raccoons; Henrico 1 raccoon; Isle of Wight 1 cat; Loudoun 1 cow, 3 raccoons; Lunenburg 1 raccoon; Newport News 4 raccoons; Nottoway 1 skunk; Prince William 1 bat; Rockbridge 1 raccoon; Suffolk 1 dog; Sussex 1 raccoon.
Occupational Illnesses: Asbestosis 11; Carpal Tunnel Syndrome 56; Coal Worker's Pneumoconiosis 48; Hearing Loss 5; Repetitive Motion Disorder 4; Silicosis 2.

*Other than meningococcal
~Total now includes military cases, consistent with reports of other diseases.

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