



EPIDEMIOLOGY BULLETIN

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Editor: Carl W. Armstrong, M.D.

August, 1983

Volume 83, Number 8

Yersinosis in Virginia

The number of reported cases of infection due to *Yersinia enterocolitica* has increased steadily since five cases were first reported in 1979. Twenty-seven cases were reported during 1982, and at the current rate we expect approximately 40 to be reported during 1983.

Slightly more reported cases occurred in males than females (55% vs. 45%) and more cases were reported in blacks than whites (59% vs. 39% of 49

cases for which race was given). Of 62 reported cases for which age was given, 31 (50%) were less than a year of age and 56 (90%) were less than 20 years of age. Incidence rates show striking age-related differences, as shown in figure 1. (See page 2).

Yersinia was most often isolated from stool specimens; this was the means by which the diagnosis was confirmed for 32 (68%) of 47 cases for

which the source of culture specimen was known. Seven isolates (15%) were from wounds, including two intra-operative appendix cultures, five (11%) were from blood and three (6%) from urine.

Localities with the greatest number of reported cases of yersinosis are shown in Table 1. (Incidence rates by locality were not calculated due to the small numbers involved).

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Table 1. Localities in Virginia with the greatest number of reported cases of yersinosis, 1979-1983

Locality	Number Reported	(%)	
1. City of Richmond	14	(18)	
2. City of Petersburg	5	(6)	
3. City of Charlottesville	5	(6)	
4. City of Roanoke	4	(5)	
5. City of Newport News	3	(4)	
6. City of Lynchburg	3	(4)	
7. Pittsylvania County	3	(4)	
8. Lancaster County	3	(4)	
9. Other localities	38	(49)	
TOTAL	78	(100)	

Continued

Editor's comment. *Yersinia enterocolitica* infection is most often manifested by an enterocolitis syndrome with fever and diarrhea occurring most often in children under age 5.¹ The stools frequently contains leukocytes, consistent with the organism's invasiveness, and may contain blood. Mesenteric adenitis is a more common manifestation of infection in older children and adolescents; the associated fever, right lower quadrant abdominal pain, and leukocytosis mimic appendicitis and may lead to surgery before the diagnosis is confirmed.² Secondary bacteremia is unusual and tends to occur in patients with underlying diseases such as cirrhosis, hemochromatosis, and diabetes mellitus.³

Yersinia enterocolitica is a gram negative bacterium with the unusual properties of being motile at 22-25°C

but nonmotile at 37°C, and being able to grow at refrigeration temperature (4°C). If notified that yersinosis is a diagnostic consideration, clinical laboratories will utilize "cold enrichment" to help isolate the organism. Enteric media are inoculated and incubated at both 25°C and 37°C for 48 hours. Phosphate-buffered saline is also inoculated and refrigerated for 28 days; subcultures are performed weekly. If *Y. enterocolitica* is not able to be isolated from the 25°C or 37°C cultures, the refrigerated specimen may still yield the organism because normal fecal organisms, which tend to overgrow *Y. enterocolitica* at warmer temperatures, are selectively inhibited by the cold.⁴ More widespread use of this technique probably accounts for the recent increase in cases of yersinosis diagnosed and reported to health departments.

The ability of *Y. enterocolitica* to

grow at refrigeration temperature has certain disadvantages; the organism multiplies in refrigerated milk products if these become contaminated after pasteurization.⁵

Although spread by contaminated milk or water is occasionally demonstrated, most cases are sporadic and the source of infection unknown. The disease is considered a zoonosis; some human cases have been linked to infection of household pets, especially puppies and kittens. Farm animals may also be infected. Transmission is presumably by fecal-oral spread from an infected human or animal.⁶

Treatment with an aminoglycoside antibiotic or chloramphenicol has been recommended; both the enterocolitis and mesenteric adenitis syndromes, however, may be self-limiting.

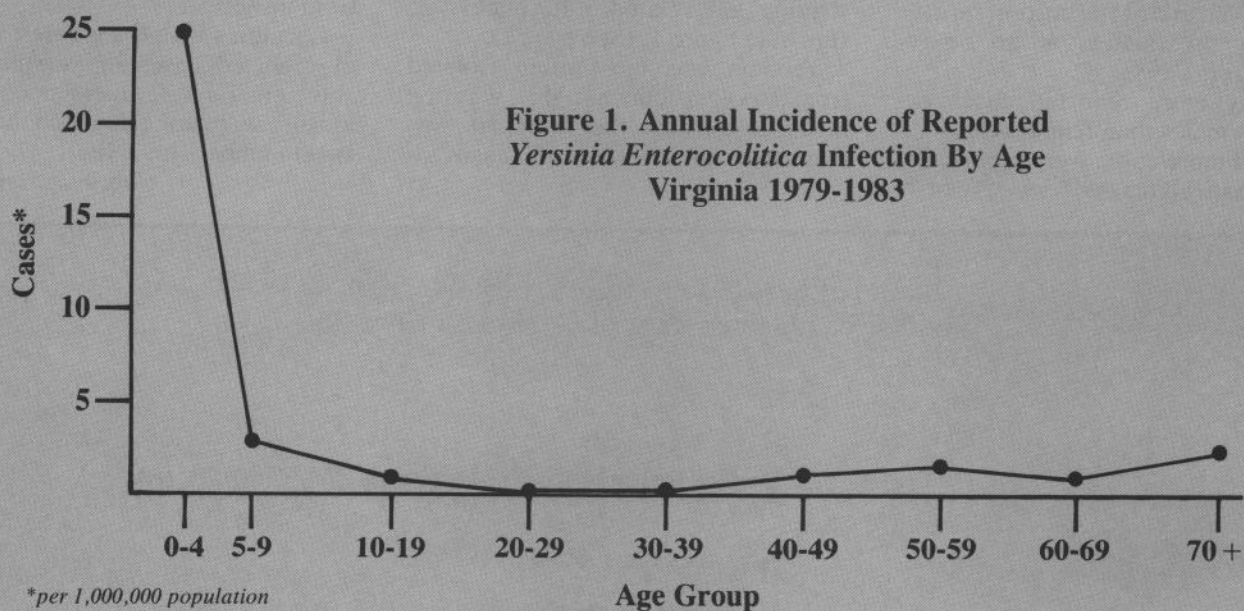


Figure 1. Annual Incidence of Reported *Yersinia enterocolitica* Infection By Age Virginia 1979-1983

*per 1,000,000 population

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Have a Idea for the *Bulletin*?

The editor welcomes any reports of cases, outbreaks, or public health problems of interest to the *Bulletin*'s readers. Such accounts and any other comments or suggestions regarding the *Bulletin* should be addressed to: Editor, *Epidemiology Bulletin*, Office of Health Protection and Environmental Management, Room 700, 109 Governor Street, Richmond, Virginia 23219.

Dipylidiasis Reported:

Human Infection With the Dog Tapeworm

The Consolidated Laboratories, Bureau of Microbiological Science, has reported the identification of parasite proglottids and eggs obtained from an 8 month old child as those of *Dipylidium caninum*, the dog tapeworm. The identification was confirmed at the Centers for Disease Control (CDC).

Dipylidiasis is rarely reported; only six identifications of the parasite were reported to CDC in 1977,¹ and only about 30 case reports have appeared in the U.S. medical literature since 1903.²

Most cases involve infants and small children. Infection may be asymptomatic or associated with non-specific complaints such as irritability, anorexia, insomnia, anal pruritus and vague abdominal pain. The manner in which cases are usually recognized is for a parent to discover the small, white, motile proglottids ("grains of rice") in a child's diaper, on his stool, or on his perineum.²

Dipylidiasis may be confused with pinworm (*Enterobius vermicularis*) infection. Several bedside clues for distinguishing these two infections were recently summarized;² these are given in table 2.

Examination of stool for ova and parasites is frequently of no help in confirming either of these two infections. Tapeworm segments (proglottids) must be placed in isopropyl alcohol or dilute formalin for transport to a parasitology laboratory; dessication will cause the segments to disintegrate.²

The treatment of choice for dipylidiasis is niclosamide (*Yomesan*, by Bayer) whereas pinworm infection is treated with pyrantel pamoate, mebendazole, piperazine citrate, or pyriminium pamoate.³

Dipylidiasis is acquired from the dog or cat flea. Flea larvae ingest *D. caninum* eggs released from proglottids which have passed out of the rectum of an infected dog or cat. Humans, usually children, become accidental hosts when they ingest infected fleas from infested pets, floors or upholstery. After ingestion, a tapeworm cysticercoid develops over 3 to 4 weeks into a 5-30 inch-long adult worm in the small intestine.⁴

Table 2. Distinguishing Dipylidiasis from Enterobiasis

	Tapeworm proglottids of <i>Dipylidium caninum</i>	<i>Enterobius vermicularis</i> (Pinworms)
Shape	broad & flat	round, thin, & tapered at one end
Movement	"inch worm" (expansion & contraction)	serpentine
Number visible over a period of days/weeks	many	few to none
Microscope examination of clear tape preparation	no eggs usually present, except inside proglottids	eggs usually present

References

- Centers for Disease Control: Intestinal Parasite Surveillance Annual Summary 1977, Issued September 1978.
- Hamrick HJ, Drafe WR, Jones HM, Askew AP, Weatherly NF. Two cases of dipylidiasis (dog tapeworm infection) in children: update on an old problem. *Pediatrics* 1983; 72: 114-7.
- Anonymous. Drugs for parasitic infections. *The Medical Letter*. 1982; 24: 5-12.
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Epidemiologists Come and Go

On June 30, 1983 Tom A. Sayvetz, M.D. completed a one year assignment with the Virginia Department of Health as a NIOSH (National Institute of Occupational Safety and Health) investigator. Dr. Sayvetz is currently in Emergency Medicine practice in Farmville, Virginia.

Also on June 30, 1983 Brandon S. Centerwall, M.D., M.P.H. completed a one year assignment from the Centers for Disease Control's (CDC) Epidemic Intelligence Service. Dr. Centerwall has begun a Preventive Medicine Residency at the University of Washington's School of Public Health.

On July 15, 1983, Suzanne R. Jenkins, V.M.D., M.P.H. began a 15 month assignment as a Veterinary Epidemiologist. She will be primarily in-

involved with rabies prevention and control efforts in Virginia but will also conduct investigations of nonzoonotic diseases. Dr. Jenkins completed her undergraduate studies at Earlham College in Richmond, Indiana, received her V.M.D. from the University of Pennsylvania and her M.P.H. degree from Johns Hopkins University. Before coming to Virginia Dr. Jenkins completed a two year assignment with the Maryland Department of Health and Mental Hygiene as an Epidemic Intelligence Service Officer.

We welcome Dr. Jenkins and hope readers will feel free to consult with her whenever an appropriate opportunity arises. We wish Drs. Sayvetz and Centerwall all the best in their new positions; we already miss their enthusiasm, knowledge and wit!

Turning in Midnight Dumpers

The Virginia Department of Health recently established a toll free number for reporting instances of suspected illegal dumping of hazardous waste. The number is 1-800-552-2075, and can be called 24-hours a day. This is not an emergency number, however, and incidents requiring immediate re-

sponse should be reported to local fire or police departments.

The Environmental Protection Agency (EPA) has established a number for similar purposes: 1-800-438-2474 (covers Delaware, the District of Columbia, Maryland, West Virginia, Virginia, and Pennsylvania).

Month: August, 1983

Disease	State					Regions				
	This Month	Last Month	Total to Date		Mean 5 Year To Date	This Month				
			1983	1982		N.W.	N.	S.W.	C.	E.
Measles	0	1	23	14	678	0	0	0	0	0
Mumps	5	4	30	33	84	2	0	0	2	1
Pertussis	0	6	45	18	10	0	0	0	0	0
Rubella	1	0	2	12	99	1	0	0	0	0
Meningitis—Aseptic	42	24	128	108	106	9	14	7	9	3
Other Bacterial	4	24	169	135	124	1	0	1	1	1
Hepatitis A (Infectious)	12	14	88	125	166	1	5	3	1	2
B (Serum)	40	57	371	320	306	4	14	7	11	4
Non-A, Non-B	1	6	51	53	*32	0	0	0	0	1
Salmonellosis	172	189	863	979	806	25	32	26	41	48
Shigellosis	25	23	110	103	295	8	2	6	0	9
Campylobacter Infections	58	84	339	218	*114	21	10	9	8	10
Tuberculosis	39	56	374	466	—	—	—	—	—	—
Syphilis (Primary & Secondary)	49	54	388	415	375	1	3	2	14	29
Gonorrhea	1919	2155	13,322	13,322	14,562	—	—	—	—	—
Rocky Mountain Spotted Fever	10	18	47	56	75	2	0	4	3	1
Rabies in Animals	51	35	490	370	94	7	41	2	0	1
Meningococcal Infections	3	7	59	49	57	0	2	0	1	0
Influenza	8	24	893	314	2252	5	0	3	0	0
Toxic Shock Syndrome	1	1	6	6	*7	1	0	0	0	0
Reyes Syndrome	0	0	5	3	11	0	0	0	0	0
Legionellosis	2	2	18	8	10	0	0	0	0	2
Kawasaki's Disease	2	3	33	10	13	0	0	1	1	0
Other:	—	—	—	—	—	—	—	—	—	—

Counties Reporting Animal Rabies: Fauquier 1 skunk; Madison 1 raccoon; Orange 4 raccoons; Rockingham 1 skunk; Alexandria 6 raccoons; Arlington 3 raccoons; Fairfax 28 raccoons, 1 bat, 1 red fox; Prince William 2 raccoons; Washington 2 fox; Southampton 1 bat.

Occupational Illnesses: Occupational pneumoconiosis 7; Occupational hearing loss 13; Asbestosis 2; Lead Poisoning 1.

*3 year means

Published Monthly by the
VIRGINIA HEALTH DEPARTMENT
 Division of Epidemiology
 109 Governor Street
 Richmond, Virginia 23219

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 U.S. POSTAGE
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