

Update: Resistant Tuberculosis in Vermilion Parish

In the July/August 1989 issue of the Morbidity Report, we reported a cluster of cases of isoniazid-resistant tuberculosis in Vermilion Parish. The follow-up of this cluster ultimately led to treatment by the parish health unit of 10 persons with active tuberculosis and 16 persons with known contact to these cases. The Vermilion Parish Health Unit staff carried out extensive efforts to ensure that adequate therapy was completed, and no new cases linked to this cluster have been identified since December 1989.

In September 1988, a 28-year-old white male with tuberculosis was reported from Vermilion Parish. He was started on isoniazid, rifampin, and pyrazinamide. Initial sputum cultures grew *M. tuberculosis* resistant to isoniazid and streptomycin but sensitive to rifampin. The patient appeared to be compliant with therapy, but cultures collected in November 1988 were reported in April 1989 to be resistant to rifampin. His therapy was changed to cycloserine, kanamycin, ethionamide, ethambutol and pyrazinamide given for 15 months using directly-observed therapy (DOT) and he responded well.

In May 1989, a 29-year-old black female neighbor of this man was found to have cavitary tuberculosis; she reported socializing with him regularly, even though she had not been named by him as a contact. She was treated initially with isoniazid and rifampin, with pyrazinamide added one month into treatment. Initial sputum cultures collected in June 1989 grew *M. tuberculosis* resistant to isoniazid and streptomycin but sensitive to rifampin; repeat cultures collected in July 1989 showed development of resistance to rifampin as well.

Interviews with the female patient identified 64 other contacts; eight of these (two adults and six children) were found to have active tuberculosis. For one of the two adults sputum cultures confirmed isoniazid- and streptomycin-resistant tuberculosis. The adults were treated with various drugs including rifampin, ethambutol, pyrazinamide, and capreomycin, and the children were treated with isoniazid, rifampin, ethambutol, and pyrazinamide. Sixteen other contacts without active disease were treated preventively with isoniazid and rifampin.

Because of the concerns about spread of the resistant organism, the parish health unit staff treated all ten patients with active disease with DOT. This procedure requires patients to come to the health unit twice weekly and take drugs under the direct observation of health unit staff. Special procedures were set up to minimize the inconvenience of DOT for these patients:

- Days and times of treatment were selected so as to not interfere with patients work schedules.
- On arrival at the health unit, patients were seen and

treated immediately, bypassing any waiting period.

- Transportation to the health unit was arranged by the health unit staff.

Although these procedures increased the workload for the health unit staff, they prevented interruptions in drug therapy, thereby decreasing the risk of development of further drug resistance and shortening the total length of therapy. The lack of new related drug-resistant cases in Vermilion Parish or elsewhere in Louisiana since December 1989 suggests that this program was successful in preventing further spread of this strain. The Tuberculosis Section is encouraged by the results of this effort and is leaning toward more use of DOT in the future.

Louisiana physicians should consider the possibility of drug resistance in tuberculosis patients who:

- Have had prior irregular drug treatment or irregular preventive therapy
- Arrive from an area with frequent drug resistance (e.g. Mexico or southeast Asia)
- Have sputum smears positive after two months of chemotherapy.

If drug resistance is suspected in a newly-diagnosed case of tuberculosis, physicians should start a four-drug regimen (Isoniazid, Rifampin, pyrazinamide, and Ethambutol) pending culture and sensitivity results. Physicians are reminded that all patients with newly-diagnosed tuberculosis who reside in Vermilion Parish or have close contact with other patients from the parish should be presumed to have resistant *M. tuberculosis* (and should be started on this 4-drug regimen) until sensitivity results are available.

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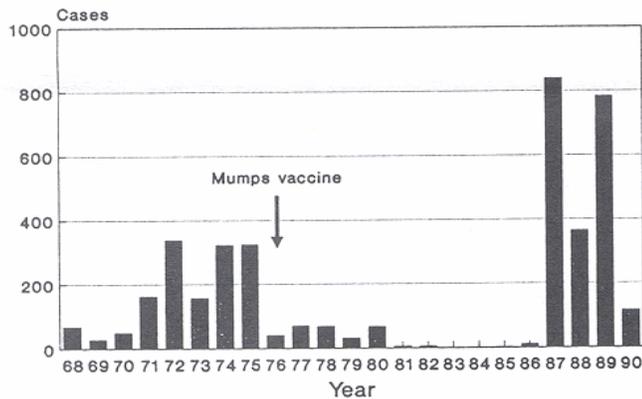
Mumps Cases Decline in 1990

After causing widespread disease in Louisiana for nearly four years, mumps became far less common in 1990. As of December 31, 1990, 115 cases of mumps were reported to the Epidemiology Section, an 85% decline from the 783 cases reported in 1989.

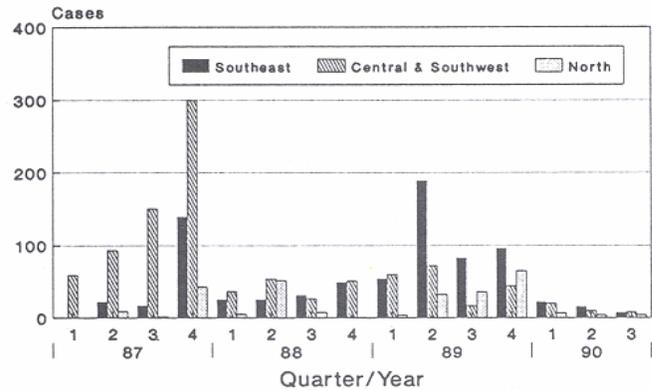
Mumps had been uncommon in Louisiana for some 10 years when a large increase in cases was seen 1986. During 1987, 1988, and 1989 the disease moved across the state: the central and southwest areas of the state reported extremely high case counts in 1987, and the southeast and north areas of the state reported high case counts in 1989. Within those regions, certain parishes reported large outbreaks. For example, Concordia Parish alone reported 387 cases of mumps in 1987.

Historically, most persons developed immunity to mumps by having the disease during childhood. The disease became

Mumps
Cases reported to OPH by year, 1968-1990



Mumps Cases by State Region



less frequent in Louisiana in 1976, the same year that mumps vaccination became routine in the state. As a consequence, many children who were too old to receive this vaccine (above 15 months) were neither vaccinated nor exposed to the wild virus, so they did not develop immunity to the mumps; these children are now age 15-24. The highest attack rates for mumps during 1987 to 1990 has been for children age 10 to 19.

Not all persons with mumps are seen by physicians, and probably a small percentage of recognized cases are reported to us. Therefore we do not have an accurate estimate of the percentage of the unprotected cohort that has now developed immunity to mumps by having had the disease in the last 4 years. We also do not know how high a percentage of immune persons are needed in a community to prevent sustained transmission (herd immunity). As a result, we cannot predict whether large outbreaks of mumps will return in Louisiana in the next few years. We are hopeful that the past outbreaks, combined with the new two-dose MMR vaccination program, will protect enough persons to cause that the current decrease in mumps cases to continue.

Salmonellosis at a Fundraising Event

On October 31, 1990 a hospital infection control nurse notified the Epidemiology Section that during the previous week, several people had been hospitalized with Salmonellosis and several others had been treated in the emergency department for gastroenteritis. A survey of hospitals in the area identified 25 people who had had stool cultures which were positive for Salmonella over a 11-day period. In interviews with hospitalized patients, we found a common exposure to be boiled shrimp served as part of a fundraising event.

To determine if ill persons were more likely to eat the shrimp than persons who were not ill, we carried out a case-control study. We included in the study the first seventeen

persons that were identified as having salmonellosis and an equal number of control persons matched by age and neighborhood of residence to the ill persons.

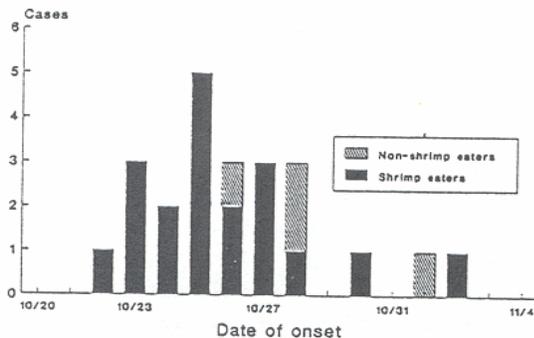
Persons with salmonellosis were more likely to eat the boiled shrimp than controls (15/17 [88%] vs 3/17 [18%], odds ratio = 35.0, p = .0001). We were able to obtain the Salmonella isolate for subtyping from 11 persons with salmonellosis. Ten of these isolates were *Salmonella java*. Of the eight persons with salmonellosis who were not included in the case-control study, we were able to contact six, and four reported eating shrimp from the shrimp boil.

To estimate the attack rate among persons eating the implicated boiled shrimp, we called the families of volunteers for the fundraising event and asked about illness among persons who ate the suspect shrimp. Among these 91 shrimp eaters, 6 (7%) reported having diarrhea within five days after the shrimp boil.

Salmonella (cont.)

The shrimp for the event was purchased in bulk (8000 lbs.) from one retailer, who in turn purchased it from 4 seafood distribution outlets. It was boiled in 250 lb. batches over a 2-day period. Cultured samples of leftover boiled shrimp and raw shrimp obtained from the distributors were negative for salmonella, as were stool cultures obtained from 8 persons who were responsible for cooking the shrimp and cultures of the cocktail sauce served with the shrimp.

Salmonellosis Outbreak
Cases by date of onset

**Comment:**

In this outbreak the attack rate among those who ate the implicated food was unusually low (7%), and the incubation period for ill persons was unusually long (median three days); together these suggest a low-level contamination of the product. Our inability to culture the organism from the shrimp was not unexpected in view of this low level contamination and the difficulty in culturing *Salmonella* from any raw product.

The responsible organism is also unusual. Less than five cases of illness caused by *S. java* are reported in all of Louisiana per year. In the past, *S. java* has been associated with gastroenteritis acquired from pet turtles. *S. java* prefers non-human hosts, and most outbreaks can be traced to contaminated animal products such as poultry.

We were unable to determine how the shrimp served in this event became contaminated. Possible mechanisms are contamination after cooking by an ill foodhandler or by contact with other raw foods, and contamination of the raw product and inadequate handling during cooking. In any case, it is likely that only a small proportion of the shrimp were contaminated.

This is the second foodborne outbreak that OPH has investigated in the past 12 months which has involved a volunteer fundraising event. These events, which are popular in Louisiana, are not covered by the state's Sanitary Code, so food preparation practices are not monitored by OPH. Numerous enteric pathogens can be transmitted by shellfish, poultry, and other local favorites if they are not handled properly.

Our recommendations following this outbreak included handling of the shrimp in smaller quantities (especially when maintaining a cold chain) and education of volunteer foodhandlers regarding safe food preparation practices. Cases of

illness that appear to be related to social gatherings should be promptly reported to the Epidemiology Section (504) 568-5005.

Botulism: A Case Report

On November 28, 1990, the Office of Public Health was notified of a 51-year-old woman who was hospitalized with possible botulism. The patient's illness began on November 21, when during a plane trip from California to Louisiana she developed nausea, abdominal discomfort, and abdominal distention. The following day she developed vomiting, and diplopia. She traveled by bus to New Orleans on November 23, and on November 24 she had symptoms of ptosis, dysarthria, dysphagia, proximal muscle weakness, and inability to walk.

The woman had had an intestinal bypass for obesity in 1976; since that time she had had similar gastrointestinal problems on at least 3 other occasions, but no neurological problems of any type.

The woman's condition deteriorated after hospitalization on November 25, and she required mechanical ventilation on November 29. A presumptive diagnosis of botulism was made and she received antitoxin that day. A stool culture later showed a heavy growth of an anerobe confirmed by bioassay as *Clostridium botulinum type B*. The woman's symptoms improved rapidly after she received antitoxin, and she was discharged from the hospital with minor neurologic deficits on December 14.

The woman ate at three different restaurants in the three days prior to coming to Louisiana. No cases of similar illness were found in persons eating at these restaurants or sharing other meals with her. She denied home canning or eating home-canned foods.

Comment:

Botulism in adults is usually caused by consumption of toxin in foods that have been improperly prepared in a way that permits growth of anaerobic bacteria. *C. botulinum* is ubiquitous in soil, so foods that are in contact with the soil pose particular risk. Most poisonings are related to home-canned vegetables and fruits; occasionally commercial products have been found to be contaminated. We feel this patient developed botulism through a different route: direct colonization of her intestinal tract with *C. botulinum*. This type of botulism is more often seen in infants, but has been described in adults who have had gastrointestinal surgery. Intestinal colonization would explain the finding of a large number of organisms in her stool.

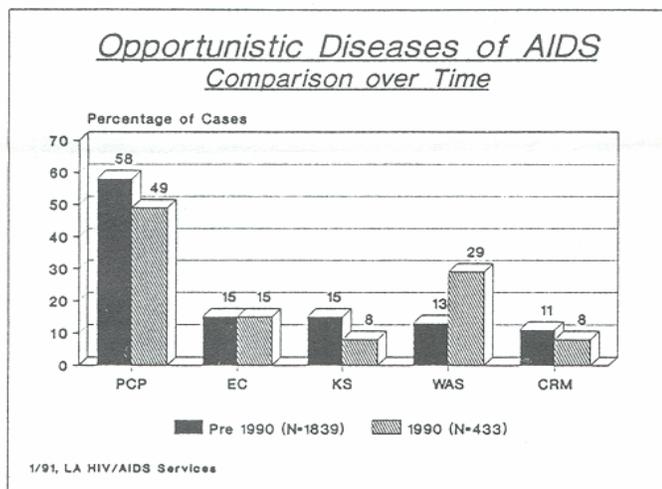
Recently a number of cases of botulism have been described among persons who consumed garlic-in-oil; this food item is popular in Louisiana. Caution should be used when preparing and eating home-canned garlic-in-oil. Since botulinum toxin is heat labile, cooking this product will reduce the risk of illness.

AIDS Update: Opportunistic Infections

AIDS is characterized by opportunistic infections with a variety of organisms and other manifestations which may be caused by HIV itself. The relatively frequency of these manifestations in persons with AIDS can provide a picture of morbidity caused by the disease in Louisiana.

Overall, 56% of Louisiana AIDS cases have developed *Pneumocystis carinii* pneumonia (PCP). 16% of cases have developed the wasting syndrome (WAS); 15% have developed esophageal candidiasis (EC); 13% have developed Kaposi sarcoma (KS); 10% have developed cryptococcal meningitis (CRM); 7% have developed HIV Dementia (DEM); and 7% have developed extrapulmonary atypical mycobacterium infections (MAI). No other opportunistic disease has occurred in more than 5% of the cases.

Figure 1



These disease patterns are changing over time. Figure 1 compares the disease entities for cases diagnosed in 1990 to the cases diagnosed before 1990. PCP occurred in 58% of the cases prior to 1990, and only in 48% of cases in 1990. This decrease is may be due to PCP prophylaxis with TMP/SMX or aerosolized Pentamidine. WAS increased from 13% to 29% of cases. This may be due to improved understanding of the AIDS case definition and better reporting rather than a change in the natural history of HIV.

KS decreased from 15% to 8% of cases in 1990. This is consistent with a decreasing percentage of cases in homosexual males, who have a higher frequency of KS than cases in other risk groups. However, there may also be some under-reporting of KS in recent cases. CRM also decreased in 1990, from 11% to 8% of cases. Although the data is not shown in Figure 1, HIV dementia increased from 6% to 9% of cases in 1990.

Figure 2 shows the five most common opportunistic diseases by risk group. Homosexuals have the highest occurrence of PCP and KS. Heterosexuals have a distinctly higher occurrence of EC. In addition, 9% of the heterosexuals have *Cryptosporidium* and 10% have MAI; these frequencies are higher than other subgroups. Transfusion-associated cases have the highest percentage of WAS. They also have the highest percentage of dementia (11%).

Figure 2

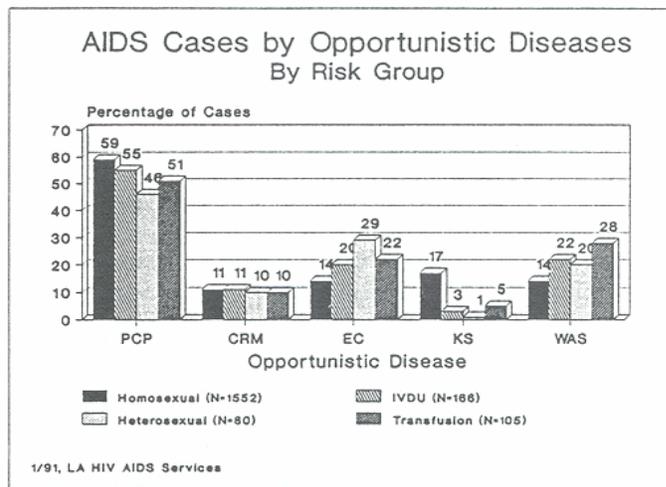
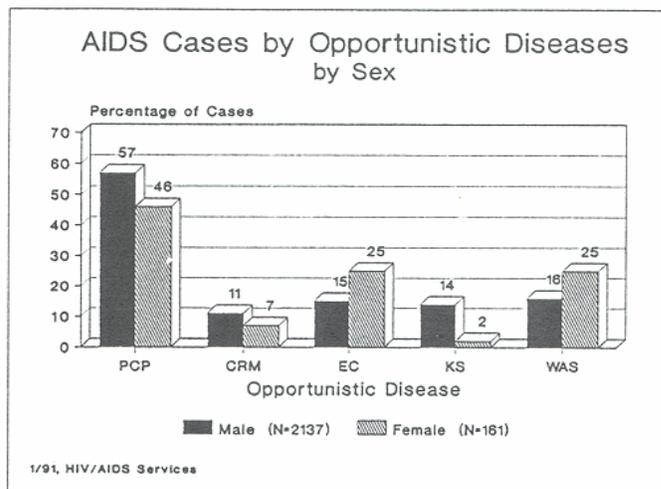


Figure 3 shows the frequency of these diseases by sex. Males have a higher percentage of PCP, CRM, and KS. Females have a higher percentage of EC and WAS. Females are also 2% higher than males in frequency of dementia, MAI and toxoplasmosis of the brain.

Figure 3



COMMUNICABLE DISEASE SURVEILLANCE, November-December 1990
PROVISIONAL DATA

Table 1. Selected diseases by region

DISEASE	HEALTH DEPARTMENT REGION										Nov-Dec 1990	Nov-Dec 1989	Cum 1990	Cum 1989	%Change
	1	2	3	4	5	6	7	8	9						
Vaccine-preventable															
Measles	Cases	0	0	0	0	0	0	0	0	0	0	71	10	122	-92
Mumps	Cases	3	1	0	3	1	0	1	1	2	12	105	115	759	-85
Rubella	Cases	0	0	0	0	0	0	0	0	0	0	0	0	5	-
Pertussis	Cases	0	0	0	0	1	0	0	0	0	1	6	32	36	-11
Sexually-transmitted															
Gonorrhea	Cases	1064	300	40	158	75	29	214	126	181	2187	2791	13633	15783	-14
	Rate**	13.7	3.9	12.9	2.8	2.8	0.9	3.7	4.0	3.9	5.0	6.4	31.1	36.0	
Syphilis	Cases	13.8	92	15	30	7	31	45	34	39	431	396	2703	1657	+63
	Rate**	1.8	1.2	0.5	0.5	0.3	1.0	0.8	1.1	0.8	1.0	0.9	6.2	3.8	
Enteric															
Campylobacter	Cases	2	2	3	3	1	2	1	0	5	19	21	132	109	+21
Hepatitis A	Cases	7	10	2	3	2	0	4	3	5	36	42	208	280	-26
	Rate*	0.9	1.3	0.6	0.5	0.8	0	0.7	0.9	1.1	0.8	1.0	4.7	6.4	
Salmonella	Cases	31	25	9	29	12	20	44	8	19	197	113	735	678	-8
	Rate*	4.0	3.2	29	5.1	4.5	6.2	7.6	2.5	4.1	4.5	2.6	16.8	15.5	
Shigella	Cases	14	2	0	6	0	4	2	3	4	35	68	282	456	-38
	Rate	1.8	0.3	0	1.1	0	1.2	0.3	0.9	0.9	0.8	1.6	6.4	10.4	
Vibrio Cholera	Cases	0	0	0	0	0	0	0	0	0	0	0	2	0	+
Vibrio, other	Cases	1	0	0	1	0	0	0	0	3	5	4	31	35	-11
Other															
Hepatitis B	Cases	17	18	1	2	0	2	2	3	6	51	54	319	387	-18
	Rate*	2.2	2.3	0.3	0.4	0	0.6	0.3	0.9	1.3	1.2	1.2	7.3	8.8	
Meningitis															
H. Influenza	Cases	0	3	0	1	1	0	1	1	1	8	20	66	100	-34
N. Mening.	Cases	1	3	0	0	1	0	1	0	0	6	9	37	45	-18
Tuberculosis	Cases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	127	116	355	408	-13
	Rate*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.9	2.6	8.1	9.3	

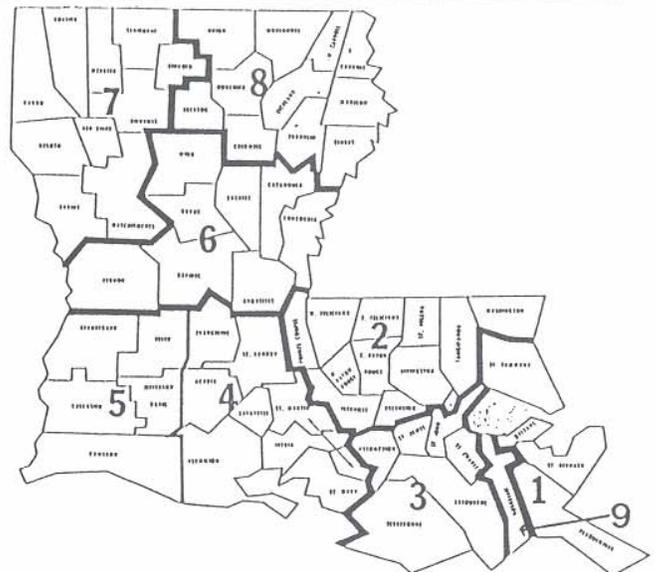
* Cases per 100,000 population
** Cases per 10,000 population

Table 2. Diseases of low frequency, 1990

Disease	Total to date
Blastomycosis	5
Brucellosis	2
Histoplasmosis	3
Lead Toxicity	51
Legionellosis	14
Leprosy	1
Leptospirosis	1
Lyme Disease	3
Malaria	8
Rocky Mountain Spotted Fever	3
Tetanus	2
Typhoid	1

Table 3. Animal rabies - November - December 1990

Parish	Species	No. Cases
No positive results to date		

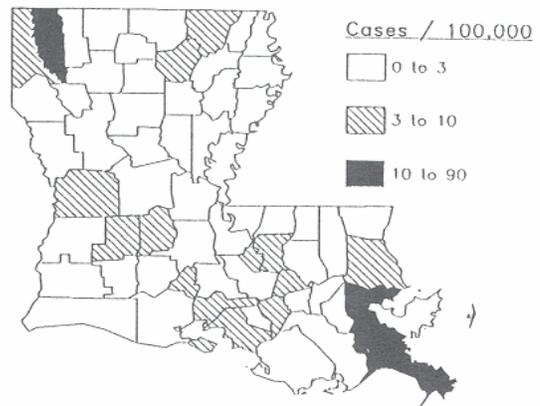


Annual Summary Shigellosis 1990

As of January 8, 1991 OPH had received reports of 284 cases of shigellosis with onset in 1990. This represents a 39% decrease from the 466 cases reported in 1989 and a 55% decrease from the 609 cases reported in 1988. The overall case rate for 1990 was 6.5 cases per 100,000.

Rates were highest in children aged 0-4 (29 cases per 100,000) and decreased with increasing age. Using those reports for which the race was known (46% of all reports), rates were higher for blacks than for whites (6.4 vs. 1.5 per 100,000); this trend has also been present in previous years.

Shigellosis 1990



Comment:

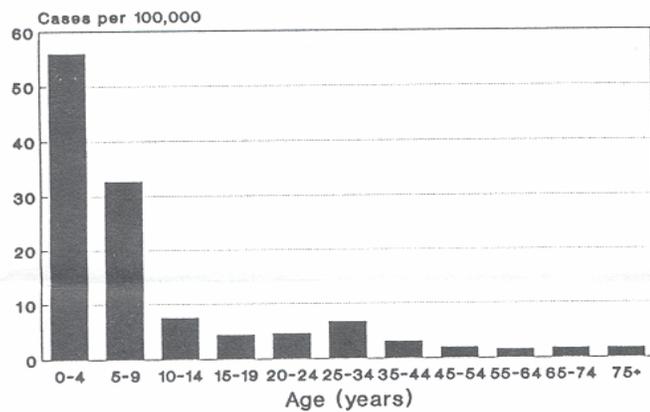
Shigellosis is primarily transmitted person-to-person through the fecal-oral route, and humans are the only effective host for the organism. Children between the ages of 1 and 4 years traditionally have the highest attack rates and are felt to be responsible for much of the disease transmission.

As few as ten Shiga bacilli can cause disease in healthy adults. As a result, shigellosis outbreaks are extremely difficult to control in conditions where hygiene is poor, such as institutions for the developmentally disabled and settings in which many children are present. In these settings, epidemics of shigellosis occur periodically. These epidemics tend to resolve spontaneously as persons develop strain-specific immunity, only to return when a new strain is introduced or when a new group of susceptible persons is added to the population.

Prolonged outbreaks of shigellosis have occurred in lower socioeconomic groups in Shreveport and Monroe in recent years. The most recent outbreak in Shreveport was related to a new strain with an unusual antibiotic susceptibility pattern and lasted 12 months. An evaluation of the efforts by OPH to control the outbreak was unable to show any effect on disease transmission within households. Until an effective shigella vaccine is developed, we can expect the continued occurrence of such community-wide outbreaks.

Shigellosis

Case rates by age group, 1987-1990



The greatest morbidity occurred in the New Orleans region. High rates were reported from Plaquemines, Orleans, and Jefferson Parishes (85, 19, and 11 per 100,000, respectively), which accounted for 174 (61%) of the 284 cases reported statewide. Relatively few cases were reported from the Monroe region. The Monroe region had had very high rates of shigellosis in 1987 (35 cases per 100,000) and the Shreveport region had had very high rates of shigellosis in 1988 and 1989 (27 cases per 100,000).

LOUISIANA FACTS

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