



## Shigella on the Rise in Mississippi

There has been a marked increase in the number of reported cases of illness due to *Shigella* in Mississippi in 2007 compared to this same time last year. The following is a review of the epidemiology of shigellosis and a summary highlighting two areas in the State where the most significant increases have occurred.

*Shigella* organisms are aerobic, nonmotile, gram negative intracellular pathogens. They are divided into four major pathogenic serogroups: *Shigella dysenteriae* (Group A), *S. flexneri* (Group B), *S. boydii* (Group C) and *S. sonnei* (Group D). Man is the primary reservoir for *Shigella*.

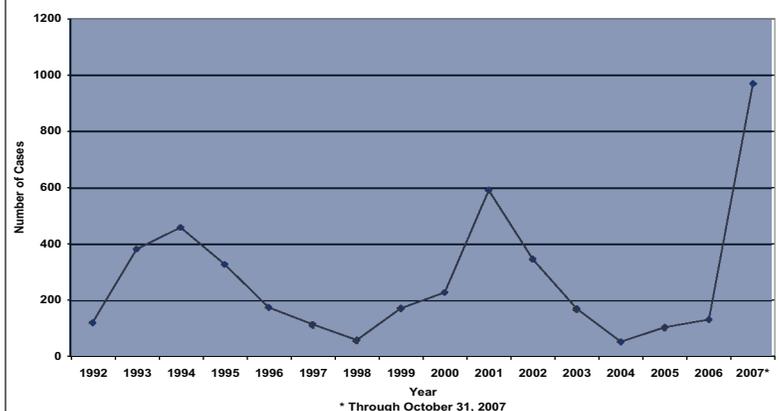
Shigellosis is an acute infection associated with the initial symptoms of fever, abdominal pain and watery diarrhea. Destruction of the colonic mucosa occurs with bacterial invasion, often leading to bloody, mucoid diarrhea, or dysentery. It was first recognized as the etiologic agent of “bacillary dysentery” or shigellosis in the 1890’s. Dysentery has been known to man throughout recorded history. It has commonly occurred under circumstances of over crowding and poor sanitation, such as times of war. Thousands of soldiers died from dysenteric illness during the American Civil War and World War I.

Transmission occurs person to person by fecal oral contact, with infection occurring after ingestion of as few as 100-200 organisms. Infection also occurs with ingestion of contaminated food or water. The incubation period ranges from 12 hours to seven days, with an average of 48 hours, and incubation times are inversely proportional to amount of bacteria ingested. The illness can last from 1 day to 1 month, averaging 7 days. Bacterial shedding may continue for up to 4 weeks. Treatment with antibiotics can shorten the clinical illness and duration of bacterial shedding to a few days. It is often resistant to many antibiotics, therefore, stool cultures with antibiotic sensitivities are recommended.

Shigellosis is typically a summertime illness. In the U.S. the peak age group is 1-4 year olds, but all age groups are susceptible. Children in day care centers and persons in institutional facilities such as those for the mentally ill, or persons in any facility where adequate hand washing is difficult to maintain, are at high risk for outbreaks of shigellosis once the bacteria are introduced.

Shigellosis occurs throughout the state on a yearly basis. There have been cyclic increases every 6-8 years since 1992, with the last peak of 592 cases in 2001 (Figure 1). In 2007 there have been 970 reported cases statewide through October 31<sup>st</sup>, with the majority occurring in Public Health District V (West Central Mississippi) and Public Health District IX (Gulf Coast). More than 95% of the isolates are in the serogroup *S. Sonnei*. In the Mississippi State Department of Health Public Health Laboratory, from June 1, 2007 through 10/18/07, 43 % of isolates were susceptible to Ampicillin, 96% susceptible to Trimethoprim/Sulfamethoxazole, and 100 % to Ciprofloxacin.

**Figure 1. Reported Shigella Cases by Year, Mississippi**



There have been 593 cases in Public Health District V and 139 in District IX in 2007, compared to 24 and 4 respectively for this same time last year. The majority of these have occurred in four counties (Hinds 179, Rankin 297, Madison 55 and Harrison 103). The increase in Central Mississippi was first noted in June with a rapid and continuous rise in August, September and October, spreading from Hinds County into Rankin and Madison. Harrison County's upswing began later, with most cases reported since mid to late September. For District V, the 0-4 year age range, or preschool age children, and 5-9 year olds, or lower elementary school age, represent more than 80% of the reported cases. The data are similar for District IX, with the number of cases in the 0-4 year range slightly higher than District V and the remainder of the State (Table 1). No common source of infection such as food or water, or isolated school or daycare center, has been identified. It appears that most cases have occurred through typical person to person transmission.

**Table 1. Reported Shigella Cases by Age and Geographic Area, Mississippi 1/1/07-10/31/07**

Age Groups	0-4 Years # (%)	5-9 Years # (%)	10-14 Years # (%)	15-19 Years # (%)	≥ 20 Years # (%)
District V	247 (41.6%)	236 (39.7%)	40 (6.7%)	7 (1.2%)	63 (10.6%)
District IX	62 (44.6%)	52 (37.4%)	10 (7.2%)	4 (2.9%)	11 ( 7.9%)
State without Districts V or IX	93 (39%)	64 (26.8%)	14 (5.9%)	10 (4.2%)	57 (23.9%)
Entire State	402 (41.4%)	352 (36.2%)	64 (6.6%)	21 (2.2%)	131 (13.5%)

The Mississippi State Department of Health has instituted school and daycare based hand washing campaigns targeting the most affected counties. Elementary schools and daycare centers have been visited to address issues such as hand washing and diaper changing practices, especially in food handlers. These facilities have been reminded that children should be kept home until free of symptoms for at least 24 hours.

Shigellosis remains a Class II reportable illness, with notification to the Mississippi State Department of Health required within one week of diagnosis. During business hours, reports can be called in to 601-576-7725, or 1-800-556-0003 if outside the Jackson area. After hours reporting can be made to 601-576-7400. Again, clinicians are reminded to use stool cultures and sensitivities to direct antibiotic choices. In an effort to increase awareness and provide education on the spread of *Shigella*, a hand washing handout has been developed. The provision of the handout to your patients, along with verbal reinforcement of basic hygiene and hand washing, may decrease their risk of transmitting or becoming infected with *Shigella*.

A downloadable version of the handout and further information regarding shigellosis are available at [www.HealthyMS.com/shigella](http://www.HealthyMS.com/shigella)

#### References:

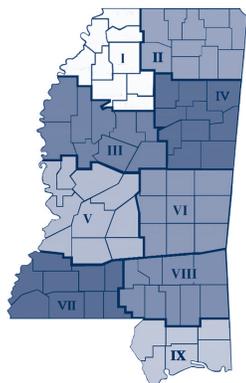
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# Mississippi

## Provisional Reportable Disease Statistics

October 2007



		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	Oct 2007	Oct 2006	YTD 2007	YTD 2006
Sexually Transmitted Diseases	Primary & Secondary Syphilis	3	0	1	0	3	0	2	0	2	11	16	99	64
	Total Early Syphilis	6	0	2	0	11	0	2	0	7	28	48	337	213
	Gonorrhea	58	45	84	47	151	65	47	59	64	620	558	6953	6216
	Chlamydia	159	115	217	162	409	143	115	146	132	1598	1347	18230	15727
	HIV Disease	10	2	4	2	17	1	3	5	5	49	65	530	524
Mycobacterial Diseases	Pulmonary Tuberculosis (TB)	0	0	1	2	0	0	0	1	5	9	7	91	79
	Extrapulmonary TB	1	0	0	0	1	0	0	0	0	2	1	10	8
	Mycobacteria Other Than TB	0	0	1	0	4	8	0	0	2	15	28	202	187
Vaccine Preventable Diseases	Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pertussis	0	0	0	0	0	3	0	0	0	3	3	196	33
	Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	0	0	1	2
Viral Hepatitis	Hepatitis A (acute)	0	0	0	0	0	0	0	0	0	0	2	8	8
	Hepatitis B (acute)	0	0	0	0	0	0	0	0	0	0	1	27	10
	Hepatitis C (Non-A, Non-B)	0	0	0	0	0	0	0	0	0	0	0	4	3
Enteric Diseases	Salmonellosis	12	19	4	10	61	8	12	10	12	148	105	885	708
	Shigellosis	2	1	12	4	288	28	11	6	71	423	13	970	86
	Campylobacter Disease	0	0	0	0	2	1	0	1	0	4	2	111	72
	E. coli O157:H7/HUS	0	0	0	0	0	0	0	0	0	0	3	7	10
Other Conditions of Public Health Significance	Meningococcal Infections	0	0	0	0	0	0	0	0	0	0	0	10	4
	Invasive <i>H. influenzae</i> Disease	0	0	0	0	0	0	0	0	0	0	1	7	12
	RMSF	0	0	0	0	0	0	0	0	0	0	3	13	8
	West Nile Virus	1	0	3	0	3	1	0	2	0	10	13	124	184
	Lyme Disease	0	0	0	0	0	0	0	0	0	0	0	0	3
	Animal Rabies (bats)	0	0	0	0	0	0	0	0	0	0	0	1	4

\* Totals include reports from Department of Corrections and those not reported from a specific District

\*\* Temporarily not available