Mississippi State Department of Health

Mississippi Morbidity Report

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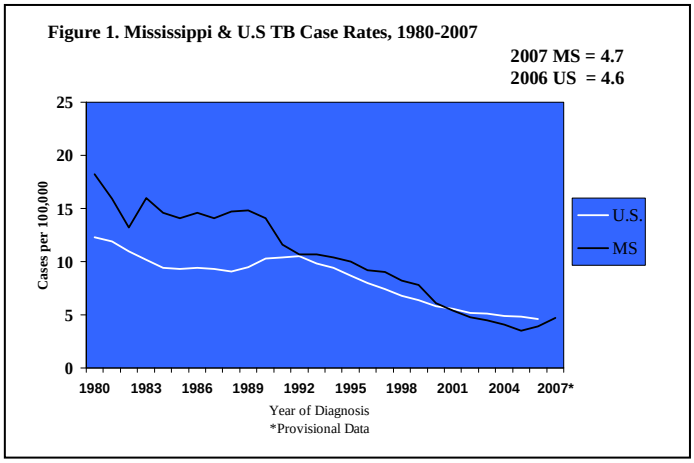
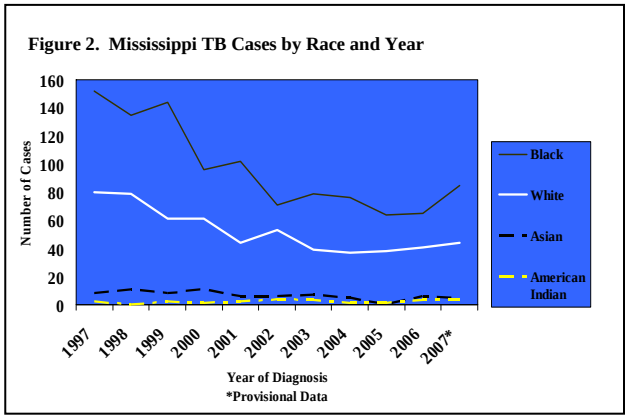
The Current state of Tuberculosis (TB) in Mississippi-What Can We Learn From the Past?

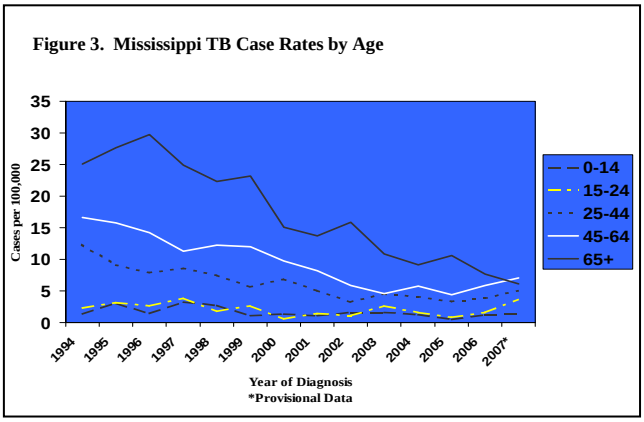
In Mississippi, TB treatment programs have undergone many changes in keeping with advances in science and medicine. From the era of treatment in the TB Sanatorium in 1920, when 4,180 active cases were recorded, to the era of Directly Observed Treatment- (DOT), started in 1981 when 401 cases were identified, TB patients in MS have received treatment in various settings-institutionalized settings to home based treatment. The establishment of a statewide-centralized TB control program helped further control TB by methodical evaluation of possible TB exposure and infection and provision of care for active TB disease.



These concerted programmatic efforts led to a consistent annual decline in TB cases, from 389 in 1989 to 105 in 2005. In fact, MS had a TB case rate below the US national average from 2001 to 2006. In the past two years, though, there has been a rise in TB cases with 115 identified in 2006 and 137* cases in 2007 (Figure 1). In the US, as well, there were decreases in rates through 2005, with continued slower rate declines in 2006 and 2007.

In Mississippi, the increase of the last two years has occurred in both the African–American population as well as white but has been greater among African Americans (Figure 2). TB is also increasing among those 45 - 64 years (Figure 3). In 2006, among US-born TB cases, African-Americans accounted for 28% of cases while whites account for 45% of cases nationally. The reasons for the sharp increase in Mississippi may be multifactorial, given that both medical and social/environmental factors influence the transmission, acquisition and reactivation of TB.





Some of the societal/environmental risk factors associated with exposure to TB and thus latent TB infection include: working and or living in congregate settings where there may be poor airflow exchange - such as long term care facilities- nursing homes, hospitals, detention centers, prisons and homeless shelters; substance use, especially in congregate settings; and, living in settings (countries) with high incidence and prevalence of TB. A recent investigation indicated an increase in TB cases among the homeless population in Hinds County.

Once infected by TB, the progression from dormant (latent TB infection-LTBI) to active TB disease is influenced by cell-mediated immunity. Some of the medical conditions that make TB reactivation more likely include: human immunodeficiency virus (HIV), diabetes; long term corticosteroid use; intake of immunomodulators, including TNF- alpha inhibitors; conditions that decrease the gastric hydrochloric acid; alcohol and substance use; silicosis; end-stage renal disease; head and neck cancer; chronic malabsorption syndrome; and low body weight (>=10% below ideal body weight).

In general, infected adults have a 10% lifetime risk of developing active TB disease – 5% in the first five years, and 5% subsequently. But a HIV-positive individual has 5% risk of reactivation each year, thus making TB and HIV endemic diseases in many settings and countries. In Mississippi, there has been a rise in active cases of TB among HIV infected people. This highlights the need for annual Tuberculin Skin Test (TST) evaluation and regular symptom screening during routine care of HIV-positive individuals. Given the synergism between TB and HIV, it is imperative that all HIV-positive individuals with known recent exposure to an active TB case receive LTBI treatment after active disease has been ruled out.

Treatment of LTBI and Active Disease

It is essential to rule-out active disease (evidenced by negative sputum for acid-fast smears and cultures and no hilar or pulmonary abnormalities on chest imaging) prior to initiating LTBI treatment. Ruling out active disease prior to LTBI treatment will avoid inadequate TB treatment and development of drug resistance.

Current TB treatment guidelines advocate empiric four drug therapy (isoniazid, rifampin, pyrazinamide and ethambutol), pending culture and drug susceptibility testing. Newer studies based on data from recent clinical trials also indicate that fluoroquinolones (FQs) do have clinical activity against TB. In fact, FQs are a backbone of treatment of TB strains that are resistant to isoniazid and rifampin (Multi-drug Resistant-MDR - TB). Inappropriate use of other antimycobacterial agents (second line agents including FQs) has led to rise of extensively drug resistant TB (XDR-TB) defined as TB resistant to not only isoniazid and rifampin, but also resistant to FQs and at least one of the three injectable agents (amikacin, kanamycin or capreomycin). From 1993 to 2006, a retrospective analysis revealed 49 cases of XDR-TB in US requiring complex management strategies. Thus, in this new era of increasing multidrug resistance bacterial infections including MDR-TB and XDR-TB, judicious use of FQs is required. If a patient presents with community acquired pneumonia, it is prudent to evaluate the patient for risk factors of TB and obtain sputa or other appropriate specimens for acid fast bacilli cultures, prior to initiating a fluoroquinolone for empiric treatment of community acquired pneumonias.

Along with new chemotherapeutic agents, new diagnostic tests based on in vitro interferon gamma release assays (QuantiFERON-TB Gold; In-Tube) are now available for evaluating TB infection. Experiences with these tests are limited, thus requiring caution in interpretation of the results. In 2005, the Centers for Disease Control released a guideline for use of this assay. Future editions of Mississippi Morbidity Report will detail the specifics on these blood tests and availability at MSDH lab.

In summary, although Mississippi had a substantial 16 year decline in TB cases an increase has occurred each of the last 2 years. This is an early wake-up call to all health care providers in both the public and private health care sectors in Mississippi, to consider TB in the differential diagnosis when evaluating patients with possible TB risk factors. Given the public health hazard posed by TB, all ***possible*** or ***definite*** TB cases are required to be reported within 24 hours of first knowledge or suspicion to the Mississippi State Department of Health for early case identification, and evaluation and treatment of contacts. Reporting hotline - 1 (800) 556-0003 or local (601) 576-7725; nights, weekends, and holidays - (601) 576-7400.

References on request

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Mississippi
Provisional Reportable Disease Statistics
January 2008

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	Jan 2008	Jan 2007	YTD 2008	YTD 2007
Sexually Transmitted Diseases	**Primary & Secondary Syphilis**	2	2	0	0	1	0	0	0	2	7	8	7	8
	Total Early Syphilis	2	4	2	0	3	0	0	1	5	17	37	17	37
	Gonorrhea	51	36	97	44	186	70	52	65	67	668	776	668	776
	Chlamydia	233	132	230	136	475	149	98	164	145	1762	1935	1762	1935
	HIV Disease	4	4	4	3	22	3	3	3	4	50	71	50	71
Myco-bacterial Diseases	**Pulmonary Tuberculosis (TB)**	0	0	0	0	0	0	0	0	0	0	3	0	3
	Extrapulmonary TB	0	0	0	1	0	0	0	0	0	1	1	1	1
	Mycobacteria Other Than TB	1	0	1	3	14	1	2	2	5	29	13	29	13
Vaccine Preventable Diseases	**Diphtheria**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pertussis	0	0	0	0	7	0	3	1	1	12	5	12	5
	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	0	0
Viral Hepatitis	**Hepatitis A (acute)**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hepatitis B (acute)	0	0	0	0	0	0	0	0	0	0	2	0	2
	Hepatitis C (Non-A, Non-B)	0	0	0	0	0	0	0	0	0	0	1	0	1
Enteric Diseases	**Salmonellosis**	1	3	3	1	11	5	3	4	6	37	28	37	28
	Shigellosis	1	1	2	1	33	9	13	3	5	68	11	68	11
	Campylobacter Disease	1	1	0	0	3	1	1	1	1	9	8	9	8
	E. coli O157:H7/HUS	0	0	0	0	0	0	0	0	1	1	0	1	0
Other Conditions of Public Health Significance	**Meningococcal Infections**	0	0	0	0	0	0	0	0	0	0	3	0	3
	Invasive *H. influenzae* b Disease	0	0	0	0	0	0	0	0	0	0	0	0	0
	RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0
	West Nile Virus	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lyme Disease	0	0	0	0	0	0	0	0	0	0	0	0	0
	Animal Rabies (bats)	0	0	0	0	0	0	0	0	0	0	0	0	0

*Totals include reports from Department of Corrections and those not reported from a specific District.
**Temporarily not available