Communicable & Infectious Diseases

Between 2001 and 2005, communicable and infectious diseases were the 4th leading causes of death among Kansas City residents. There is no good estimate of the number of individuals who contract such diseases through the year or the number of days of disability (eg, missed days of work or school). And, the economic impact of communicable and infectious diseases also is unknown in most cases.

Since exposure to various communicable and infectious diseases is universal, it was not surprising that Kansas City residents recognize the importance of protecting the community against such diseases. Table 109 shows the responses of residents to a 2004 survey commissioned by the Kansas City Health Department.[436]

Table 109 Responses of 1,215 residents regarding the importance of various public health services, Kansas City, Mo, 2004

Public health service	Very important	Somewhat important
Preventing the spread of infectious diseases	90.1%	8.6%
Protecting the public from new health threats	84.9%	11.9%
Protecting against food poisoning	82.5%	13.7%
Assessing and monitoring diseases	77.0%	17.7%

In 2006, the Kansas City Health Department again commissioned a survey of City residents and inquired about satisfaction with its services.[437] From that survey 67.1% of 1,234 respondents were satisfied with how the Health Department prevents the spread of infectious diseases in the community and only 6.2% were dissatisfied. And, 65% were satisfied with how the Health Department protects the public from new health threats; 9% were dissatisfied. When asked which services should receive the most emphasis, 80.6% ranked the prevention of infectious diseases as the most important service and 78.4% ranked the protection of the public as the second most important service.

There is a list of reportable diseases and conditions that legally mandates the reporting of selected diseases to the Kansas City Health Department (www.kcmo.org/health). Although physicians and laboratories are required to file these reports, the completeness of reporting is highly variable for each disease. In Kansas City, laboratory reporting is more complete and timely than physician reporting. Table 110 lists, by year, the number of cases and the case rates per 100,000 population for a select number of reportable infectious and communicable diseases in Kansas City for the time period 2001-2005; a more comprehensive listing can be found in the Health Department's annual report located on the web site. The annual case counts for most diseases listed in the Table represent what is termed 'endemic' or normal levels for the community. While some diseases have exhibited a downward trend, others have remained relatively stable or increased. Many factors contribute to increases or decreases in the number of cases in the community.

[436] Kansas City Health Department. *2004 Health Assessment Survey*. www.kcmo.org/health.

[437] Kansas City Health Department. *2006 Health Planning and Assessment Survey*. www.kcmo.org/health.

Table 110 Cases and rates per 100,000 population* for selected infectious and communicable diseases, Kansas City, Mo

Disease	2006		2005		2004		2003		2002	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Campylobacter	36	8.1	36	8.2	32	7.2	25	5.7	31	7.0
Chlamydia	4,057	918.8	4,215	954.6	4,385	993.1	3,695	836.8	2,951	668.3
Cryptosporidium	38	8.6	6	1.4	7	1.6	10	2.3	4	0.9
Escherichia coli O157:H7	0	0.0	2	0.4	2	0.4	7	1.6	1	0.2
Gonorrhea	2,366	535.8	2,420	548.1	2,567	581.4	2,356	533.6	2,491	564.2
Hepatitis A	6	1.4	3	0.7	1	0.2	14	3.2	7	1.6
Hepatitis B	33	5.4	39	8.8	15	3.4	167	37.8	131	29.7
Hepatitis C	348	78.3	279	63.2	223	50.5	631	142.9	626	141.8
HIV	148	33.5	117	26.5	122	27.6	112	25.4	113	25.6
Influenza	1,227	277.9	820	185.7	141	31.9	1,129	255.7	383	86.7
Meningitis, meningococcal	2	0.5	5	1.1	1	0.2	2	0.4	4	0.9
Pertussis	24	5.4	29	6.6	40	9.0	9	2.0	5	1.1
Salmonellosis	51	11.6	46	10.4	34	7.7	35	7.9	28	6.3
Shigellosis	28	6.3	349	79.0	11	2.5	9	2.0	6	1.4
Syphilis, P&S	81	18.3	61	13.8	23	5.2	16	3.6	7	1.6
Tuberculosis	24	5.4	24	5.4	21	4.7	26	5.9	28	6.3
West Nile	5	1.1	1	0.2	8	1.8	8	1.8	5	1.1

*Population for rate calculations based on estimated population of 441,545 from the Yr 2000 census data .

The Centers for Disease Control and Prevention (CDC) have established Yr 2010 objectives for various infectious and communicable diseases. These rates have more relevance at the state level than at the level of cities. For some diseases, Kansas City is already below the national target level while for others it is doubtful that the City can ever reach the Yr 2010 objective (Table 111). Gonorrhea in Kansas City is a good example of an objective that probably will not be met.

Table 111 Infection rates in Kansas City, Mo, and Yr 2010 national objectives

Disease	Ave. Rate for 2002-2006	Yr 2010 Objective
Campylobacter	7.2	12.3
Escherichia coli O157:H7	0.5	1.0
Gonorrhea	552.6	19.0
Hepatitis A	1.4	4.5
Listeriosis	0.45	0.25
Meningitis, meningococcal	0.6	1.0
Salmonellosis	8.8	6.8
Syphilis, primary & secondary	8.5	0.2
Tuberculosis	5.6	1.0

Sexually Transmitted Diseases

Among sexually transmitted diseases, reported gonorrhea cases have averaged 2,440 between 2002 and 2006 which is less than half the 5,000-7,000 cases per year reported through the 1980s. The number of cases reported annually fluctuated but were relatively comparable year-to-year. In 2006, there were 2,366 cases of gonorrhea among Kansas City residents.

There was a 37% increase in the number of reported chlamydia infections between 2002 and 2006; with the majority of the increase attributable to increased testing and reporting levels in the community rather than any actual increase in infections. In 2006, 4,057 chlamydia infections were reported among Kansas City residents.

Like chlamydia, primary and secondary (P&S) syphilis increased nearly 12 fold over the 5 year period. Transmission of the disease was largely driven by men-who-have-sex-with-men. In 2006, a total of 81 P&S syphilis cases were reported among Kansas City residents. While P&S syphilis cases do not include all reported cases of syphilis in a community, they represent the best indicator of recent transmission patterns.

Another important indicator related to syphilis is the occurrence of cases of congenital syphilis. Between 2002 and 2006, Kansas City recorded only 1 case of congenital syphilis in 2003.

HIV Infections

The effectiveness of current therapies in controlling the progression of HIV infection towards death and in reducing hospitalizations from the disease is reflected in Figures 113 through 115. The distribution, by sex and race/ethnicity, of the 3,922 cases reported in Kansas City since 1981 is shown in

Figure 116. HIV remains largely a disease of men-who-have-sex-with-men. The incidence of HIV infections for males and females in 2005 can be compared to other cities using the 2007 Big Cities Health Inventory report (Table 112).

Figure 113 Age-adjusted death rates per 100,000 population due to HIV in Kansas City, Mo

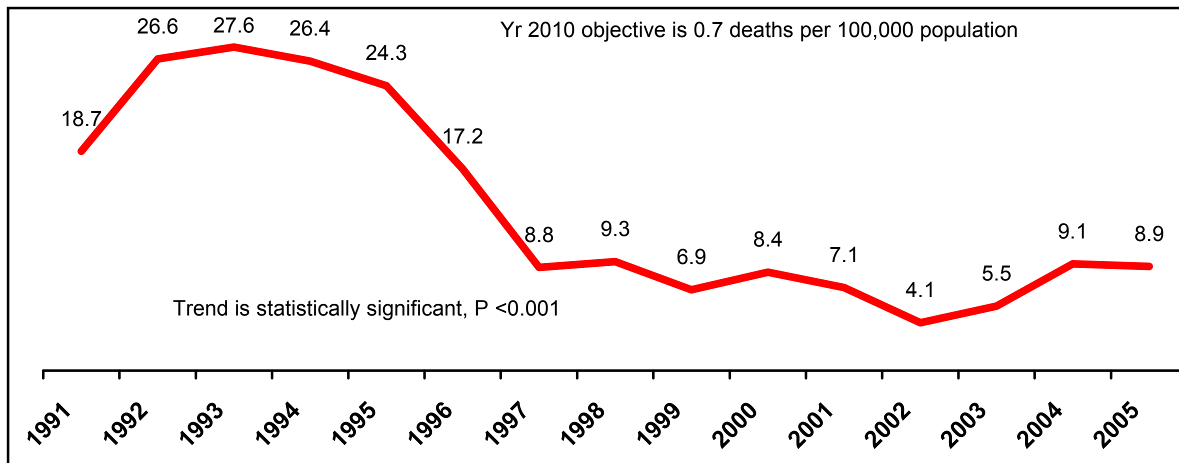


Figure 114 Distribution by age of 38 HIV related deaths, Kansas City, Mo, 2005

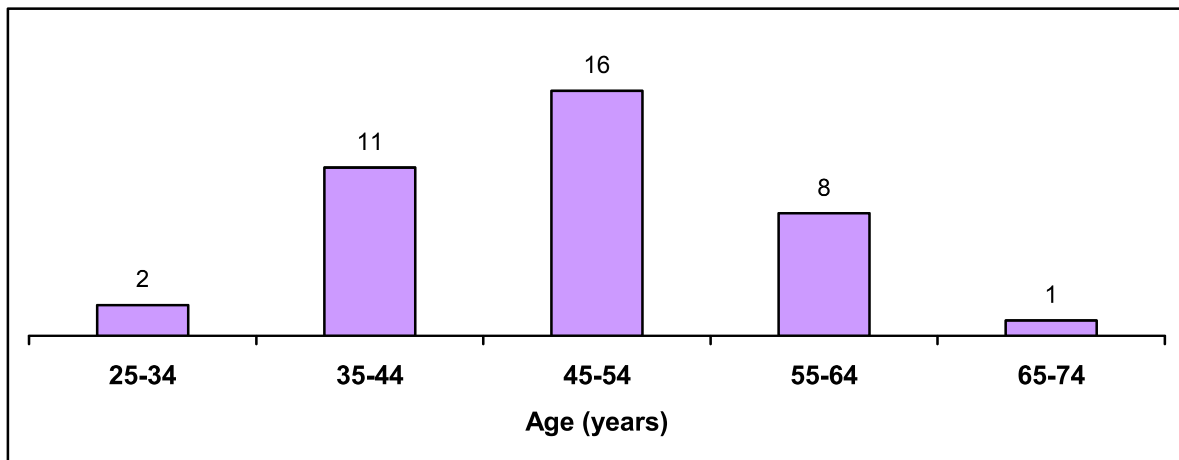


Figure 115 Age-adjusted per 100,000 population hospitalization rates for HIV infections, Kansas City, Mo

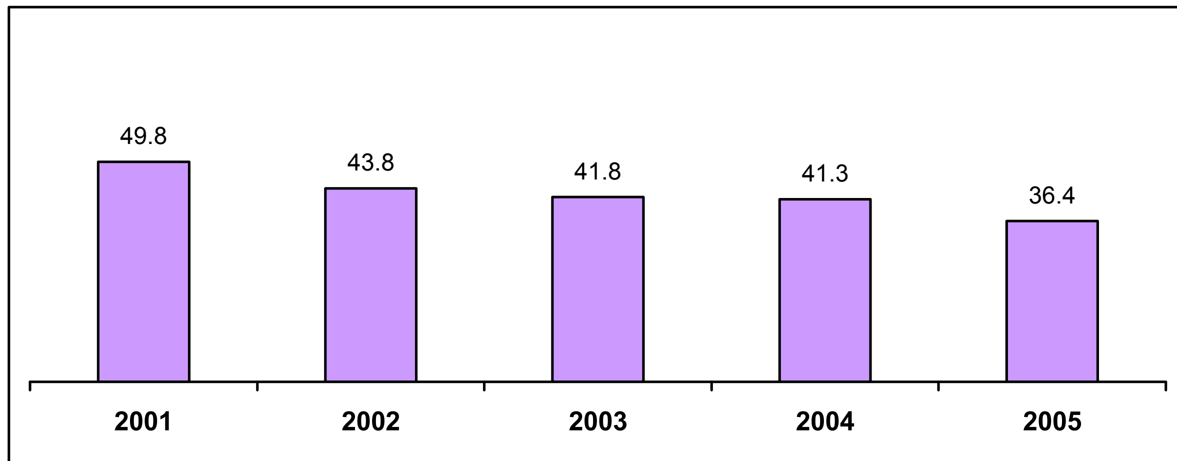
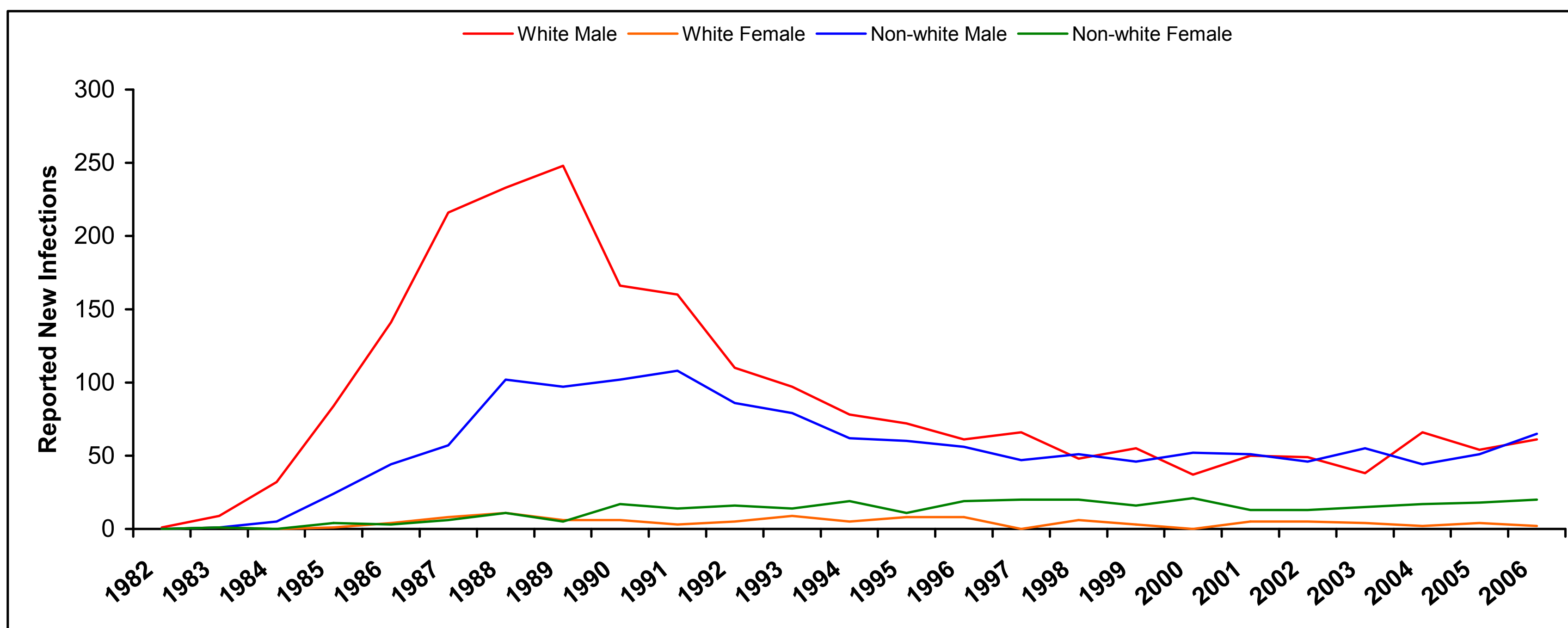


Table 112 Comparison of HIV incidence rates by sex for selected cities, 2005 (based on 2007 Big Cities Health Inventory report)

	2005 Rates per 100,000 population	
	Males	Females
Kansas City	51.1	9.6
Charlotte	56.6	20.3
Denver	73.5	9.8
Indianapolis	221.0	6.5
Jacksonville	47.2	27.7
Nashville	35.9	9.2
St Louis	NA	NA

Public Health
Prevent. Promote. Protect.

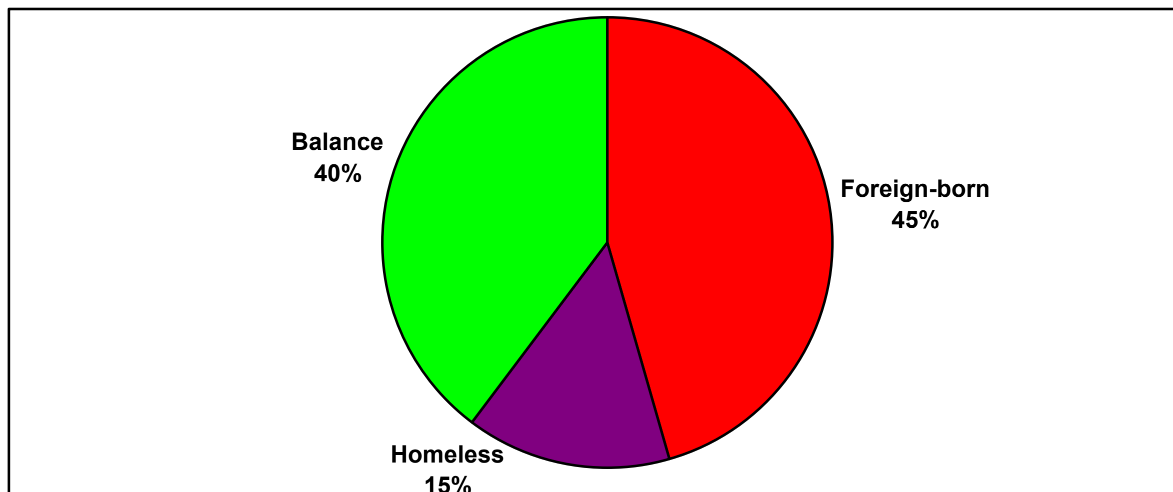
Figure 116 HIV diagnosis by race and sex in Kansas City, Mo



Tuberculosis

Of the infectious and communicable diseases, tuberculosis is the one most affected by the changing demography of the community. Forty-five percent of tuberculosis cases in Kansas City residents since 2002 were among the foreign-born (Figure 117). Nationally, the percentage of cases of tuberculosis among the foreign-born has been steadily increasing over the past decade.[438] In 2006, the case-rate of tuberculosis among the foreign-born in the United States was 9.5 times higher than that of persons born in this country.[439]

Figure 117 Tuberculosis in Kansas City, Mo, 2002-2006



The fact that 15% of tuberculosis cases occur among the homeless is not unexpected. The communal nature of shelters, the limited use of medical care, and other behaviors all contribute to the transmission of the bacteria that cause tuberculosis, as well as the activation of latent tuberculosis infections into clinical disease.

A comparison of tuberculosis incidence rates for 2005 among select cities, based on 2007 Big Cities Health Inventory report, is shown in Figure 118.

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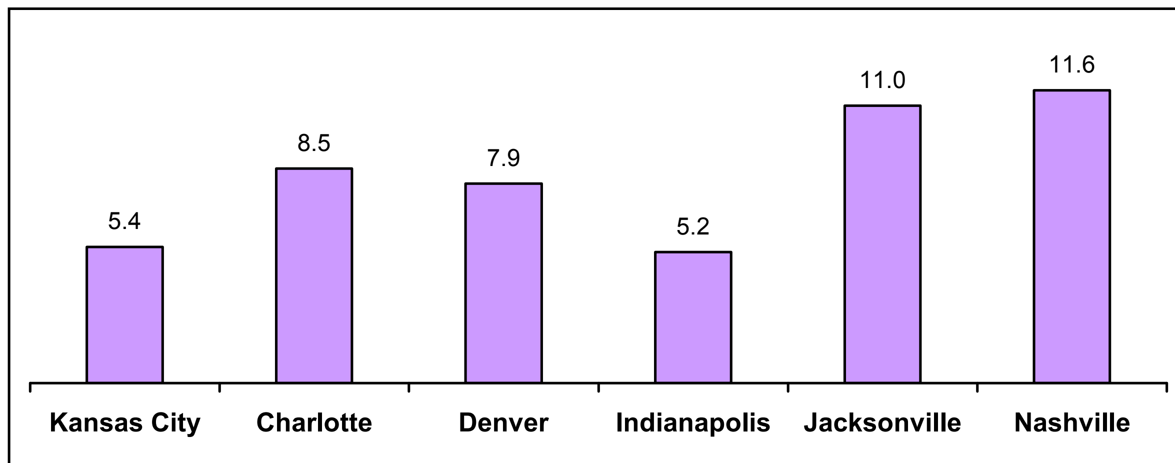
[438] Centers for Disease Control and Prevention. Reported tuberculosis in the United States, 2004. www.cdc.gov/tb

[439] Pratt R et al. Trends in tuberculosis incidence – United States, 2006. *MMWR* 2007;56:245-250.

Figure 118 Comparison of tuberculosis incidence rates for select cities, 2005 (based on 2007 Big Cities Health Inventory report)



Rabies and Animal Bites

Animal rabies cases in Kansas City occur sporadically and, since 1980, almost exclusively involve bats (Table 113). The last known human case of rabies in the City occurred in 1933.

Despite the relative rarity of true human exposures to rabid animals in Kansas City, the possibility of rabies needs to be considered every time a person is bitten by a carnivorous animal, eg dog, cat, and raccoon, or a bat. Table 114 shows the rates per 100,000 population of animal bites reported to the City's Animal Control Division each year over the past decade. These rates represent minimal estimates of the actual number of bites that residents incur.

Table 113 Rabies in Kansas City, Mo

Year	Bat	Cat	Other	Year	Bat	Cat	Other	Year	Bat	Cat	Other
1980		1		1990	1			2000	1		
1981				1991	1			2001			
1982	1			1992				2002			
1983				1993	1			2003	1		
1984	2			1994				2004			
1985	1			1995				2005	1		
1986				1996				2006	10		
1987				1997	3			2007			
1988				1998	4			2008			
1989	1			1999				2009			
Total	**5**	**1**			**10**				**13**		

Table 114 Animal bites per 100,000 Kansas City, Mo, residents

Year	Dog	Cat	Other
1997	129.0	23.2	4.5
1998	116.3	22.7	2.3
1999	107.7	17.4	3.4
2000	112.3	13.8	4.3
2001	72.9	13.8	0.2
2002	95.6	15.2	5.2
2003	84.2	12.4	2.5
2004	94.7	15.4	7.9
2005	84.2	12.0	10.9
2006	72.2	11.6	37.6

In 2005, the Health Department and the Animal Control Division collaboratively reviewed emergency department visits and hospitalizations of City residents resulting from dog bites.[440] For 1998-2002, there were 3,467 emergency department visits and 96 hospitalizations due to dog bite, for an annual average rate of 157.0 emergency department visits per 100,000 population and 4.3 hospitalizations per 100,000 population. For the entire population of Kansas City, these rates represented 693 dog bites seen in emergency departments and 19 hospitalizations each year. Based on the results of the study, it was estimated that only 10-36% of dog bites requiring medical attention were actually reported to the Animal Control Division.

The highest rates for emergency department visits were for persons less than 15 years of age, while for hospitalizations the highest rates for those less than 10 years of age. The emergency department visit rate for males (183.9) was 39% higher than for females (131.9), although hospitalization rates were similar (4.4 and 4.3, respectively). The rates of emergency department visits for non-Hispanic whites and non-Hispanic blacks were similar, 151.5 and 147.5, respectively, but non-Hispanic whites were 25% more likely to be hospitalized. Hispanics had much lower rates for both emergency department visits (80.9), and hospitalizations (0.7).

For emergency department visits, open wounds to the head or extremities accounted for accounted for 82.2% of the visits, with superficial injuries and contusions to head accounting for another 12.3%. For hospitalized dog bite victims, open wounds of the head and cellulitis and abscesses of sites other than the fingers or toes accounted for 69.7% of the hospitalizations.

Reported charges for 3,644 emergency department visits totaled $1,452,845, with a median charge of $300 per visit. For 92 hospitalizations, the reported charges totaled $550,044, with a median charge of $4,698 per hospitalization. These costs include only the original hospital charges and not physician charges or the cost of follow-up visits.

[440] Hoff GL et al. Emergency department visits and hospitalizations resulting from dog bites, Kansas City, Mo, 1998-2002. *Missouri Med* 2005;102 565-568.