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Incidence rates of STDs in Tarrant County, Texas from 1998 to 2000 were assessed and compared with the rates in Texas and the United States, focusing on similarities and differences in gender, age and race/ethnicity. Data were obtained from the Tarrant County Public Health Department, the Texas Department of Health and the Centers for Disease Control and Prevention. The rates for gonorrhea and syphilis in Tarrant County were significantly higher than rates in Texas and the United States. The largest disparity was found among Blacks, followed by Hispanics and then, Whites, with those ages 15 to 24 years at greatest risk. To increase awareness and reduce the burden of STDs, prevention programs need to be developed.

### DESCRIPTIVE STUDY OF SEXUALLY TRANSMITTED DISEASES IN TARRANT COUNTY, TEXAS FROM 1998 TO 2000

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### DESCRIPTIVE STUDY OF SEXUALLY TRANSMITTED DISEASES IN TARRANT COUNTY, TEXAS FROM 1998 TO 2000

#### THESIS

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#### INTRODUCTION

One of the most common epidemics facing the United States today is that of the widespread occurrence of sexually transmitted diseases (STDs). The Center for Disease Control and Prevention (CDC) reports that more than 65 million people in the United States, are currently infected with some form of a STD (2000). It is estimated that at least 15 million new STD cases are reported each year (Cates, et al, 1999). These numbers are increasing, even though the majority of the most common STDs, such as chlamydia, gonorrhea and syphilis remain underreported and undiagnosed due to their asymptomatic nature. When left untreated these STDs have the potential to lead to serious and costly outcomes in terms of short and long-term health consequences. The control of STDs is a fundamental public health priority, notably in light of findings that STDs enhance HIV transmission (La Ruche, et al, 2000).

The most commonly reported STD today is chlamydia, with an estimated 3 million cases occurring annually (CDC, 2001). Chlamydia is found to be the most dangerous STD among women, for while the disease can be cured, 75% of women and 50% of men show no symptoms and are thus left untreated. Almost 40% of women with

untreated chlamydia will develop pelvic inflammatory disease (PID), and one in five women with PID becomes infertile (CDC, 2000). The largest occurrence of chlamydia is found among young women between the ages of 15-24 years. Research has found that there is a 3-5 fold increased risk of acquiring HIV, if exposed, for women infected with chlamydia (CDC, 2001).

Another common and curable STD found to have increased within the past 3 years is gonorrhea. Each year approximately 650,000 people are infected with gonorrhea, with 75% of those between the ages of 15-29 years, and 77% of the total number occurring among African Americans (CDC, 2001). While gonorrhea is found mostly among teen and adolescent populations, it is on the rise among gay and bisexual men. Gonorrhea can facilitate HIV transmission and may be contributing to the spread of HIV within the gay community, as well as, within the southern states where gonorrhea rates remain the highest (CDC, 2000).

Unlike many of the other STDs, syphilis rates are continually declining and in 1999, the Center for Disease Control launched the National Plan to Eliminate Syphilis in the United States (CDC, 2000). Syphilis rates are found to be 30% higher among African Americans as compared to whites, with men being 50% more likely than females to display this disease (CDC, 2000). Much like gonorrhea, syphilis is more prominent in the southern states and recent outbreaks have been found among men who have sex with men.

The aim of this study is to report the rates of STDs in Tarrant County, Texas from 1998 to 2000, focusing on the similarities and differences in gender, age and race/ethnicity. These rates were then compared with the STD rates in Texas and the United States.

#### METHODS

#### Data Sources

This study analyzed and compared the rates of chlamydia, gonorrhea and syphilis reported in Tarrant County, TX, the State of Texas and the United States between January 1998 and December 2000. The Tarrant County Public Health Department provided the STD data for Tarrant County. All hospitals, STD clinics, clinical laboratories, physicians, local clinics and other agencies/facilities/individuals that provide diagnosis or treatment services to STD patients are required to report cases of STDs to the Tarrant County Public Health Department. This information is then compiled into a database for further study.

The Texas Department of Health (TDH) provided the STD data for Texas. Reports of STD cases are gathered at the regional level and compiled into a centralized automated STD surveillance data system for analysis by the Surveillance Branch of the TDH, HIV and STD Epidemiology Division. Based on the collected information, an annual case summary report is made available to the public in the <u>TDH Texas HIV/STD</u> <u>Surveillance Report</u> found on their website (TDH, 2000).

The STD data obtained for the United States was found in the annual <u>STD</u> <u>Surveillance Report</u> published by the CDC (2000). This report is based on National Electronic Telecommunications System for Surveillance (NETSS) data and summary hardcopy reports reported to the CDC's Division of STD Prevention through STD control programs and health departments across the United States.

#### Sample and Eligibility

STD cases consisted of all White, Black and Hispanic men and women diagnosed with chlamydia, gonorrhea or syphilis during the period of January 1998 through December 2000 and reported to the Tarrant County Health Department, TDH or CDC. The year 1998 was chosen as the initial year of analysis due to improvements in the methods of collection and processing of information on STDs by the Tarrant County Health Department. The Tarrant County STD data provided seven study variables: gender, race, ethnicity, date of birth, date of diagnosis, provider and type of STD diagnosed. The CDC and TDH surveillance reports provided STD summary information in terms of year, gender, race/ethnicity and age. Due to the CDC's use of various databases there may be some variation (less than 5%) on national total reported cases in the tables and figures published (CDC, 2000).

The race/ethnicity categories were defined as follows: White (White, Not Hispanic or Latino), Black (Black or African American, Not Hispanic or Latino) and Hispanic (Hispanic or Latino). This classification reduced the likelihood of overrepresentation caused by those cases reporting more than one race. All unknowns were excluded from analysis.

Data Analysis

The data from the Tarrant County Health Department was converted to SPSS version 8.0 for analysis. Descriptives and frequencies were calculated for chlamydia, gonorrhea and syphilis and categorized by year, gender, age and race/ethnicity. Crosstabs were performed in order to combine the race and ethnicity categories.

Age-specific incidence rates for STDs in Tarrant County were calculated using age, race/ethnicity and sex-specific population based projections. The rates for Tarrant County and Texas were calculated using the year 2000 census data published by the U.S. Census Bureau, while the CDC provided age-specific rates according to the census estimates for each year in question.

To remove the effect of differences in composition within the three populations the incidence rates were then age-adjusted using U.S. census data from 2000 as the reference population.

#### RESULTS

#### Demographic Data

From 1998 to 2000, 21,693 cases of STDs were reported to the Tarrant County Health Department. The rate of reported cases of chlamydia, gonorrhea and syphilis by gender and year, within the County are depicted in Figure 1. Of all cases reported, females accounted for 67% while males accounted for 32% of the cases. The highest reported STD for females in Tarrant County was chlamydia (67%), while males reported more cases of gonorrhea (61%). Between 1998 and 2000, the distribution of total STD cases reported in Tarrant County on race/ethnicity, excluding unknowns, were as follows: White, 18% (2,749) of total; Black, 59% (9,035) of total; and Hispanic, 18% (2,735) of total reported cases.

The Texas Department of Heath (TDH) reported a total of 291,796 cases of STDs between 1998 and 2000. The highest percentage of cases reported in Texas were chlamydia (66%), followed by gonorrhea (33%) and then syphilis (0.4%). Females made up 71% of all STDs reported with the most common being chlamydia (75%). For males the most common STD in Texas was gonorrhea (59%). The distribution of total STD cases reported in Texas on race/ethnicity between 1998 and 2000, excluding unknowns, were as follows: White, 13% (38,392) of total; Black, 33% (95,321) of total; and Hispanic, 28% (80,804) of total reported cases.

Between 1998 and 2000, the CDC accounted for a total of 2,784,553 cases of STDs in the United States. Of these, females accounted for 70% of all reported cases and males accounted for 30%. The highest percentage of cases reported for females was chlamydia (72%), while the highest percentage of cases for males was gonorrhea (61%). Between 1998 and 2000, the distribution of total STD cases reported in the United States on race/ethnicity, excluding unknowns, were as follows: White 20% (560,274) of total; Black, 59% (1,642,528) of total; and Hispanic, 14% (384,745) of total reported cases.

#### Chlamydia

Between 1998 and 1999, chlamydia rates showed a slight decline yet from 1999 to 2000, the incidence rates for males and females in Tarrant County increased dramatically. The highest rates found were among Blacks, followed by Hispanics and then, Whites (Table 1). With the exception of Black and Hispanic males, the chlamydia rates among males and females in Tarrant County were significantly lower than in Texas and the US. During the year 2000, Black males displayed the highest rates with 469.6 per 100,000 affected, compared to Texas with 341.5 per 100,000 affected. The males most affected were those between the ages of 20 to 24 years, while the majority of females reporting chlamydia were between 15 and 19 years.

The chlamydia rates for Texas increased between 1998 and 2000. The incidence rates for both males and females in Texas are highest among the Black, followed by Hispanic, and then White. Females accounted for 83% of the reported chlamydia cases

and of those, the most affected were between the ages of 15 to 19 years. Males most affected with chlamydia were between the ages of 20 to 24 years, with Black males accounting for 35% of those reported cases in Texas.

With the exception of Black females, the rates of chlamydia across all genders and races have increased from 1998 to 2000 in the United States. Blacks display the highest rates, with those of Black females being significantly higher than Hispanic and White females (1495.2 per 100,000, 740.9 and 191.3 per 100,000, respectively). In the U.S., females reported 81% of the chlamydia cases, with 46% being Black females and those most affected between 15 and 19 years of age. Of the cases reported by males, 53% were among Black males, with the majority of cases between the ages of 20 to 24 years.

#### Gonorrhea

The rates of gonorrhea in Tarrant County decreased between 1998 and 1999, yet immediately increased again between 1999 and 2000 (Table 2). With the exception of Hispanic females, these rates were higher than Texas. During the year 2000, Blacks comprised 57% of all gonorrhea cases reported, with the highest rate among Black males (1033.3 per 100,000). The age groups most affected by gonorrhea for males and females were 20 to 24 years, and 15 to 19 years, respectively.

With the exception of Black males, the rates of gonorrhea in Texas increased from 1998 to 2000. Though the rates for Blacks in Texas were lower than those in Tarrant County and the U.S., Blacks represented 54% of the reported cases, 48% being Black

female and 60% Black male. The case distribution between males and females was almost equal (49% and 51%, respectively), with males ages 20 to 24 years and females ages 15 to 19 years most affected.

Slight increases were seen among the rates of gonorrhea in the United States for Whites and Hispanics. Blacks reported 77% of the total gonorrhea cases, yet the incidence rates decreased between 1998 and 2000. Of all cases reported, 50% were among males and 50% among females, with males mostly affected between 20 to 24 years and females between 15 and 19 years of age. The rates of gonorrhea in the United States are lower than rates in Tarrant County across every race and gender.

#### Syphilis

Between 1998 and 2000 both males and females in Tarrant County were observed to have higher incidence rates for syphilis than in Texas and the US (Table 3). The highest rates found were among Blacks, followed by Hispanics and then, Whites. In the year 2000, the rates for Black males and females were relatively higher (66.0 and 33.4 per 100,000 respectively) than those of Texas (10.2 and 5.7 per 100,000) and of the United States (15.2 and 9.9 per 100,000 respectively).

Aside from Hispanics, who made up 23% of all reported cases, the rates of syphilis in Texas decreased between 1999 and 2000. It was found that 61% of the cases reported were among males, with 57% of those among Black males and 25% among Hispanic males. For females, 59% were among Blacks, followed by 21% among Hispanics.

Of those reported cases of syphilis in the U.S. between 1998 and 2000, 58% were among males, with the largest disparity among Blacks (75% of reported cases). Of the reported cases, 72% were among Black males and 79% among Black females.

## TABLE 1Number and Rates of Chlamydia Cases, by Gender and Race/Ethnicity<br/>for Tarrant County, Texas and the United States, 1998-2000

		•	Males						Females						
		Wł	В	Black Hispanic		White		Black		Hispanic					
	Year	No.	Rate*	No.	Rate*	No.	Rate*	1	No.	Rate*	No.	Rate*	No.	Rate*	
Tarrant County	1998	98	22.3	304	358.0	140	87.7		452	95.7	973	963.7	416	287.3	
	1999	95	21.5	324	376.0	165	102.9		366	77.4	892	881.5	418	287.3	
	2000	124	28.0	404	469.6	199	123.7		524	110.8	1012	1002.1	584	403.4	
Texas	1998	1113	19.8	3444	288.2	2981	112.3	6	854	119.2	11944	947.5	16216	559.0	
	1999	1298	23.7	3808	318.8	3191	95.8	7	974	139.6	13397	1047.1	17461	528.2	
	2000	1639	29.9	4078	341.5	3954	118.8	8	931	156.3	14283	1117.0	21240	643.4	
United States	1998	22572	28.9	47067	382.5	16383	136.3	12	715	158.8	184650	1373.5	71754	585.0	
	1999	27750	33.0	58121	432.2	19337	159.8	147	171	169.6	221408	1500.8	85670	693.5	
	2000	30513	35.2	64857	460.0	23810	185.2	153	825	191.3	231039	1495.2	97892	740.9	

\* Rates are per 100,000 population. Age-adjusted using the U.S. census population of 2000 as a standard.

## TABLE 2Number and Rates of Gonorrhea Cases, by Gender and Race/Ethnicity<br/>for Tarrant County, Texas and the United States, 1998-2000

				Mal	es			Females							
		W	White		Black		Hispanic		White		Black		anic		
	Year	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*		
Tarrant County	1998	114	25.6	930	1072.8	128	80.4	250	51.9	813	802.6	112	78.1		
	1999	116	25.5	854	985.2	102	65.6	168	35.2	665	654.4	107	73.8		
	2000	140	30.9	899	1033.3	133	82.8	204	42.4	708	696.9	111	76.6		
Texas	1998	1082	19.5	9412	791.6	2019	75.8	2032	35.3	7514	596.8	2491	85.6		
	1999	1256	23.0	9585	800.6	2209	66.5	2234	39.1	8245	643.9	2808	84.8		
	2000	1417	26.0	9273	774.9	2683	80.9	2361	41.4	8220	642.3	3255	98.4		
United States	1998	19602	22.0	139738	861.1	10709	63.9	33593	40.4	129549	726.4	10359	63.0		
	1999	20773	22.5	146123	872.9	11230	64.6	33801	39.3	131572	715.1	11560	67.8		
	2000	21017	22.8	144049	850.1	12018	67.0	33894	39.4	129621	698.4	12470	70.8		

\* Rates are per 100,000 population. Age-adjusted using the U.S. census population of 2000 as a standard.

# TABLE 3Number and Rates of Syphilis Cases, by Gender and Race/Ethnicity<br/>for Tarrant County, Texas and the United States, 1998-2000

				Mal	es			Females					
		w	hite	Bl	ack	His	panic	w	hite	Bl	ack	His	panic
	Year	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*
Terrent County	1008	10	2.1	38	42.2	13	83	17	3.4	32	30.0	10	7.0
Tarrain County	1999	13	2.8	44	49.3	28	18.1	10	2.0	51	49.3	18	13.5
	2000	21	4.6	58	66.0	28	17.7	27	5.6	34	33.4	23	16.1
Texas	1998	29	0.5	167	14.4	46	1.7	20	0.3	123	9.8	19	0.7
	1999	51	0.9	159	13.4	67	2.0	29	0.5	102	8.0	38	1.2
	2000	42	0.8	121	10.2	78	2.4	30	0.5	73	5.7	48	1.5
United States	1998	535	0.5	3008	19.5	316	2.1	397	0.4	2523	13.5	135	0.8
	1999	605	0.6	2795	18.2	398	2.5	428	0.4	2177	11.6	137	0.8
	2000	698	0.7	2368	15.2	405	2.4	385	0.4	1863	9.9	162	0.9

\* Rates are per 100,000 population. Age-adjusted using the U.S. census population of 2000 as a standard.

#### DISCUSSION

The incidence of STDs in continues to be on the rise throughout Tarrant County, Texas and the United States. In Tarrant County incidence rates for chlamydia, gonorrhea and syphilis are increasing across all racial and geographic boundaries. Between 1998 and 2000 the incidence rates for gonorrhea and syphilis in Tarrant County exceeded the rates in Texas and the United States. The STD rate is highest among Blacks, then Hispanics and finally, Whites, with those ages 15 to 24 years at highest risk.

From 1998 to 2000, the rates of gonorrhea and syphilis for Whites in Tarrant County surpassed those throughout Texas and the United States. The greatest difference was in the rates of gonorrhea for White males and females (30.9 and 42.4 per 100,000 respectively) in Tarrant County, and those for White males and females in United States (22.8 and 39.4 per 100,000 respectively).

The statistics have shown that STDs disproportionately affect minorities, especially Black males and females, not only in Tarrant County, but also across Texas and the Nation. Of the reported cases of chlamydia, gonorrhea and syphilis, Blacks display significantly higher rates and constitute the greatest percentage of those cases reported. The most obvious disparity lies in the incidence of gonorrhea, in which more than half of the reported cases was among Blacks. The rate of gonorrhea for Black males in Tarrant County was 1033.3 per 100,000 while those of Texas and the US were, 774.9 and 850.1 per 100,000, respectively. Between 1998 and 2000, the STD rates for Hispanics in Tarrant County increased. Gonorrhea and syphilis rates for Hispanic males were found to be higher than the rates in Texas and the US. As for chlamydia, the rate for Hispanic males in Tarrant County is higher than Texas, yet lower than the national average. The rates for chlamydia and gonorrhea among Hispanic females in Tarrant County remain lower than rates in Texas and the U.S.

Results found within this data set may be biased due to inadequate reporting of information from reporting sources. There may also be inaccuracies in the recording of information from various clinics or labs that diagnose STDs. In addition, many of these STDs are asymptomatic in nature and thus may go undiagnosed, leading to underreporting and underestimation of overall rates.

In the early 1990s, the Department of Health and Human Services released <u>Healthy People 2000</u> in which health objectives for the Nation were released with measurable targets to monitor the progress in attaining these goals (1991). Texas met its targeted objectives for syphilis, including reducing disparities found among minority populations. The aims for chlamydia and gonorrhea reduction are moving toward their intended targets, yet their goals were not met. Rates for gonorrhea continue to remain disproportionately high among adolescents, young adults and Blacks (CDC, 2001). Chlamydia objectives were met for females between the ages of 20 to 24 years, yet rates among females ages 15 to 19 years continue to remain high.

The magnitude of STD's in Tarrant County may be even more problematic as many of those infected are asymptomatic and unknowingly infecting others. To increase

awareness and reduce the burden of STDs, prevention programs need to be developed. Educational programs should target school and community levels in order to address both teens and young adults. Local clinics and physicians should also encourage testing of both males and females and counsel patients in prevention. The challenge to clinicians and epidemiologists is to continue exploring new approaches to control and prevent STDs, while presenting data to inform policy makers and public health practitioners (La Ruche, 2000). APPENDIX





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