

Sexually Transmitted Diseases

Erie County, PA

2007-2008

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Chlamydia

Gonorrhea

Syphilis



**ERIE COUNTY  
DEPARTMENT OF HEALTH**

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**PUBLIC HEALTH  
PREPAREDNESS**

*Sexually Transmitted Diseases  
Erie County, PA  
2007-2008*

*Chlamydia  
Gonorrhea  
Syphilis*

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December, 2009

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*"Our mission is to preserve, promote, and protect  
the health, safety and well being of the people and the environment in Erie County"*

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## HIGHLIGHTS

- From 2000 to 2008, Erie County has seen a 102% increase in the combined number of chlamydia, gonorrhea, and syphilis cases.
- In 2008, the total number of chlamydia cases in Erie County was 1,126 compared to 1,071 in 2007 and 583 in 2000.
- The incidence rate of chlamydia among Erie County residents increased to 403.5 per 100,000 in 2008.
- The chlamydia rate for Erie County is higher than the rates for both PA and the U.S.
- Chlamydia rates are almost three times higher among females compared to males.
- Chlamydia rates are twelve times higher among the African-American population compared to the white population.
- From 2007 to 2008, annual chlamydia rates increased by 9.9% among whites, 9.4% among African-Americans, and 3.1% among Hispanics.
- In 2008, 73.5% of all chlamydia cases occurred among individuals aged 15-24 years. In 2007 this value was 76.6%.
- In 2008, the chlamydia incidence rate for age group 15-19 was 1,701.4 while the rate for age group 20-24 was 2,066.6. For comparison, the incidence rate for the total population was 403.5.
- From 2007 to 2008, chlamydia rates increased for all age groups except age group 15-19 whose rate decreased by 11.2%.
- The number of gonorrhea cases in Erie County dropped from a high of 521 in 2007 to 323 in 2008. In 2000 this number was 133.

## HIGHLIGHTS

- From 2007 to 2008, the incidence rate for gonorrhea in Erie County decreased significantly (↓37.8%) following a significant increase from 2000 to 2007 (↑292.8%).
- The gonorrhea incidence rate for Erie County is higher than the rates for both PA and the U.S.
- Gonorrhea rates among males peaked in 2007 and then decreased significantly from 2007 to 2008 (↓41.6%).
- Gonorrhea rates among females peaked at 226.1 in 2007 and then decreased significantly in 2008 (↓35.5%).
- Gonorrhea incidence rates are twenty-five times higher among the African-American population compared to the white population.
- Gonorrhea rates among whites peaked at 57.7 in 2007 and then decreased significantly (↓35.2%) in 2008.
- Gonorrhea rates among the African-American population peaked at 1,428.0 in 2007 and then decreased significantly in 2008 (↓33.8%).
- Gonorrhea incidence rates among the Hispanic population peaked at 413.4 in 2007 and then decreased significantly in 2008 (↓53.8%).
- In 2008, 57.6% of all gonorrhea cases occurred among individuals aged 15-24 years.
- Gonorrhea rates for all age groups peaked in 2007 and then decreased in 2008.
- In 2008, gonorrhea incidence rates decreased for age group 25-29 (↓21.2%) and decreased significantly for age groups 15-19 (↓50.6%), 20-24 (↓37.7%), 30-34 (↓40.6%), and 35+ (↓37.1%).
- Reported cases of syphilis in Erie County are low. However, the county did see an increase in cases for years 2005 through 2007.

## OVERVIEW

Chlamydia, gonorrhea, and syphilis are the three most commonly reported sexually transmitted diseases (STDs) in Erie County. In 2008, 1,451 confirmed cases of these three notifiable STDs were reported - a 9% decrease over the 1,599 cases reported in 2007. This is the first annual decrease in total number of reported cases since 2004. The number of 2008 cases is 102.6% higher than the number of cases for 2000.

Many infected individuals never experience symptoms, never seek health care, are not diagnosed, and are not treated. They become silent carriers who continue to spread diseases that are known to have serious health complications. If this population is considered, the true burden of chlamydia, gonorrhea, and syphilis within our community may be even higher.

From 2007 to 2008, chlamydia cases increased 5% from 1,071 to 1,126. From 2000 to 2007 chlamydia cases increased 84% from 583 to 1,071.

From 2007 to 2008, gonorrhea cases decreased 38% from 521 to 323. From 2000 to 2007, gonorrhea cases increased 292% from 133 to 521.

There were no reported cases of syphilis in 2000, 7 reported cases in 2007, and 2 reported cases in 2008.

Since 2000 there has been a noticeable shift in the percent of total for each STD type. From 2000 to 2008, chlamydia has decreased from 81.4% to 77.6% of all reported STD cases while gonorrhea has increased from 18.6% to 22.3%. Syphilis cases are close to 0%.

The Erie County Department of Health operates clinics for STD diagnosis and has dedicated staff for follow-up of partners. The increasing STD burden has prompted implementation of additional programs within the community.

This report provides an overview of STD trends in Erie County for 2007 and 2008.

## PUBLIC HEALTH ACTION

From 2004 to 2006, the gonorrhea incidence rate in Erie County increased by 95%. In an effort to address this sharp rise, the Erie County Department of Health (ECDH) began a focused Community Initiative.

Outreach testing started at Community Health Net in September, 2007 followed by outreach testing at Edinboro University's Ghering Health Center in January, 2008.

Throughout 2008 and into 2009, ECDH increased the number of available staff engaged in contact follow-up. As a result, more partners were notified of their possible infection and the need for testing and treatment.

In 2008, community partners were also trained to locate individuals who may have been exposed to gonorrhea or other STDs. This helped to expedite the testing and treatment of contacts. The organizations participating in this initiative are: Adagio Health (Erie and Edinboro locations), Penn State Erie, The Behrend College Health and Wellness Center, and Edinboro University Ghering Health and Wellness Center.

From 2007 to 2008, the number of gonorrhea cases in Erie County dropped from 521 to 323 and significant decreases in the rate of the disease were seen in almost all demographic groups.

While the gonorrhea Community Initiative continues, future goals will focus on the high rate of chlamydia seen in Erie County.

Timeline information was provided by Cindy Miller, RN, B.C., Communicable Disease Nursing Supervisor for the Erie County Department of Health.

## CHLAMYDIA

*Chlamydia trachomatis*, is the most common STD reported in Erie County. Symptoms in males include penile and/or rectal discharge or burning during evacuation. Symptoms in females include vaginal discharge, burning on urination, or abdominal pain. Chlamydia can be treated with antibiotics once an individual is diagnosed. Humans do not develop immunity to chlamydia. Reinfection can occur.

Not all individuals infected with chlamydia exhibit symptoms. In fact, it is estimated that 70% of women and 25% of men infected with chlamydia will have no symptoms and as a result may not be diagnosed or treated.

If untreated, chlamydia in females can lead to pelvic inflammatory disease (PID) which in turn can cause scarring of the fallopian tubes, ectopic pregnancy, and infertility. According to the CDC, approximately 40% of women with untreated, asymptomatic chlamydia develop PID. Infertility occurs in up to 20% of these women. Infection during pregnancy can result in premature birth as well as chlamydial eye infection and pneumonia in the infant. The CDC recommends annual chlamydia screening of sexually active women under the age of 26.

Complications in men are not as common. Asymptomatic, infected men may develop epididymitis or urethritis. Sterility is rare.

## CHLAMYDIA IN THE TOTAL POPULATION

In 2008, there were a total of 1,126 chlamydia cases reported in Erie County compared to 1,071 in 2007 and 583 in 2000. Annual chlamydia incidence rates for Erie County increased from 382.8 cases per 100,000 in 2007 to 403.5 in 2008 (↑5.4%). Both rates were significantly higher than the 2000 rate of 207.6 cases per 100,000. (Table 1; Figure 1)

In 2008, the annual chlamydia rate for PA was 339.3 cases per 100,000 compared to 212.8 in 2000. In 2008, the annual chlamydia rate for the U.S. was 401.3 compared to 249.5 in 2000. (Table 1; Figure 2)

In 2000, the chlamydia incidence rate for Erie County was lower than the rates for both PA and the U.S. In 2008, the chlamydia rate per 100,000

for Erie County was 403.5 compared to 339.3 for PA and 401.3 for the U.S. (Table 1; Figure 2)

Figure 1

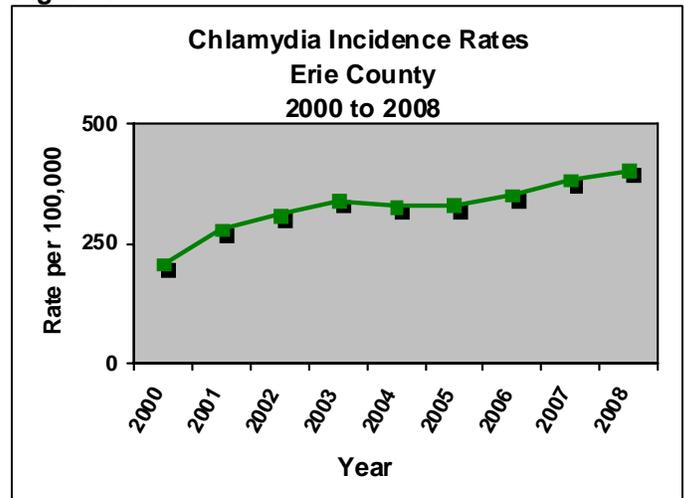
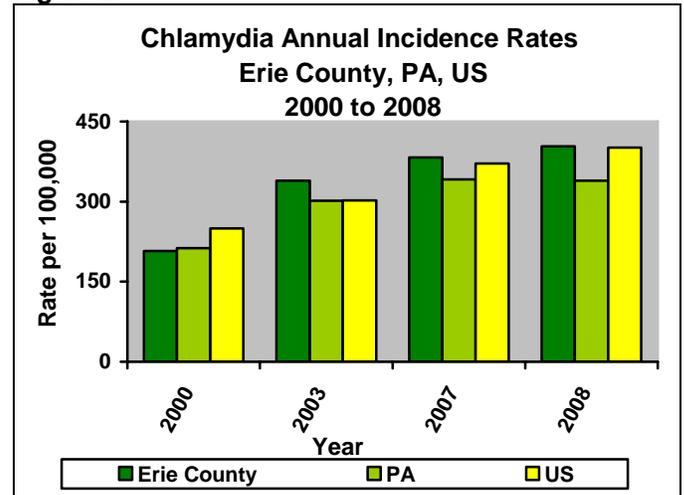


Figure 2



Three and five year rates can be found in Table 1.

## CHLAMYDIA BY GENDER

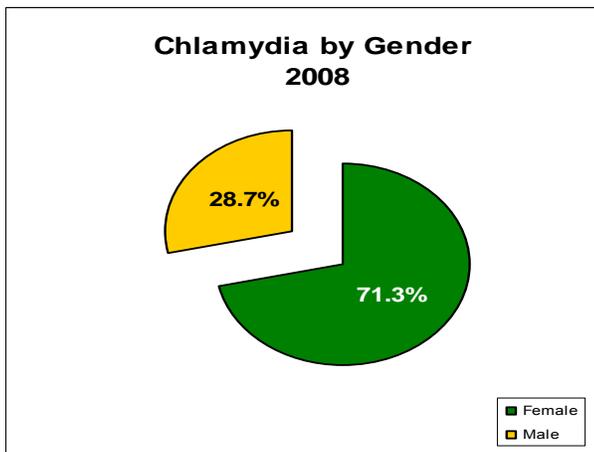
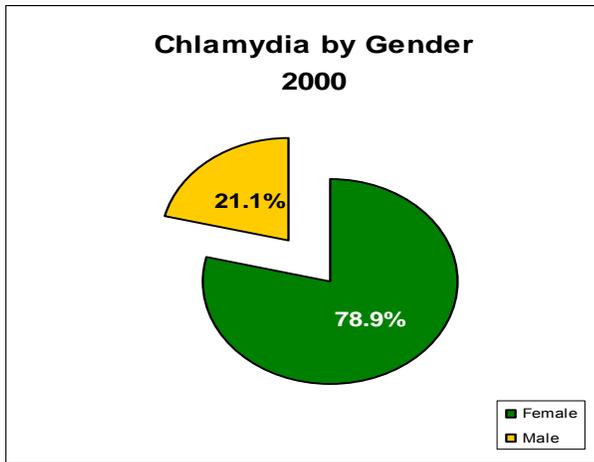
### OVERVIEW

In 2008, 323 (28.7%) chlamydia cases were male and 803 (71.3%) were female. In 2000, 123 (21.1%) were male and 460 (78.9%) were female. Despite the shift in percent cases, the number of female chlamydia cases still remains higher than that for males by a margin of 2:1. (Figure 3) For comparison, Erie County population estimates for 2008 are 49% male and 51% female.

When incidence rates are compared, a similar trend is found. In 2008, rates per 100,000 were 565.5 for

females compared to 235.6 for males (2:1). In 2000, rates were 319.7 for females compared to 89.8 for males (4:1). Chlamydia incidence rates were significantly higher in females than in males for both 2000 and 2008. However, from 2000 to 2008, the increase in chlamydia rates among males was 162.4% compared to a 76.9% increase among females. Trends indicate that the burden of chlamydia is increasing more rapidly among males compared to females.

Figure 3



Three and five year rates can be found in Table 1.

**MALES**

In 2008, there were a total of 323 male chlamydia cases reported in Erie County compared to 314 in 2007 and 123 in 2000. Annual chlamydia incidence rates for Erie County males increased from 228.6 cases per 100,000 in 2007 to 235.6 in 2008 (↑3.1%). Both rates were significantly higher than the 2000 rate of 89.8 cases per 100,000. (Table 1; Figure 4)

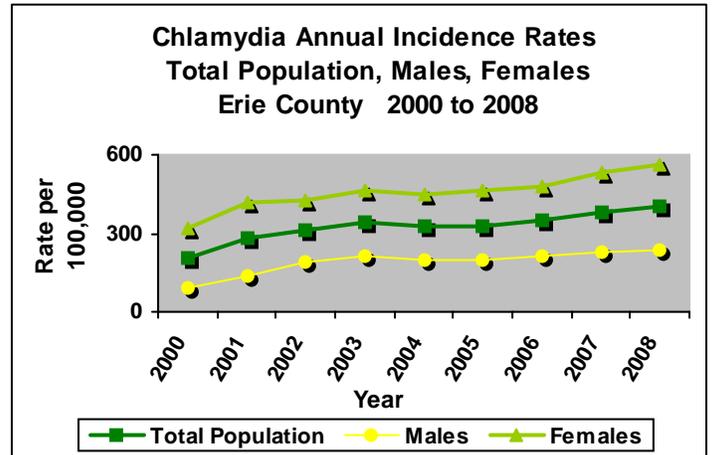
Three and five year rates can be found in Table 1.

**FEMALES**

In 2008, there were a total of 803 female chlamydia cases reported in Erie County compared to 757 in 2007 and 460 in 2000. Annual chlamydia incidence rates for Erie County females increased from 531.4 cases per 100,000 in 2007 to 565.5 in 2008 (↑6.4%). Both rates were significantly higher than the 2000 rate of 319.7 cases per 100,000. (Table 1; Figure 4)

Three and five year rates can be found in Table 1.

Figure 4



**CHLAMYDIA BY RACE AND ETHNICITY**

**OVERVIEW**

In 2008, 42.5% of all chlamydia cases were white, 36.7% were African-American, and 5.0% were Hispanic. For comparison, Erie County population estimates for 2007 are: 91.1% white, 6.7% black or African-American, and 2.6% Hispanic.

When incidence rates are compared, a significant gap is seen between the two races. In 2008, chlamydia rates per 100,000 were 2,217.1 for African-Americans compared to 188.0 for whites (12:1). Chlamydia incidence rates remain significantly higher in the African-American population compared to the white population. In 2008, the chlamydia rate per 100,000 for the Hispanic population was 764.2. (Table 1; Figures 5 and 6)

Three and five year rates can be found in Table 1.

Figure 5

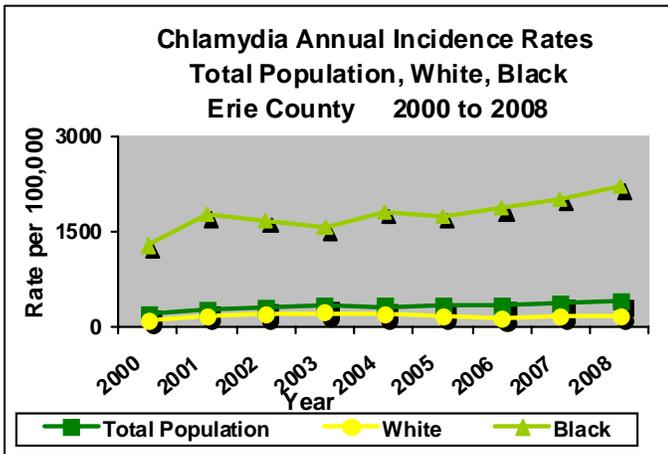
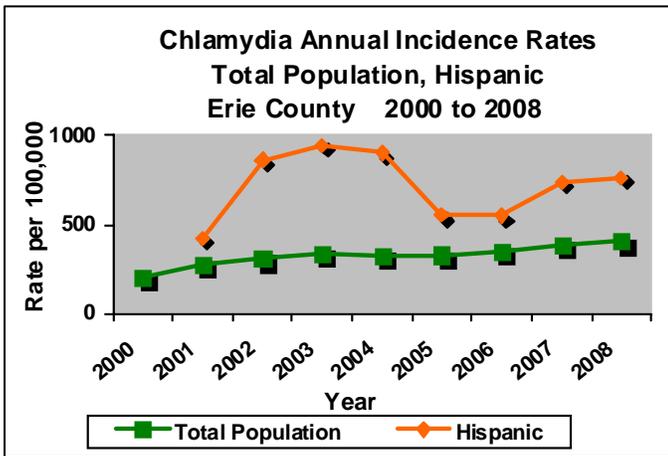


Figure 6



**WHITE POPULATION**

In 2008, there were a total of 478 chlamydia cases reported among the white population of Erie County compared to 436 in 2007 and 284 in 2000. Annual chlamydia incidence rates for Erie County whites increased from 171.0 cases per 100,000 in 2007 to 188.0 in 2008 (↑9.9%). Both rates were significantly higher than the 2000 rate of 111.2 cases per 100,000. (Table 1; Figure 5)

Three and five year rates can be found in Table 1

**AFRICAN-AMERICAN POPULATION**

In 2008, there were a total of 413 chlamydia cases reported among the African-American population of Erie County compared to 376 in 2007 and 221 in 2000. Annual chlamydia incidence rates for Erie County African-Americans increased from 2,026.2 cases per 100,000 in 2007 to 2,217.1 in 2008

(↑9.4%). Both rates were significantly higher than the 2000 rate of 1,284.7. (Table 1; Figure 5)

**HISPANIC POPULATION**

In 2008, there were a total of 56 chlamydia cases reported among the Hispanic population of Erie County compared to 52 in 2007 and 26 in 2001. Annual chlamydia incidence rates for Erie County Hispanics increased from 741.3 cases per 100,000 in 2007 to 764.2 in 2008 (↑3.1%). Both rates were significantly higher than the 2001 rate of 424.4. (Table 1; Figure 6)

Three and five year rates can be found in Table 1

**CHLAMYDIA BY AGE GROUP**

**OVERVIEW**

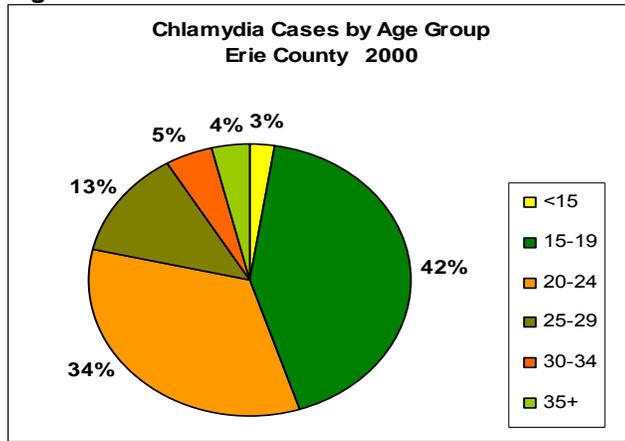
In 2008, 1,126 chlamydia cases included a reported age. Of these, 2.3% were under age 15, 33.1% were ages 15-19, 40.3% were ages 20-24, 14.1% were ages 25-29, 6.0% were ages 30-34, and 4.2% were ages 35 and above. (Figures 7 and 8) In 2008, the two age groups of 15-19 and 20-24 accounted for 73.5% of all age-reported chlamydia cases in Erie County.

For comparison, Erie County 2008 population estimates are: 18.4% ages <15; 8% ages 15-19; 8.1% ages 20-24; 6.1% ages 25-29; 5.3% ages 30-34; and 54.3% ages 35 and above

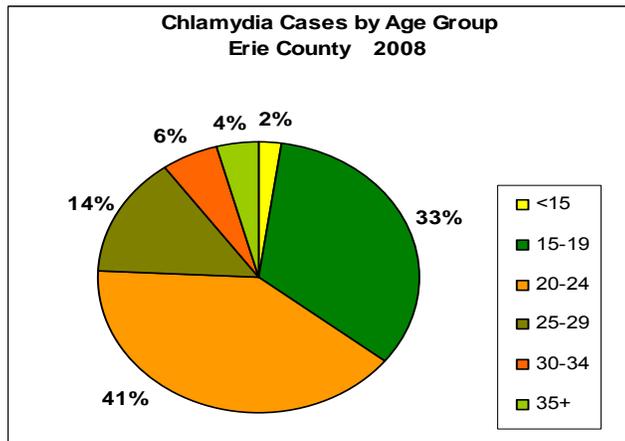
From 2000 to 2008, annual chlamydia rates per 100,000 increased from 26.0 to 50.1 (↑92.7%) for ages under 15, increased for ages 15-19 from 1,075.7 to 1,701.4 (↑58.2%), increased significantly for ages 20-24 from 935.4 to 2,066.6 (↑120.9%), increased significantly for ages 25-29 from 427.5 to 910.9 (↑113.1%), increased significantly for ages 30-34 from 148.8 to 430.0 (↑189.0%), and increased from 15.2 to 31.3 for ages 35 and above (↑105.9%). (Table 1; Figure 9)

Three and five year rates can be found in Table 1.

**Figure 7**



Note: Totals may not equal 100% due to rounding.



**AGES UNDER 15**

In 2008 there were a total of 26 chlamydia cases reported for Erie County residents age 15 and below compared to 22 in 2007 and 15 in 2000. Annual chlamydia incidence rates for Erie County residents age 15 and below increased from 42.2 cases per 100,000 in 2007 to 50.1 in 2008 (↑18.8%). Analysis of incidence rates for this age group is affected by the relatively small number of annual cases reported. (Table1; Figures 8 and 9)

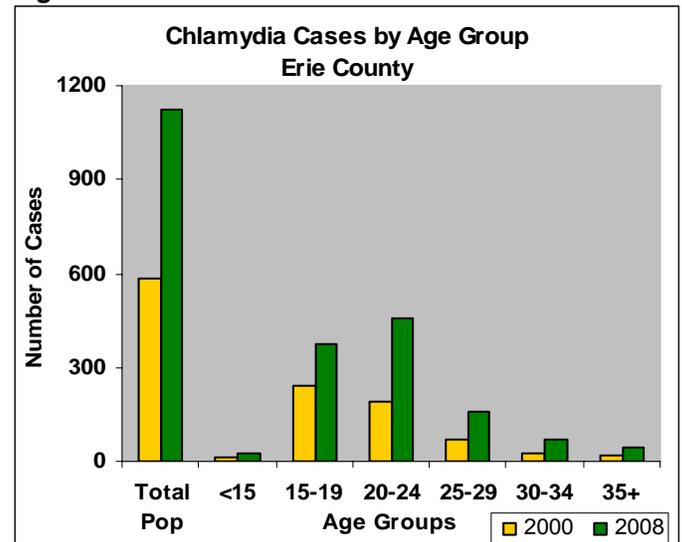
Three and five year rates can be found in Table 1.

**AGES 15-19**

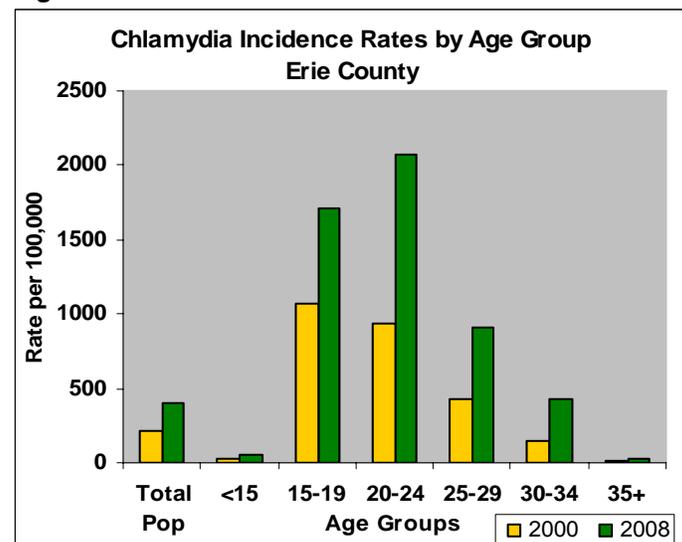
In 2008, there were a total of 373 chlamydia cases reported for Erie County residents age 15-19 compared to 408 in 2007 and 241 in 2000. Annual chlamydia incidence rates for Erie County residents age 15-19 decreased from 1,915.3 cases per 100,000 in 2007 to 1,701.4 in 2008 (↓11.2%). (Table1; Figures 8 and 9)

Three and five year rates can be found in Table 1.

**Figure 8**



**Figure 9**



**AGES 20-24**

In 2008, there were a total of 454 chlamydia cases reported for Erie County residents age 20-24 compared to 412 in 2007 and 191 in 2000. Annual chlamydia incidence rates for Erie County residents age 20-24 increased from 1,874.6 cases per 100,000 in 2007 to 2,066.6 in 2008 (↑10.2%). (Table1; Figures 8 and 9)

Three and five year rates can be found in Table 1.

**AGES 25-29**

In 2008, there were a total of 159 chlamydia cases reported for Erie County residents age 25-29 compared to 138 in 2007 and 73 in 2000. Annual chlamydia incidence rates for Erie County residents age 25-29 increased from 813.9 cases per 100,000

in 2007 to 910.9 in 2008 (↑11.9%). (Table1; Figures 8 and 9)

Three and five year rates can be found in Table 1.

#### **AGES 30-34**

In 2008, there were a total of 67 chlamydia cases reported for Erie County residents age 30-34 compared to 61 in 2007 and 27 in 2000. Annual chlamydia incidence rates for Erie County residents age 30-34 increased from 389.5 cases per 100,000 in 2007 to 430.0 in 2008 (↑10.4%). (Table1; Figures 8 and 9)

Three and five year rates can be found in Table 1.

#### **AGES 35 AND ABOVE**

In 2008, there were a total of 47 chlamydia cases reported for Erie County residents age 35 and above compared to 30 in 2007 and 22 in 2000. Annual chlamydia incidence rates for Erie County residents age 35 and above increased from 19.9 cases per 100,000 in 2007 to 31.3 in 2008 (↑57.0%). (Table1; Figures 8 and 9)

Three and five year rates can be found in Table 1.

## Chlamydia 2007 & 2008

Chlamydia Annual		2007		2008		2007	2008	% Rate Change
		# Cases	% of Total	# Cases	% of Total	Rate	Rate	
Erie County	Total	1,071		1,126		382.8	403.5	5.4
	Male	314	29.3	323	28.7	228.6	235.6	3.1
	Female	757	70.7	803	71.3	531.4	565.5	6.4
	White	436	40.7	478	42.5	171.0	188.0	9.9
	Black	376	35.1	413	36.7	2,026.2	2,217.1	9.4
	Hispanic	52	4.9	56	5.0	741.3	764.2	3.1
	<15 yrs*	22	2.1	26	2.3	42.2	50.1	18.8
	15-19 yrs	408	38.1	373	33.1	1,915.3	1,701.4	-11.2
	20-24 yrs	412	38.5	454	40.3	1,874.6	2,066.6	10.2
	25-29 yrs	138	12.9	159	14.1	813.9	910.9	11.9
	30-34 yrs	61	5.7	67	6.0	389.5	430.0	10.4
	35+ yrs	30	2.8	47	4.2	19.9	31.3	57.0
	Pennsylvania	Total	42,469		42,233		341.6	339.3
United States	Total	1,108,374		1,210,523		371.5	401.3	8.0

Chlamydia 3 Year		2005-2007		2006-2008		2005-2007	2006-2008	% Rate Change
		# Cases	% of Total	# Cases	% of Total	Rate	Rate	
Erie County	Total	2,983		3,183		354.7	379.2	6.9
	Male	878	29.4	934	29.3	213.0	226.8	6.5
	Female	2,105	70.6	2,249	70.7	490.8	526.0	7.2
	White	1,314	44.0	1,315	41.3	160.8	171.8	6.8
	Black	1,035	34.7	1,130	35.5	1,885.2	2,042.2	8.3
	Hispanic	128	4.3	146	4.6	615.0	686.6	11.7
	<15 yrs*	53	1.8	65	2.0	36.1	45.1	25.2
	15-19 yrs	1,094	36.7	1,149	36.1	1,738.8	1,793.8	3.2
	20-24 yrs	1,134	38.0	1,225	38.5	1,663.8	1,829.3	9.9
	25-29 yrs	445	14.9	455	14.3	871.7	877.2	0.6
	30-34 yrs	159	5.3	174	5.5	331.8	369.8	11.5
	35+ yrs	98	3.3	115	3.6	21.8	25.5	17.0
	Pennsylvania	Total	119,217		124,189		319.6	332.8
United States	Total	3,115,730		3,349,808		351.3	373.9	6.4

Chlamydia 5 Year		2003-2007		2004-2008		2003-2007	2004-2008	% Rate Change
		# Cases	% of Total^	# Cases	% of Total	Rate	Rate	
Erie County	Total	4,869		5,037		346.2	359.0	3.7
	Male	1,446	29.7	1,477	29.3	210.0	214.8	2.3
	Female	3,423	70.3	3,560	70.7	476.8	497.6	4.4
	White	2,423	49.8	2,315	46.0	188.4	180.7	-4.1
	Black	1,645	33.8	1,777	35.3	1,806.9	1,938.0	7.3
	Hispanic	250	5.1	245	4.9	735.0	701.8	-4.5
	<15 yrs*	93	1.9	92	1.8	35.9	36.1	0.5
	15-19 yrs	1,725	35.5	1,765	35.0	1,624.8	1,660.4	2.2
	20-24 yrs	1,913	39.3	1,978	39.3	1,660.4	1,736.4	4.6
	25-29 yrs	722	14.8	761	15.1	870.1	900.6	3.5
	30-34 yrs	261	5.4	276	5.5	313.9	341.0	8.6
	35+ yrs	149	3.1	165	3.3	20.0	22.1	10.3
	Pennsylvania	Total	189,194		199,467		304.8	320.9
United States	Total	4,922,670		5,255,715		336.1	353.9	5.3

Red indicates significant difference

\*Numbers less than 20 are statistically unreliable; ND=Not displayed if count <10

Crude rate equals number of cases per 100,000 population; 95% Confidence Interval; CL=Confidence Limit

^For percent of total for age groups, the denominator is the total number of cases with a reported age; Before 2003 some reported cases did not include age;

Total includes unknown gender, race, and age; Hispanic origin can be of any race; There may be multiple diseases in one person; Some individuals may become infected more than once

U.S. Census Bureau, Intercensal Population Estimates used for Erie County and U.S.; PA DOH Intercensal Population Estimates used for PA

Previous year pop. used for Erie County calculations; Current year pop. used for PA calculations; Current year pop. used for 2000-2006 U.S. calculations; Previous year pop. used for 2006 to present U.S. calculations

Source of Data: CDC STD Surveillance and Statistics; PA DOH EpiQMS; PA DOH STD Statistics; NEDSS; Erie County Dept of Health

## GONORRHEA

*Neisseria gonorrhoea* is the second most common STD reported in Erie County. Symptoms in males include penile and/or rectal discharge, increased urinary frequency, burning during evacuation, and sore throat. Symptoms in females include vaginal discharge, burning on urination, increased urination, abdominal pain, and sore throat. Gonorrhea can be treated with antibiotics once an individual is diagnosed. Humans do not develop immunity to gonorrhea. Reinfection can occur. Infection is spread through the mouth, vagina, penis, or anus.

Symptoms of gonorrhea generally appear within two to five days after infection but in men symptoms may take up to one month to appear. Gonorrhea is most common in people age 20-24 years. Not all individuals infected with gonorrhea have symptoms.

If untreated, gonorrhea in females can lead to vaginitis, pelvic inflammatory disease (PID), scarring of the fallopian tubes, and sterility. Untreated gonorrhea in men can lead to urethral scarring, urination problems, urinary tract infections, and kidney failure. Further complications for both men and women include widespread infection including infections of the reproductive system, peritonitis, bacteremia, pharyngitis, conjunctivitis, and joint infections.

The Centers for Disease Control and Prevention (CDC) has established 19.0 cases of gonorrhea per 100,000 population as a Healthy People 2010 Goal.

### GONORRHEA IN THE TOTAL POPULATION

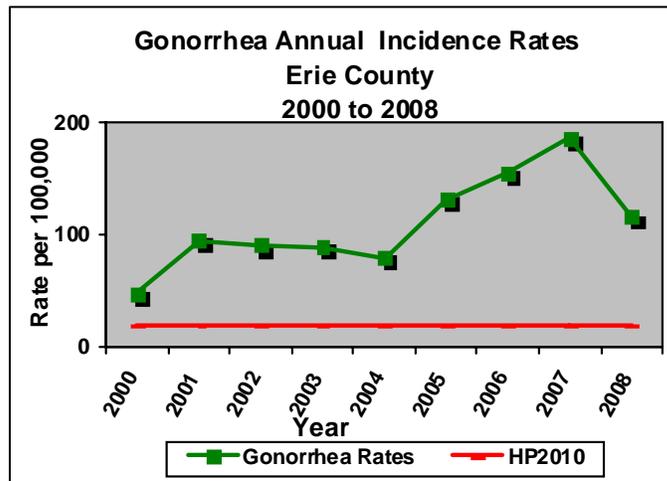
In 2008, there were a total of 323 gonorrhea cases reported in Erie County compared to 521 in 2007 and 133 in 2000. Annual gonorrhea incidence rates for Erie County decreased significantly from 186.2 cases per 100,000 in 2007 to 115.7 in 2008 (↓37.8%). Both rates were significantly higher than the 2000 rate of 47.4 cases per 100,000. (Table 2; Figure 10)

In 2008, the annual gonorrhea rate for PA was 88.9 cases per 100,000 compared to 109.1 in 2000. In 2008, the annual gonorrhea rate for the U.S. was 111.6 compared to 127.6 in 2000. (Table 2; Figure 11)

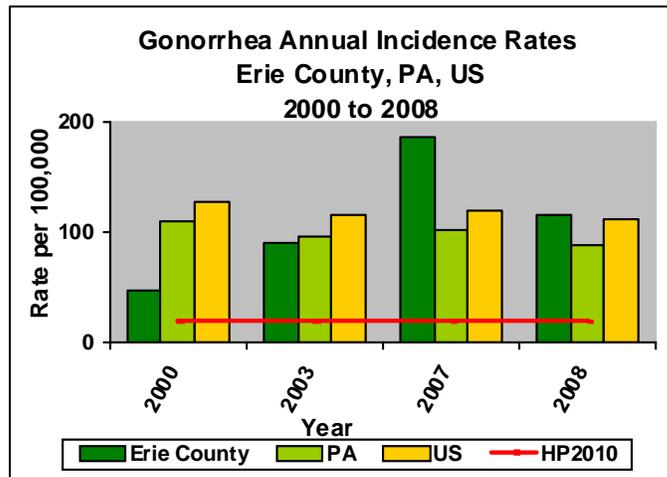
In 2000, the gonorrhea incidence rate for Erie County was lower than the rates for both PA and the U.S. In 2008, the gonorrhea rate per 100,000 for Erie County was 115.7 compared to 88.9 for PA and 111.6 for the U.S. (Table 2; Figure 11)

Three and five year rates can be found in Table 2.

**Figure 10**



**Figure 11**



### GONORRHEA BY GENDER

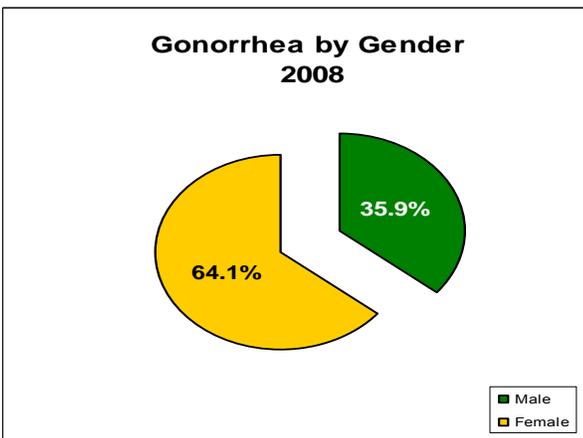
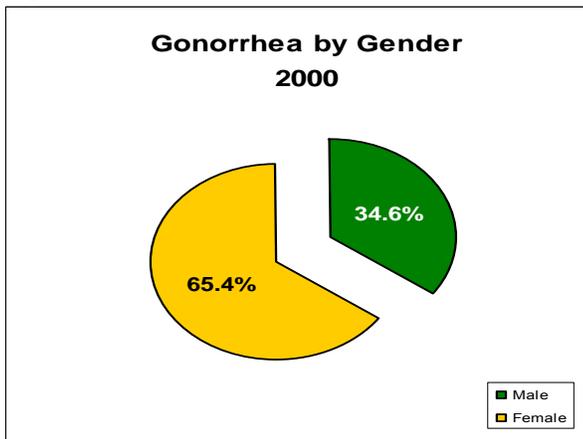
#### OVERVIEW

In 2008 116 (35.9%) gonorrhea cases were male and 207 (64.1%) were female. In 2000, 46 (34.6%) were male and 87 (65.4%) were female. Despite the slight shift in percent cases, the number of female gonorrhea cases still remains higher than that for males by a margin of 2:1. (Figure 12) For comparison, Erie County population estimates for 2008 are 49% male and 51% females.

In 2008, rates per 100,000 were 145.8 for females compared to 84.6 for males (2:1). In 2000, rates per 100,000 were 60.5 for females compared to 33.6 for males (2:1). Gonorrhea incidence rates were significantly higher in females than in males for both 2000 and 2008. However, from 2000 to 2008, the increase in gonorrhea rates among males was 151.7% compared to a 141% increase among females. Trends indicate that the burden of gonorrhea is increasing among males as well as females.

Three and five year rates can be found in Table 2.

Figure 12



**MALES**

In 2008, there were a total of 116 male gonorrhea cases reported in Erie County compared to 199 in 2007 and 46 in 2000. Annual gonorrhea incidence rates for Erie County males decreased significantly from 144.9 cases per 100,000 in 2007 to 84.6 in 2008 (↓41.6%). However, both rates were significantly higher than the 2000 rate of 33.6 cases per 100,000. (Table 2; Figure 13)

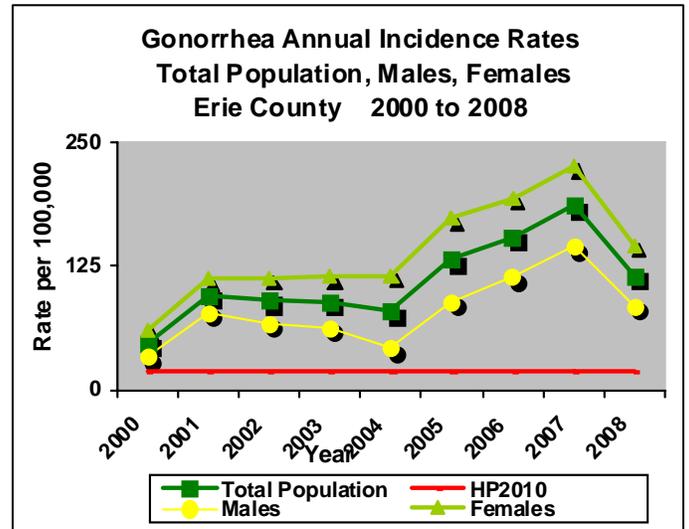
Three and five year rates can be found in Table 2.

**FEMALES**

In 2008, there were a total of 207 female gonorrhea cases reported in Erie County compared to 322 in 2007 and 87 in 2000. Annual gonorrhea incidence rates for Erie County females decreased significantly from 226.1 cases per 100,000 in 2007 to 145.8 in 2008 (↓35.5%). Both rates were significantly higher than the 2000 rate of 60.5 cases per 100,000. (Table 2; Figure 13)

Three and five year rates can be found in Table 2.

Figure 13



**GONORRHEA BY RACE AND ETHNICITY**

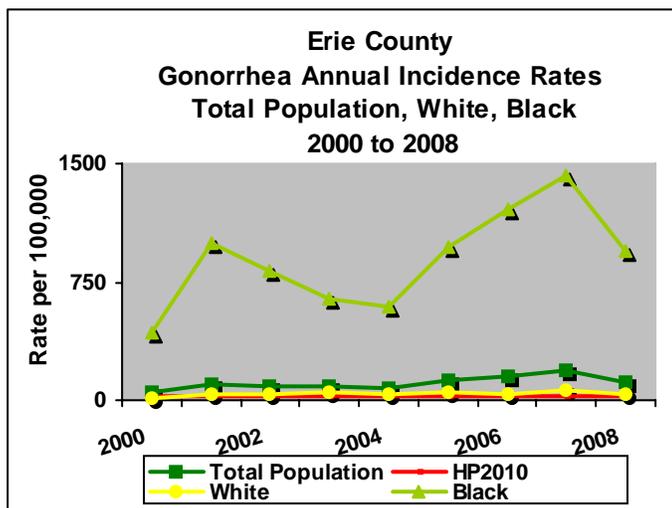
**OVERVIEW**

In 2008, 29.4% of all gonorrhea cases were white, 54.5% were African-American, and 4.3% were Hispanic. For comparison, Erie County population estimates for 2008 are 89.9% white, 6.4% African-American, and 2.9% Hispanic.

When incidence rates are compared, a significant gap is seen between the two races. In 2008, gonorrhea rates per 100,000 were 944.8 for African-Americans compared to 37.4 for whites (25:1). Gonorrhea incidence rates have remained significantly higher in the African-American population compared to the white population. In 2008, the gonorrhea rate per 100,000 for the Hispanic population was 191.0. (Table 2; Figures 14 and 15)

Three and five year rates can be found in Table 2.

Figure 14



2008 (↓33.8%). Both rates were significantly higher than the 2000 rate of 430.2. (Table 2; Figure 14)

Three and five year rates can be found in Table 2.

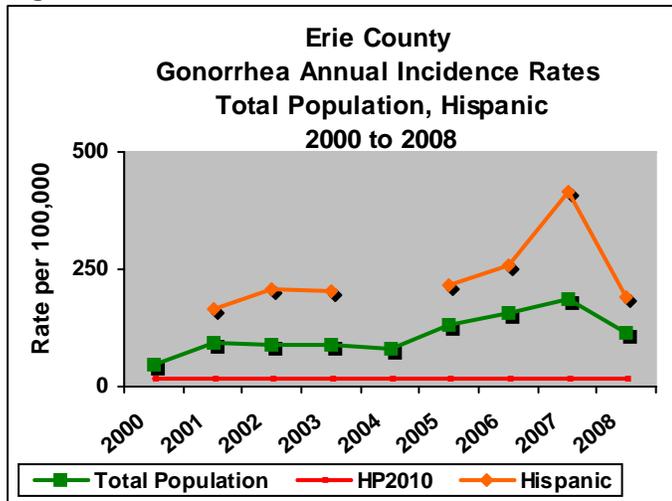
### HISPANIC POPULATION

In 2008, there were a total of 14 gonorrhea cases reported among the Hispanic population of Erie County compared to 29 in 2007 and 10 in 2001. Annual gonorrhea incidence rates for Erie County Hispanics decreased significantly from 413.4 cases per 100,000 in 2007 to 191.0 in 2008 (↓53.8%). The 2001 rate was 163.2. (Table 2; Figure 15)

Three and five year rates can be found in Table 2.

## GONORRHEA BY AGE GROUP

Figure 15



### OVERVIEW

In 2008, 323 gonorrhea cases included a reported age. Of these, 1.9% were under age 15, 26.9% were ages 15-19, 30.7% were ages 20-24, 22.6% were ages 25-29, 8.0% were ages 30-34, and 9.9% were ages 35 and above. (Figure 16) In 2008, the two age groups of 15-19 and 20-24 accounted for 57.6% of all age-reported gonorrhea cases in Erie County.

For comparison, Erie County population estimates for 2008 are: 18.4% ages <15; 8% ages 15-19; 8.1% ages 20-24; 6.1% ages 25-29; 5.3% ages 30-34; and 54.3% ages 35 and above.

### WHITE POPULATION

In 2008, there were a total of 95 gonorrhea cases reported among the white population of Erie County compared to 147 in 2007 and 42 in 2000. Annual gonorrhea incidence rates for Erie County whites significantly decreased from 57.7 cases per 100,000 in 2007 to 37.4 in 2008 (↓35.2%). Both rates were significantly higher than the 2000 rate of 16.5 cases per 100,000. (Table 2; Figure 14)

Three and five year rates can be found in Table 2.

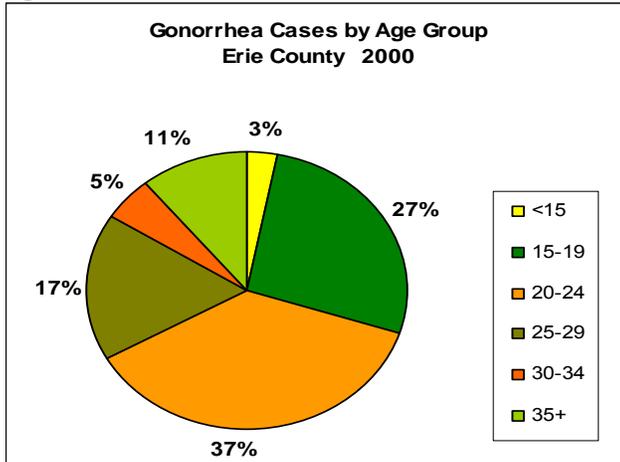
### AFRICAN-AMERICAN POPULATION

In 2008, there were a total of 176 gonorrhea cases reported among the African-American population of Erie County compared to 265 in 2007 and 74 in 2000. Annual gonorrhea incidence rates for Erie County African-Americans decreased significantly from 1,428.0 cases per 100,000 in 2007 to 944.8 in

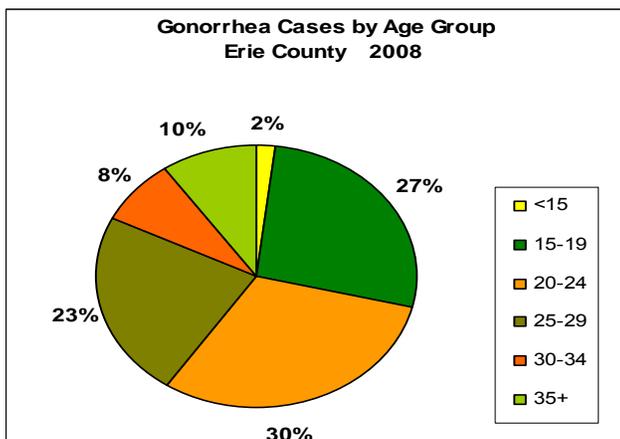
From 2000 to 2008, annual gonorrhea rates per 100,000 increased significantly for ages 15-19 from 156.2 to 396.8 (↑154%), increased significantly for ages 20-24 from 235.1 to 450.7 (↑91.7%), increased significantly for ages 25-29 from 128.8 to 418.2 (↑224.7%), increased for ages 30-34 to 166.8, and increased from 9.6 to 21.3 for ages 35 and above (↑121.9%). For age group under 15 years, the number of reported annual cases of gonorrhea was below 10 for each year from 2000 to 2008. Rates were not calculated. (Table 2; Figure 18)

Three and five year rates can be found in Table 2.

**Figure 16**



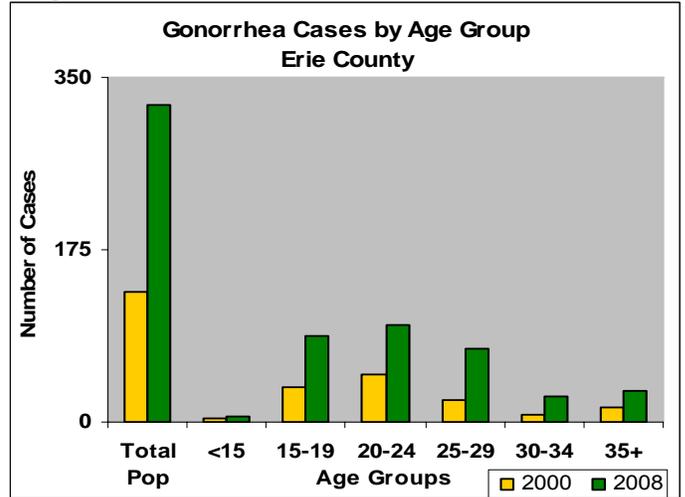
Note: Totals may not equal 100% due to rounding.



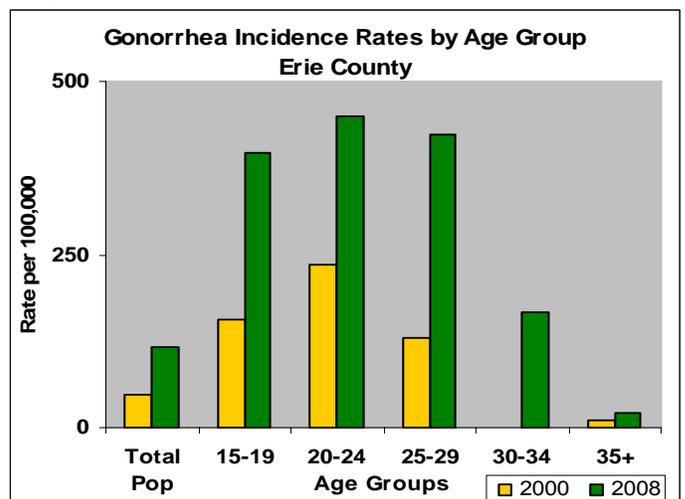
**AGES UNDER 15**

The number of reported annual gonorrhea cases for ages below 15 was less than 10 for each year from 2000 to 2008. Similarly, the number of reported three year gonorrhea cases were less than 20 per each time period while the number of reported five year gonorrhea cases was greater than 20 only during years 2003-2007 and 2004-2008. When the number of cases is below 20, data is statistically unreliable and comparisons can be misleading. Analysis of incidence rates for this age group is affected by the relatively small number of annual cases reported. (Table 2; Figure 17)

**Figure 17**



**Figure 18**



**AGES 15-19**

In 2008, there were a total of 87 gonorrhea cases reported for Erie County residents age 15-19 compared to 171 in 2007 and 35 in 2000. Annual gonorrhea incidence rates for Erie County residents age 15-19 decreased significantly from 802.7 cases per 100,000 in 2007 to 396.8 in 2008 (↓50.6%). (Table 2; Figures 17 and 18)

Three and five year rates can be found in Table 2.

**AGES 20-24**

In 2008, there were a total of 99 gonorrhea cases reported for Erie County residents age 20-24 compared to 159 in 2007 and 48 in 2000. Annual gonorrhea incidence rates for Erie County residents age 20-24 decreased significantly from 723.5 cases per 100,000 in 2007 to 450.7 in 2008 (↓37.7%). (Table 2; Figures 17 and 18)

Three and five year rates can be found in Table 2.

**AGES 25-29**

In 2008, there were a total of 73 gonorrhea cases reported for Erie County residents age 25-29 compared to 90 in 2007 and 22 in 2000. Annual gonorrhea incidence rates for Erie County residents age 25-29 decreased from 530.8 cases per 100,000 in 2007 to 418.2 in 2008 (↓21.2%). (Table 2; Figures 17 and 18)

Three and five year rates can be found in Table 2.

**AGES 30-34**

In 2008, there were a total of 26 gonorrhea cases reported for Erie County residents age 30-34 compared to 44 in 2007 and 7 in 2000. Annual gonorrhea incidence rates for Erie County residents age 30-34 decreased significantly from 281.0 cases per 100,000 in 2007 to 166.8 in 2008 (↓40.6%). (Table 2; Figures 17 and 18)

Three and five year rates can be found in Table 2.

**AGES 35 AND ABOVE**

In 2008, there were a total of 32 gonorrhea cases reported for Erie County residents age 35 and above compared to 51 in 2007 and 14 in 2000. Annual gonorrhea incidence rates for Erie County residents age 35 and above decreased significantly from 33.9 cases per 100,000 in 2007 to 21.3 in 2008 (↓37.1%). (Table 2; Figures 17 and 18)

Three and five year rates can be found in Table 2.

## Gonorrhea 2007 & 2008

Healthy People 2010 Goal: 19.0 cases per 100,000 population

Gonorrhea Annual		2007		2008		2007	2008	% Rate Change
		# Cases	% of Total	# Cases	% of Total	Rate	Rate	
Erie County	Total	521		323		186.2	<b>115.7</b>	-37.8
	Male	199	38.2	116	35.9	144.9	<b>84.6</b>	-41.6
	Female	322	61.8	207	64.1	226.1	<b>145.8</b>	-35.5
	White	147	28.2	95	29.4	57.7	<b>37.4</b>	-35.2
	Black	265	50.9	176	54.5	1,428.0	<b>944.8</b>	-33.8
	Hispanic	29	5.6	14	4.3	413.4	<b>191.0</b>	-53.8
	<15 yrs*	6	1.2	6	1.9	ND*	ND*	
	15-19 yrs	171	32.8	87	26.9	802.7	<b>396.8</b>	-50.6
	20-24 yrs	159	30.5	99	30.7	723.5	<b>450.7</b>	-37.7
	25-29 yrs	90	17.3	73	22.6	530.8	418.2	-21.2
	30-34 yrs	44	8.4	26	8.0	281.0	<b>166.8</b>	-40.6
	35+ yrs	51	9.8	32	9.9	33.9	<b>21.3</b>	-37.1
Pennsylvania	Total	12,706		11,071		102.2	<b>88.9</b>	-13.0
United States	Total	355,991		336,742		119.3	<b>111.6</b>	-6.5

Gonorrhea 3 Year		2005-2007		2006-2008		2005-2007	2006-2008	% Rate Change
		# Cases	% of Total	# Cases	% of Total	Rate	Rate	
Erie County	Total	1,326		1,279		157.7	152.4	-3.3
	Male	478	36.0	472	36.9	116.0	114.6	-1.2
	Female	848	64.0	807	63.1	197.7	188.7	-4.5
	White	401	30.2	354	27.7	49.1	46.3	-5.8
	Black	662	49.9	661	51.7	1,205.8	1,194.6	-0.9
	Hispanic	62	4.7	61	4.8	297.9	286.9	-3.7
	<15 yrs*	17	1.3	15	1.2	11.6	10.4	-9.9
	15-19 yrs	417	31.4	390	30.5	662.8	608.9	-8.1
	20-24 yrs	402	30.3	397	31.0	589.8	592.9	0.5
	25-29 yrs	236	17.8	248	19.4	462.3	478.1	3.4
	30-34 yrs	118	8.9	106	8.3	246.2	225.3	-8.5
	35+ yrs	136	10.3	123	9.6	30.3	27.3	-9.8
Pennsylvania	Total	35,394		35,243		94.9	94.4	-0.5
United States	Total	1,053,950		1,051,099		118.8	<b>117.3</b>	-1.3

Gonorrhea 5 Year		2003-2007		2004-2008		2003-2007	2004-2008	% Rate Change
		# Cases	% of Total <sup>^</sup>	# Cases	% of Total	Rate	Rate	
Erie County	Total	1,803		1,874		128.2	133.6	4.2
	Male	623	34.6	652	34.8	90.5	94.8	4.8
	Female	1,180	65.4	1,222	65.2	164.4	170.8	3.9
	White	617	34.2	594	31.7	48.0	46.4	-3.4
	Black	885	49.1	945	50.4	972.1	1,030.6	6.0
	Hispanic	84	4.7	85	4.5	246.9	243.5	-1.4
	<15 yrs*	22	1.2	26	1.4	8.5	10.2	20.1
	15-19 yrs	554	30.8	575	30.7	521.8	540.9	3.7
	20-24 yrs	585	32.5	582	31.1	507.7	510.9	0.6
	25-29 yrs	318	17.7	339	18.1	383.2	401.2	4.7
	30-34 yrs	151	8.4	164	8.8	181.6	202.6	11.6
	35+ yrs	169	9.4	185	9.9	22.7	24.7	9.1
Pennsylvania	Total	58,496		57,702		94.2	<b>92.8</b>	-1.5
United States	Total	1,719,186		1,720,824		117.4	<b>115.9</b>	-1.3

<sup>^</sup>Red indicates significant difference

\*Numbers less than 20 are statistically unreliable; ND=Not displayed if count <10

Crude rate equals number of cases per 100,000 population; 95% Confidence Interval; CL=Confidence Limit

<sup>^</sup>For percent of total for age groups, the denominator is the total number of cases with a reported age; Before 2003 some reported cases did not include age;

Total includes unknown gender, race, and age; Hispanic origin can be of any race; There may be multiple diseases in one person; Some individuals may become infected more than once

U.S. Census Bureau, Intercensal Population Estimates used for Erie County and U.S.; PA DOH Intercensal Population Estimates used for PA

Previous year pop. used for Erie County calculations; Current year pop. used for PA calculations; Current year pop. used for 2000-2006 U.S. calculations; Previous year pop. used for 2006 to present U.S. calculations

Source of Data: CDC STD Surveillance and Statistics; PA DOH EpiQMS; PA DOH STD Statistics; NEDSS; Erie County Dept of Health

## SYPHILIS

Syphilis, caused by the bacteria *Treponema pallidum*, is a sexually transmitted, infectious disease. It is passed through direct contact with a syphilis sore during vaginal, anal, or oral sex. Pregnant women who have the disease can pass it to their babies in utero. This is called congenital syphilis. Stillbirths have occurred. Antibiotics are used to treat syphilis.

There are several different stages of syphilis. Primary syphilis is characterized by a sore (or sores) (chancre) which appears at the spot where the bacteria entered the body. Chancres last 3 to 6 weeks and will disappear even without treatment.

If untreated, primary syphilis progresses to secondary syphilis which is characterized by the appearance of a rash. This rash can occur while the chancre is healing or several weeks after the chancre has healed. The rash may appear on the palms of the hands, the bottom of the feet, or on other parts of the body. Secondary syphilis is the most contagious stage of the disease.

Even without treatment, symptoms associated with secondary syphilis will disappear. However, the individual is still infected as evidenced by a positive blood test. This stage of the disease is called the latent stage. An individual is considered to have early latent syphilis if the initial infection (primary syphilis) occurred within the previous twelve months. If the initial infection occurred more than one year previously, the individual is said to have late latent syphilis. Individuals with latent syphilis can remain asymptomatic from three to thirty years or more. However, during this time, the bacteria continues to grow and produces inflammatory lesions within the body.

Tertiary syphilis is characterized by clinical symptoms of the bacterial damage. Common problems are neurosyphilis, cardiovascular syphilis, and lesions of the skin, bone and liver.

## SYPHILIS IN THE TOTAL POPULATION

From 2000 to 2002, there were no reported cases of syphilis in Erie County. One case of secondary syphilis was reported in 2003 as well as in 2004.

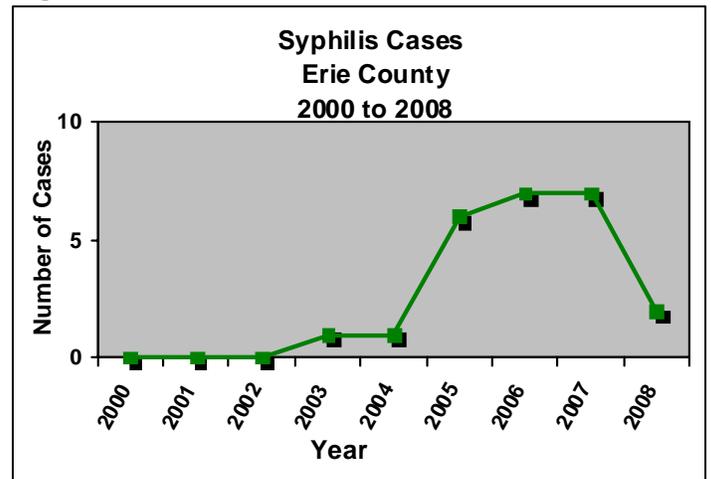
In 2005, six cases of syphilis were reported (two secondary, one early latent, two late latent, and one latent of unknown latent).

Seven cases of syphilis were reported in 2006 (two primary, one secondary, three late latent, and one unknown latent).

In 2007, there were seven cases of syphilis (two secondary and five early latent).

In 2008, two syphilis cases were reported (one secondary and one late latent). (Table 3; Figure 19)

Figure 19



## Syphilis 2000 to 2008

Healthy People 2010 Goal for Primary & Secondary Syphilis: 0.2 cases per 100,000 population

Syphilis		2000		2001		2002	
		# Cases	Rate	# Cases	Rate	# Cases	Rate
Erie County	Primary & Secondary	0	0	0	0	0	0
Pennsylvania	Primary & Secondary	78	0.6	98	0.8	108	0.9
United States	Primary & Secondary	5,979	2.1	6,103	2.1	6,862	2.4

Syphilis		2003		2004		2005	
		# Cases	Rate	# Cases	Rate	# Cases	Rate
Erie County	All Syphilis	1	0.4	1	0.4	6	2.1
	Primary	0	0	0	0	0	0
	Secondary	1	0.4	1	0.4	2	0.7
	Primary & Secondary	1	0.4	1	0.4	2	0.7
	Early Latent	0	0	0	0	1	0.4
	Late Latent	0	0	0	0	2	0.7
	Congenital (Age <1yr)	0	0	0	0	0	0
	Unknown/Other	0	0	0	0	1	0.4
Pennsylvania	All Syphilis	853	6.9	680	5.5	890	7.2
	Primary	58	0.5	26	0.2	57	0.5
	Secondary	101	0.8	92	0.7	142	1.1
	Primary & Secondary	159	1.3	118	1.0	199	1.6
	Early Latent	216	1.7	183	1.5	204	1.6
	Late Latent	305	2.5	244	2.0	253	2.0
	Congenital (Age <1yr)	0	0	1	N/A	3	N/A
	Unknown/Other	14	0.1	16	0.1	32	0.3
United States	All Syphilis	34,270	11.8	33,401	11.4	33,278	11.2
	Primary	n/a		n/a		n/a	
	Secondary	n/a		n/a		n/a	
	Primary & Secondary	7,177	2.5	7,980	2.7	8,724	2.9
	Early Latent	8,361	2.9	7,768	2.6	8,176	2.8
	Late & Late Latent	18,319	6.3	17,300	5.9	16,049	5.4
	Congenital (Age <1yr)	413	10.6	353	9.1	329	8.2

Syphilis		2006		2007		2008	
		# Cases	Rate	# Cases	Rate	# Cases	Rate
Erie County	All Syphilis	7	2.5	7	2.5	2	0.7
	Primary	2	0.7	0		0	0
	Secondary	1	0.4	2	0.7	1	0.4
	Primary & Secondary	3	1.1	2	0.7	1	0.4
	Early Latent	0	0	5	1.8	0	0
	Late Latent	3	1.1	0	0	1	0.4
	Congenital (Age <1yr)	0	0	0	0	0	0
	Unknown/Other	1	0.4	0	0	0	0
Pennsylvania	All Syphilis	1,137	9.1	1,096	8.8	1,162	9.3
	Primary	76	0.6	82	0.7	71	0.6
	Secondary	188	1.5	181	1.5	201	1.6
	Primary & Secondary	264	2.1	263	2.1	272	2.2
	Early Latent	286	2.3	309	2.5	309	2.5
	Late Latent	276	2.2	231	1.9	287	2.3
	Congenital (Age <1yr)	4	n/a	11	n/a	9	n/a
	Unknown/Other	43	0.3	19	0.2	13	0.1
United States	All Syphilis	36,935	12.5	40,920	13.7	46,277	15.3
	Primary	n/a		n/a		n/a	
	Secondary	n/a		n/a		n/a	
	Primary & Secondary	9,756	3.3	11,466	3.8	13,500	4.5
	Early Latent	9,186	3.1	10,768	3.6	12,401	4.1
	Late & Late Latent	17,644	6.0	18,256	6.1	19,945	6.6
	Congenital (Age <1yr)	349	9.1	430	10.5	431	n/a

Red indicates significant difference

\*Numbers less than 20 are statistically unreliable; ND=Not displayed if count <10

Crude rate equals number of cases per 100,000 population; 95% Confidence Interval; CL=Confidence Limit

Before 2003 some reported cases did not include age

Total includes unknown gender, race, and age; Hispanic origin can be of any race; There may be multiple diseases in one person; Some individuals may become infected more than once

U.S. Census Bureau, Intercensal Population Estimates used for Erie County and U.S.; PA DOH Intercensal Population Estimates used for PA

Previous year pop. used for Erie County calculations; Current year pop. used for PA calculations; From 2000-2006, current year pop. used for U.S. calculations; From 2006 to present, previous year pop used for U.S. calculations

Source of Data: CDC STD Surveillance and Statistics; PA DOH EpiQMS; PA DOH STD Statistics; NEDSS; Erie County Dept of Health

## DATA SOURCES

- Erie County Department of Health, Data and Statistics <http://www.ecdh.org>
- PA Department of Health, Bureau of Communicable Diseases, Sexually Transmitted Diseases <http://www.health.state.pa.us>
- PA Department of Health, Bureau of Health Statistics and Research, EpiQMS <http://www.dsf.health.state.pa.us>
- PA Department of Health, Bureau of Health Statistics and Research, Technical Assistance, "Tools of the Trade" <http://www.dsf.health.state.pa.us>
- National Electronic Disease Surveillance System (NEDSS)
- Centers for Disease Control and Prevention, Sexually Transmitted Diseases <http://www.cdc.gov/std/default.htm>
- United State Census Bureau, Population Division, Population Estimates <http://www.census.gov>
- United State Census Bureau, American Community Survey (ACS), 2008 <http://www.census.gov>
- MedlinePlus – Medical Encyclopedia
- The above organizations provided data included in this report. These organizations specifically disclaim responsibility for any analyses, interpretations, or conclusions.
- Links to non-ECDH sites are provided as a service to our users. ECDH is not responsible for the web page content found at these links.
- African-American; 2.9% Hispanic; 18.4% <15 yrs; 8% 15-19 yrs; 8.1% 20-24 yrs; 6.1% 25-29 yrs; 5.3% 30-34 yrs; 54.3% 35+ yrs.
- Annual population numbers used to calculate crude rates for PA are from EpiQMS.
- Rates for Erie County as reported by the PA DOH may differ from the Erie County rates in this report due to the use of different population estimates for Erie County.
- Previous year population estimates are used to calculate Erie County rates; Current year population estimates are used to calculate PA rates; From 2000-2005, current year population estimates are used to calculate U.S. rates; Previous year population estimates are used to calculate 2006-2008 U.S. rates.
- Reported rates may differ depending on the population estimate used for calculation.
- Rates based on <20 events are reported but statistically unreliable.
- Three and five year crude incidence rates are the sum of the number of cases for the targeted years divided by the sum of the population estimates for the targeted years multiplied by 100,000.
- Age reporting for some cases was not complete before 2003.
- Hispanic origin may be of any race.
- 95% confidence limits for crude rates are:  
CL= Rate (r) ± Confidence Interval (CI)  
where CI = 1.96 x r/√ (n) and n = the number of cases.
- 95% significance tests used to compare independent annual rates within the same population group or between non-overlapping three and five year average annual rates within the same population groups are:
  - 10-99 events Rate Difference Equation
  - ≥100 events Rate Ratio Equation

## TECHNICAL NOTES

- Crude incidence rates are the number of cases per 100,000 population for a specific area or group.
- Annual population numbers used to calculate crude rates for Erie County and the U.S. are from the U.S. Census Bureau, Population Division, Population Estimates.
- Erie County population profile for 2008: 49% male; 51% female; 89.9% white; 6.4% black or
- 95% significance test used to compare overlapping, dependent three and five year rates within the same population groups are:
  - 10-99 events Expected and Observed
  - ≥100 events Rate Difference Equation