Communicable Disease in Kent County

Part III:

Sexually Transmitted Diseases Hepatitis and Tuberculosis

KENT COUNTY HEALTH DEPARTMENT

REPORT TO THE COMMUNITY 2001

Preface

This report on sexually transmitted disease is the third in a three-part series of reports on communicable disease in Kent County. The purpose of these reports is to provide an overview and understanding of communicable disease generally, and also to chronicle current surveillance of communicable diseases and their impact on the Kent County community. More importantly, these communicable disease reports should serve as springboard to stimulate discussion among professionals, community members, and others who may work to reduce and prevent communicable diseases in the community.

Communicable diseases are illnesses that are contagious — infections that are transmitted directly from a person or animal to another, or passed indirectly through contaminated food or water. They can be caused by a variety of agents — bacteria, viruses, and other organisms — and can be transmitted a variety of ways: physical contact with the body or blood of an infected person or animal; through air, food, or water; and through sexual activity. Communicable diseases also cause a wide range of illnesses — from nuisance colds and respiratory infections from which people typically recover quickly, to severe sicknesses resulting in multiple organ failure and almost certain death. Monitoring, controlling, and, where possible, preventing communicable diseases are definitive activities of public health departments, and towards those ends these reports have been produced.

Because any discussion of 'communicable disease' encompasses a wide range of illnesses, modes of transmission, and methods of prevention, this report has been developed in three parts. Part I examines gastrointestinal and diarrheal diseases generally associated with food or waterborne disease organisms, while Part II explores vaccine-preventable diseases – communicable diseases for which there are existing vaccines – and their incidence and prevalence in the community. This final section, Part III, examines sexually transmitted diseases including AIDS and HIV, as well as hepatitis and tuberculosis in the community. Some final thoughts on communicable disease, as well as a bibliography of selected references and web resources, appear at the end of this report.

Introduction

Sexually transmitted diseases (STD's) – also known as sexually transmitted infections (STI's) — are some of the most commonly reported notifiable diseases in the U.S. The U.S. Centers for Disease Control and Prevention (CDC) reports that more than 25 STD's affect approximately 15 million men and women in the U.S. each year.

Chlamydia, gonorrhea, AIDS, syphilis, and hepatitis B were all among the top ten most commonly reported diseases in 1998 (table, right). These numbers, however, represent only those persons who sought medical care, received appropriate diagnostic testing, and whose test results were properly reported to the public health system. In other words, these counts very likely represent only a portion of the people affected by these illnesses.

Because of the social stigma associated with STD's, as well as with some sexual behaviors associated with their transmission, STD prevention is often not addressed as candidly as necessary to give those most at risk (i.e., teens) a realistic understanding of STD's, their consequences, and how to protect themselves and others. While abstinence continues to be the only 100% effective method of preventing sexually transmitted diseases, Kent County data – included in this report – shows that teens and young adults have the highest rates of STD's. Reversing this trend will require the participation and collaboration of many in the community -- including parents, schools, churches, youth organizations, and other service agencies -- to provide effective and appropriate prevention education.

Ten Most Frequently Reported Notifiable Diseases, United States, 1998

1.	Chlamydia	604,420
2.	Gonorrhea	355,642
3.	AIDS	46,521
4.	Salmonellosis	43,694
5.	Syphilis (total)	37,977
6.	Shigellosis	23,626
7.	Hepatitis A	23,229
8.	Tuberculosis	18,631
9.	Lyme Disease	16,801
10.	Hepatitis A	10,258

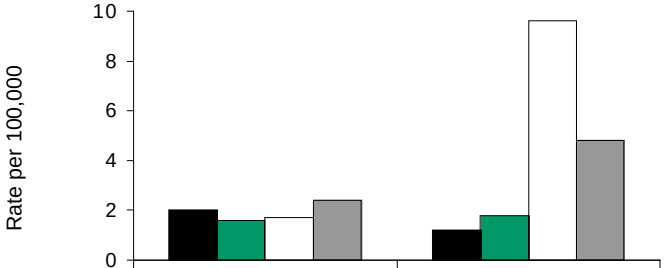
STD's affect men and women of all backgrounds and economic levels, and are most prevalent among young adults—nearly two-thirds of all STD's occur in people younger than 25 years of age. The CDC reports that the direct and indirect costs of the most common STD's (not including HIV infection) and their complications are estimated to be at least $10 billion annually.

Epidemiology of Sexually Transmitted Diseases

Like many adverse health conditions, sexually transmitted diseases disproportionately affect minority populations. Although some STD's — chlamydia, human papilloma virus (HPV), and herpes — are widespread across all racial groups, higher rates of STD's tend to be reported among African Americans than white Americans. While African Americans tend to be more likely to seek care in public clinics that report STD's more completely and consistently than many private providers, there are a number of other factors that may contribute to higher rates of STD's among African Americans and other minority populations.

Underlying social and economic factors (such as language or cultural barriers, higher rates of poverty, limited access to health care, substance abuse) may increase the risk for infection in some communities. Studies have shown that higher rates of gonorrhea are reported in neighborhoods with deteriorated physical conditions. More research is needed to explore the link between social factors and disease, and to refine and target prevention efforts accordingly.

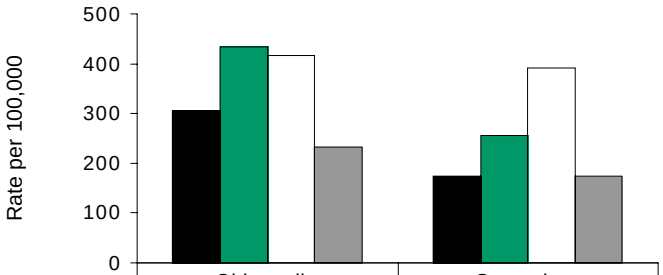
Primary and Secondary Syphilis and Hepatitis B Rates, Kent, Muskegon, and Genesee Counties, and Michigan, 1995-1999



	P & S Syphilis	Hepatitis B
Kent	2	1
Muskegon	2	2
Genesee	2	10
Michigan	2	5

One method of assessing the impact of disease in our area is to compare Kent County disease rates to those found in counties that are nearby geographically, or are of similar size and socioeconomic population distribution. (Kent County disease rates are also compared to disease rates for the State of Michigan as a whole.) For the purposes of this report, Muskegon County was chosen for geographic comparison, and Genesee County as a community with similar population distribution. Kent, Muskegon, and Genesee Counties all have a proactive public health agency presence. Disease rates that are higher in these counties than the state as a whole may be a result of larger populations at risk, greater availability of screening programs, and more efficient reporting practices.

Gonorrhea and Chlamydia Rates, Kent, Muskegon, and Genesee Counties, and Michigan, 1995-1999



	Chlamydia	Gonorrhea
Kent	306	174
Muskegon	435	256
Genesee	416	391
Michigan	233	174

Interestingly, all three communities report higher rates of chlamydia and gonorrhea than the state overall, while the syphilis case rates are essentially the same for each of the counties and the state (all of these counties are included in the National Syphilis Elimination Program, which may account for the consistently low rates of syphilis). An increase in hepatitis B in Genesee County is thought to be related to reporting criteria being used there, rather than an actual increase in the incidence of hepatitis B infection. (Reporting criteria for hepatitis B need to be consistently defined to identify target areas and at-risk populations most effectively.)

Sexually transmitted diseases, and all communicable diseases, must be continually monitored to:

- provide early identification and prevention of disease out breaks;
- describe the types of people at risk of disease;
- identify the causative agent of disease;
- develop properly targeted prevention messages; and
- evaluate the success and cost-effectiveness of intervention and prevention programs.

Sexually Transmitted Disease Surveillance and Prevention

Sexually transmitted diseases can be difficult to identify and treat effectively. Because of this, access to screening services, health care, and prevention education, for both men and women, is critical. In Kent County, STD prevention programs are developed to serve the community as a whole while also focusing on critical target populations -- those populations where most sexually transmitted disease transmission has been identified. Ongoing surveillance allows public health agencies to gauge the effectiveness of STD prevention efforts and modify programs as necessary to reach target populations.

Comprehensive STD prevention efforts must combine clinical screening and prevention services with community-wide and individual education. The Kent County Health Department provides a variety of prevention services to help individuals assess and lower their risks for STD's. The Health Department's Sexually Transmitted Disease Clinic provides anonymous and confidential testing for HIV and other sexually transmitted diseases, as well as pre- and post-test counseling, risk assessment, and risk reduction education, for clients age 13 and over who come into the clinic. Clinic staff also assist with partner notification to reduce disease transmission in the community, and provide linkages for infected individuals to appropriate case management and treatment services.

Education – both in the community at-large and targeting specific at-risk groups – is also critical to STD prevention. The HIV/AIDS Education, Monitoring and Prevention for Women at Risk (EMPoWeR) program is a prevention and early intervention program which provides information, education, and risk reduction for at-risk women of color. The Health Department's Health Education Section also provides community education programs on HIV/AIDS and STD's to community groups, schools, and at-risk audiences (e.g., teens in substance abuse treatment programs). The Healthy Kent 2010 Sexually Transmitted Infection Implementation Team promotes STD prevention in the community focusing on teens and minority populations.

STD surveillance in the community, but especially among at-risk populations, is also an essential component of STD prevention. The Perinatal Hepatitis B Prevention Program, for example, is a state program developed to reduce the transmission of HBV from infected mothers to newborns during delivery, and to protect household and sexual contacts of those women. Programs such as this in the community are critical to meeting the needs of those most in need of health care, education, and medical services.

The overview of sexually transmitted diseases on the following pages provides a compelling picture of STD's and their effects in Kent County and in Michigan. When reviewing these data, it should be noted that reported rates are calculated using 1990 census data. While these data are used to allow accurate comparisons to state rates, they are also known to have undercounted Hispanic and Asian/Pacific Islander populations. Consequently, reported rates of STD's among Hispanics are likely somewhat inflated.

While Hispanics and other minority populations continue to bear a disproportionate share of STD's, prevention and treatment is crucial for all populations and must be a priority for the Kent County community. The Health Department, community agencies, and citizens must continue to collaborate to ensure that STD prevention, education, and treatment services are universally available, culturally relevant, and readily accessible.

Overview of Sexually Transmitted Diseases

AIDS/HIV (Acquired Immunodeficiency Syndrome, Human Immunodeficiency Virus)

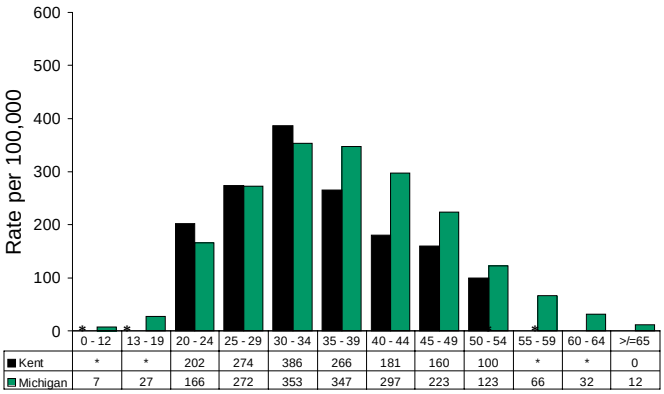
Epidemiology:

Reports of AIDS have been collected as early as 1981, however, uniform standards for AIDS reporting were not in place until 1983. An HIV diagnosis was not officially reportable until 1989. Between 1983 and 1999, 538 Kent County residents have been diagnosed with AIDS, and it is estimated that 630 Kent County residents, including those not yet diagnosed, are infected with HIV (500 male and 130 female). This translates into a rate of 126 HIV-infected persons per 100,000 population, slightly lower than the Michigan rate of 140 persons per 100,000 population.

In general, the HIV prevalence in each age category is higher statewide than in Kent County, with the exceptions of the 20-24 year old and 30-34 year old age groups. Consistent with statewide data, the highest HIV prevalence is in the 30-34 year old age group. Estimates of the number of persons living with HIV in Kent county indicate that individuals as young as 13 years of age have acquired HIV. During the past five years, the incidence of HIV (the number of new HIV infections) has averaged about 40 cases per year. Although the three-year averages shown on the next page appear to reflect a downward trend, data from both 1997 and 1998 individually, indicate an increase in the number of reported HIV infections in Kent County. Statewide data, which provide a better reflection of the true trend in the epidemic, shows that there has been no change in the number of HIV infections reported in the past five years (approximately 1,100 cases per year).

The impact of the HIV/AIDS epidemic on minorities has been disproportionate when compared to whites. In Kent County, Hispanics have the highest AIDS case rate (545 per 100,000 population), and the

HIV Prevalence Rate by Age Group, Kent Couny and Michigan (as of 10/1/2000)



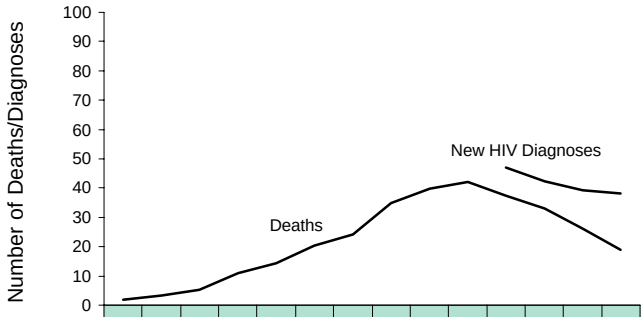
	0 - 12	13 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	>/=65
Kent	*	*	202	274	386	266	181	160	100	*	*	0
Michigan	7	27	166	272	353	347	297	223	123	66	32	12

Organism:	Virus.
Transmission:	By contact with blood (i.e., through contaminated needles, tattoo or body piercing instruments) or bodily fluids (i.e., through sexual contact or breast milk) of an infected person; from infected mother to child at birth; rarely in the U.S. through transfusions of infected blood or blood clotting factors.
Symptoms:	Potentially none when first infected. If present, symptoms are usually vague and may include cough, tiredness, night sweats, swollen lymph nodes, rash, or prolonged diarrhea.
Possible Complications:	Acquired Immunodeficiency Syndrome (AIDS)—characterized by "opportunistic infections" (frequently thrush and other fungal infections, *Pneumocystis carinii pneumonia* [PCP] and Kaposi's sarcoma) typically diagnosed in persons with weakened immune systems. Any infection can pose life-threatening complications when immune suppression has progressed.
Treatment:	Various medications can be used to treat symptoms and reduce viral replication; treatment of "opportunistic infections"; treatment of newborns of infected women.
Prevention:	Sexual abstinence; safer sexual practices, stressing condom use; intravenous needle decontamination or exchange; anonymous and confidential HIV testing and counseling; blood and clotting factor screening; universal precautions (i.e., using personal protective equipment when handling blood, contaminated needles, or instruments).

Overview of Sexually Transmitted Diseases

third highest estimated number (80) of HIV/AIDS cases. Black males have the second highest rate (397 per 100,000) and the second highest estimated number (160) of HIV/AIDS cases. These are followed by whites who, although they account for the majority of the estimated number of HIV/AIDS cases (380), have only the third highest case rate (80 per 100,000 population). In all, the Hispanic AIDS case rate is six times the rate for whites in Kent County, while the African American case rate is four times greater.

HIV Deaths and New Diagnoses, Kent County, 1984-1999 (three-year averages)



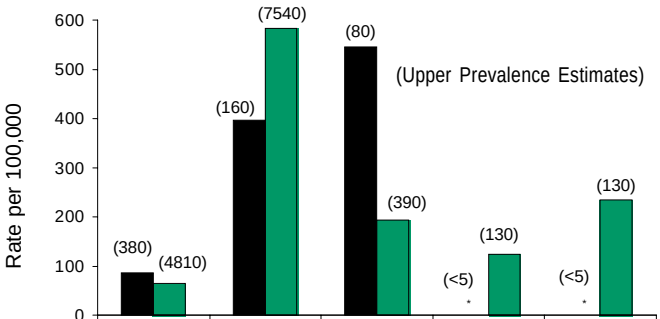
	84-86	85-87	86-88	87-89	88-90	89-91	90-92	91-93	92-94	93-95	94-96	95-97	96-98	97-99
Deaths	2	3.3	5.3	11	14.3	20.3	24.3	35	39.7	42	37.3	33	26	19
New HIV Diagnoses											47	42.3	39.3	38.3

Part of HIV/AIDS surveillance involves obtaining a thorough medical and sexual history from individuals screened for or diagnosed with HIV or AIDS. By understanding the high-risk behaviors that are associated with HIV transmission, more effective educational and prevention messages can be developed. In Kent County, approximately 58% of the people living with HIV/AIDS, with a known mode of transmission, are men who have sex with men (MSM), including 5% who also injected drugs (IDU). This is somewhat higher than the statewide percentage of 51% MSM. Of other cases with a known mode of transmission, 18% report high-risk heterosexual sex behaviors (HRH) -- sexual contact with partners who are 1) injecting drug users, 2) bisexual men and/or, 3) HIV-infected -- and 11% report injecting drug use (IDU). Although the incidence of HIV is currently stable in Kent County, HRH is the only mode of transmission that is increasing statewide among infected persons. Transmission of HIV through blood products or during gestation or birthing have rarely been reported in Kent County; advances in blood product screening and use of antiviral medications in pregnant women and children have contributed to substantial declines in these areas.

A final method of measuring the impact of an epidemic is to assess the total number of deaths attributable to a disease. Between 1983 and 1999 a total of 328 Kent County residents died from AIDS, with the highest number of annual deaths, 42, reported between 1993 and 1995. However, more effective medical treatments and increased understanding of HIV/AIDS disease processes have contributed to a 75% decline in the number of deaths from 1993 to 1999.

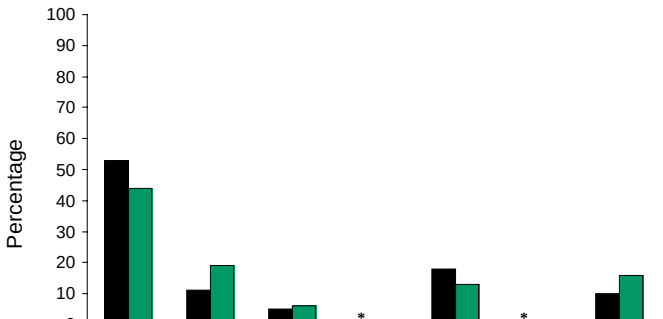
Although recent medical advances in the treatment of HIV and AIDS have been substantial, prevention remains a priority. HIV testing must be accessible in a variety of settings and circumstances, and as an essential component of any HIV/AIDS risk reduction program. Prevention education that is age-appropriate, culturally sensitive, and tailored to the specific needs and risks of diverse communities is essential to reducing the transmission of HIV, and reducing the impact of AIDS on our communities, families, and health care systems.

Case Rates/Upper Prevalence Estimates of People Living with HIV/AIDS by Race/Ethnicity, Kent County and Michigan (as of 10/1/2000)



	White	African American	Hispanic	Asian	Native American
Kent	86	397	545	*	*
Michigan	64	584	193	124	234

Persons Living with HIV/AIDS by Type of Behavior Leading to Infection, Kent County and Michigan (as of 10/1/2000)



	MSM	IDU	MSM/IDU	Blood Products	Hetero sexual	Perinatal	Other/ Unknown
Kent	53	11	5	*	18	*	10
Michigan	44	19	6	1	13	1	16

Overview of Sexually Transmitted Diseases

Chlamydia

Epidemiology:
Chlamydia is the most frequently reported infectious disease in the United States. While 526,653 cases were reported in 1997, up to 3 million cases are estimated to occur annually. This vast underreporting is largely a result of substantial numbers of asymptomatic persons whose infections are not identified.

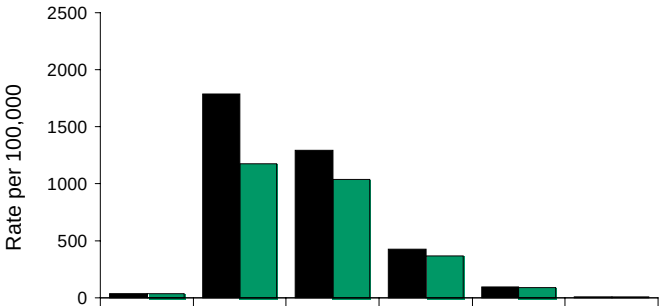
The 5-year average case rate for chlamydia is 233 per 100,000 population in Michigan, and 306 per 100,000 in Kent County. Reports of chlamydia are higher among women than men (466 cases per 100,000 women vs. 135 cases per 100,000 men). Women may be more likely to receive chlamydia testing during routine gynecological exams, however, this disparity suggests that the partners of women infected with chlamydia are not being tested or treated.

Some of the highest rates of chlamydia in Kent County are reported among persons 15-19 years of age (1,788 per 100,000) and 20-24 years of age (1,295 per 100,000). Increases in these age categories follow national trends, and are consistent with high rates of other STD's among teenagers (reinforcing the need for targeted prevention and education).

The highest case rates of chlamydia occur in the African American and Hispanic racial/ethnic groups. While approximately 50% of the reported chlamydia cases in Kent County and Michigan have no race or ethnicity specified, if all of the unknown cases were assumed to be white, the case rate in African Americans is still approximately three times that of whites. Reporting of race/ethnicity will need to be improved before the true impact of chlamydia on minority groups can be accurately assessed.

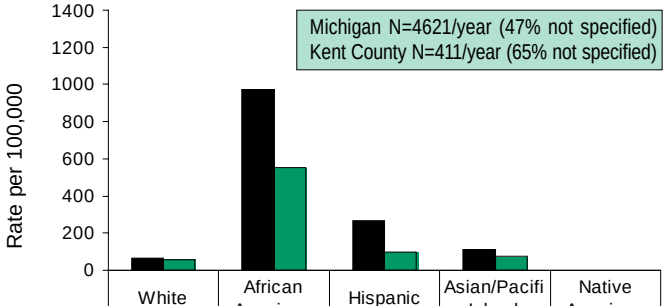
Organism:	Bacteria.
Transmission:	Sexual intercourse; from infected mother to child at birth.
Symptoms:	Women: vaginal discharge or bleeding, however, 75% are without symptoms; Men: painful urination, however, 50% are without symptoms.
Possible Complications:	Women: infertility, ectopic pregnancy (outside the uterus), chronic pelvic pain. Men: infertility, arthritis, red swollen eyes with drainage (Reiter's syndrome); Newborns: red swollen eyes with drainage and pneumonia.
Treatment:	Antibiotic therapy for infected individual, sexual partners, and newborns of infected women.
Prevention:	Sexual abstinence; safer sexual practices, stressing condom use; screening programs.
Risks:	Recent research has shown that women infected with chlamydia have a 3- to 5-fold increased risk of acquiring HIV if exposed.

Chlamydia Case Rate by Age, Kent County and Michigan, 1995-1999



	<15	15-19	20-24	25-29	30-44	45+
Kent	38	1788	1295	424	94	7
Michigan	37	1173	1038	369	85	10

Chlamydia Case Rate by Race/Ethnicity, Kent County and Michigan, 1995-1999



	White	African American	Hispanic	Asian/Pacific Islander	Native American
Kent	64	972	266	112	0
Michigan	56	554	100	76	0

Overview of Sexually Transmitted Diseases

Gonorrhea (Gonoccocal urethritis; Clap; Strain; GC)

Epidemiology:

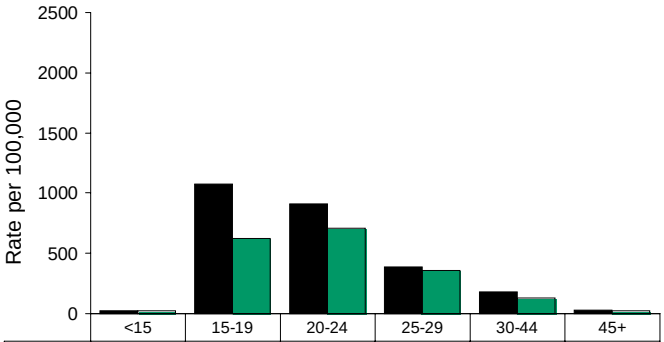
Gonorrhea is the second most common infectious disease reported in the United States. In the U.S., from 1997 to 1998, the overall gonorrhea rate increased by more than 8%. This was the first rise in the gonorrhea rate in 13 years. (Prior to this upswing, gonorrhea rates in the U.S. had declined by 64% between 1985 to 1997.) It is estimated that 650,000 people in the U.S. are infected with gonorrhea each year. In 1998, the national rate of reported gonorrhea infections was 133 per 100,000 population. The 5-year average case rate of gonorrhea in Michigan is 174 per 100,000 population, and 253 per 100,000 in Kent County.

In contrast to chlamydia, men and women are affected by gonorrhea at approximately the same rates (248 cases per 100,000 men, and 258 cases per 100,000 women). This difference in rates between chlamydia and gonorrhea may be due in part to chlamydia screening programs that primarily target women. In addition, clinical symptoms of gonorrhea tend to be more common in men, prompting more men to seek testing and treatment for gonorrhea than chlamydia.

As with chlamydia, high rates of infection are found in individuals ages 15-19 and 20-24, as well as in minority populations. While racial/ethnic designation are missing in approximately 50% of reported cases of gonorrhea, if all of the unknown cases were assumed to be white, the case rate in African Americans would be approximately 12 times higher than the case rate for whites, while the Hispanic case rate would be double that of whites. In 1998, the CDC reported that in the U.S. approximately one of every 30 African American youths age 15 to 24 had gonorrhea.

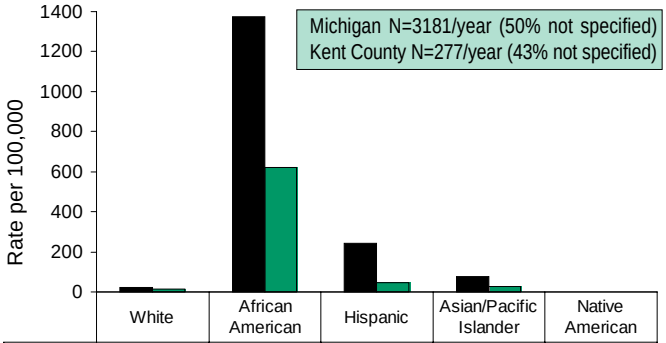
Organism:	Bacteria.
Transmission:	By contact with the discharges of an infected person, almost always as a result of sexual activity; from infected mother to child at birth.
Symptoms:	Women: Most often *without* symptoms, rarely may exhibit vaginal drainage or bleeding; Men: Most often *with* symptoms including painful urination and urethral discharge.
Possible Complications:	Women: infertility, ectopic (outside the uterus) pregnancy, chronic pelvic pain, spontaneous abortion; Men: infertility; Newborns: blood infection and visual impairment.
Treatment:	Antibiotic therapy for infected individual, sexual partners, and newborns of infected women.
Prevention:	Sexual abstinence; safer sexual practices, stressing condom use; screening programs.
Risks:	Research has shown that people infected with gonorrhea have an increased risk of acquiring HIV, if exposed.

Gonorrhea Case Rate by Age, Kent County and Michigan, 1995-1999



	<15	15-19	20-24	25-29	30-44	45+
Kent	22	1072	909	386	178	27
Michigan	18	621	709	355	130	18

Gonorrhea Case Rate by Race/Ethnicity, Kent County and Michigan, 1995-1999



	White	African American	Hispanic	Asian/Pacific Islander	Native American
Kent	22	1374	245	75	0
Michigan	13	620	46	27	0

Overview of Sexually Transmitted Diseases

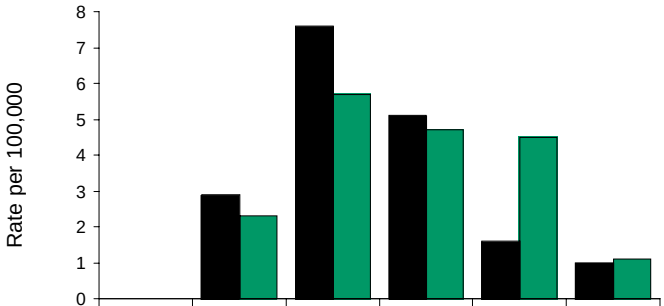
Syphilis (The great imitator; Lues)

Epidemiology:

Like chlamydia and gonorrhea, syphilis is one of the most commonly reported diseases in the United States. Nearly 38,000 cases of syphilis were reported in the U.S. in 1998, including 7,000 cases of primary and secondary syphilis, and 800 cases of congenital syphilis in newborns. The CDC has estimated that up to 70,000 cases occur annually.

In Michigan, the 5-year average case rate of all stages of syphilis (Primary, Secondary, Late, Latent, and Congenital) combined is 9 per 100,000 population, while in Kent County, the case rate is 7 per 100,000. Monitoring the number of newly-diagnosed cases of syphilis (Primary and Secondary stages [P&S] only) provides a picture of the rate of transmission of syphilis in the community; the 5-year average case rate for P&S syphilis in both Michigan and Kent County is 2 per 100,000 population. Since 1993, the incidence of syphilis (number of new infections) has decreased for both men and women in both Kent County and Michigan. The syphilis case rate for males in Michigan (2 per 100,000) is essentially the same as the case rate for females, and is consistent with the national average.

Primary and Secondary Syphilis Case Rate by Age, Kent County and Michigan, 1995-1999



	<15	15-19	20-24	25-29	30-44	45+
Kent	0	3	8	5	2	1
Michigan	0	2	6	5	5	1

New cases of syphilis are most commonly reported in the 20-24 and 25-29 year old age groups in both Kent County and Michigan, however, in Kent County, syphilis incidence has reached an all-time low. As of May 31, 2001, there had been only one new case of syphilis(in September 1999) reported in Kent County in the last 32 months.

In contrast to case reports for chlamydia and gonorrhea, only 5% of syphilis case reports do not have race/ethnicity designations, making assessment of the impact of syphilis by race/ethnicity more reliable.

Organism: Bacteria.

Transmission: By contact with the discharges of an infected person, almost always as a result of sexual activity; from infected mother to child at birth (congenital transmission).

Symptoms: Characterized by four stages based on the time from initial infection to the occurrence of specific clinical signs:

(1) Primary: A swollen, nonpainful ulcer (chancre) located at the site of infection that becomes evident from 10-90 days after exposure (usually 21 days), often accompanied by a swollen, painless lymph node.
(2) Secondary: Begins with mild flu-like symptoms and includes one or more areas of the skin that develop a rash (especially on the palms of the hands and soles of the feet) that usually does not itch.
(3) Latent (hidden): Begins after the signs and symptoms of the secondary stage disappear.
(4) Late: Internal damage including sensory impairments, skin problems, abnormal blood flow and digestion, among others; may cause death.

Possible Complications: Adults: If untreated, late manifestations can shorten life, impair health, and limit occupational productivity; spontaneous abortion/stillbirth occurs in 40% of infected pregnant women; if not treated before the 34th week of pregnancy, there is a 40%-70% chance infant will be born infected (congenital syphilis).
Newborns: May exhibit late-stage manifestations of syphilis including abnormal bone structure, visual and hearing impairments.

Treatment: Antibiotic therapy for infected individuals, sexual partners, newborns of infected women.

Prevention: Sexual abstinence; safer sexual practices, stressing condom use; screening programs.

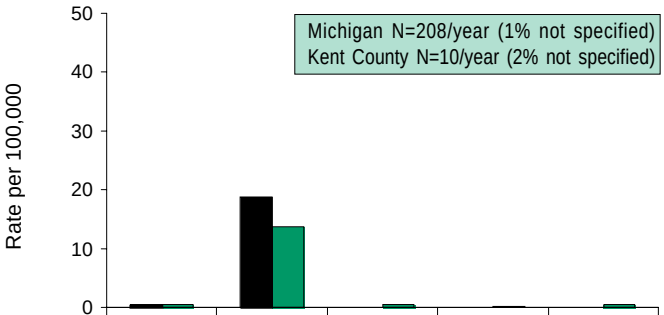
Risks: Recent research has shown that persons infected with syphilis have a 2- to 5-fold increased risk of acquiring HIV if exposed.

Overview of Sexually Transmitted Diseases

Over the past five years, syphilis cases in Kent County had the following race or ethnicity distribution: African Americans 64%, whites 23%, Hispanics 7%, and others 1%. As with the other STD's, African Americans are significantly impacted by syphilis, with case rates seven to eight times higher than whites or other minority groups. Some fundamental societal barriers, such as poverty, inadequate access to health care, and lack of (health) education, are associated with disproportionately high levels of syphilis in certain populations. The CDC reports that syphilis is one of the most glaring examples of racial disparity in health status, with the rate for African Americans nearly 34 times the rate for whites in the U.S. By contrast, the extremely low rate of syphilis incidence in Kent County demostrates that local syphilis prevention efforts have not only been effective, but are reaching all segments of the Kent County population.

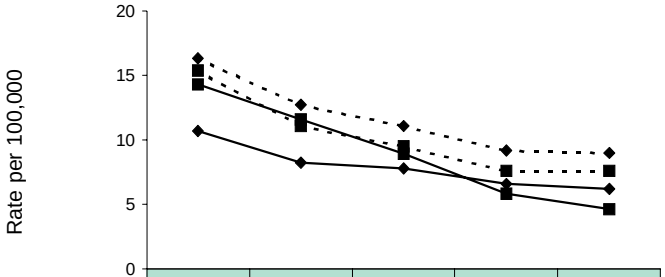
In 1999, the CDC launched the National Plan to Eliminate Syphilis, calling for aggressive surveillance, contact investigation, and prompt treatment. While infectious syphilis in Kent County and the nation remains at an all-time low, it is important to maintain surveillance for new cases — particularly in pregnant women and individuals who are also infected with HIV – to ensure appropriate assessment, investigation, and effective treatment and follow-up.

Primary and Secondary Syphilis Case Rate by Race/Ethnicity, Kent County and Michigan, 1995-1999



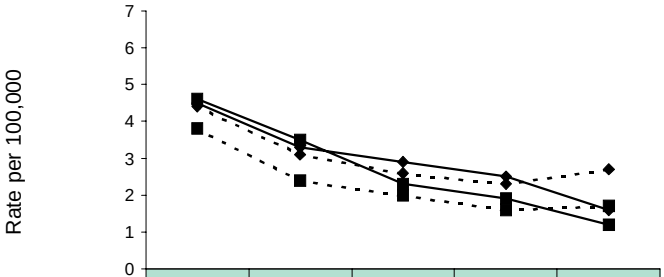
	White	African American	Hispanic	Asian/Pacific Islander	Native American
Kent	0.4	18.8	0.0	0.0	0.0
Michigan	0.4	13.7	0.4	0.2	0.4

Total Syphilis Case Rate by Gender, Kent County and Michigan, 1995-1999



	93-95	94-96	95-97	96-98	97-99
Kent-Female	14	12	9	6	5
Kent-Male	11	8	8	7	6
MI-Female	15	11	10	8	8
MI-Male	16	13	11	9	9

Primary and Secondary Syphilis Case Rate by Gender, Kent County and Michigan, 1995-1999



	93-95	94-96	95-97	96-98	97-99
Kent-Female	5	4	2	2	1
Kent-Male	5	3	3	3	2
MI-Female	4	2	2	2	2
MI-Male	4	3	3	2	3

Overview of Hepatitis

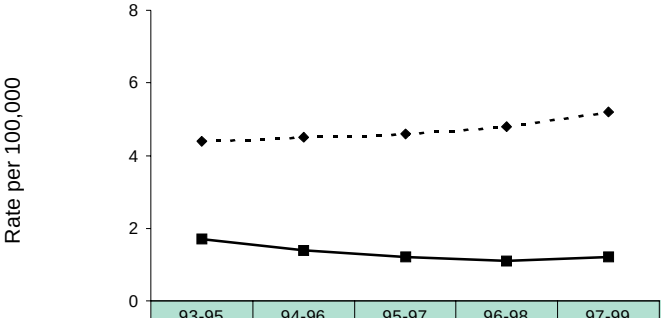
Hepatitis B (Type B Hepatitis; Serum Hepatitis; HBV)

Epidemiology:

The CDC has estimated that each year more than 200,000 people of all ages contract hepatitis B virus (HBV) and close to 5,000 die prematurely of sickness caused by HBV. The 5-year average number of acute HBV cases is 4.8 per 100,000 population in Michigan, and 1.2 per 100,000 population in Kent County. The relatively low rate in Kent County (when compared to Michigan as a whole) may reflect the effectiveness of local prevention efforts, including vaccination and education, but may also be related to different reporting procedures in other counties (i.e., some counties report both acute and chronic HBV, while others, like Kent County, report only acute cases).

The majority of hepatitis B cases in Kent County have been identified in individuals 30-39 years of age (55%), and individuals 20-29 years of age (22%). Over the past five years, hepatitis B has affected males at more than twice the rate of females (69% male vs. 31% female). Sexually active persons of childbearing age, especially women of childbearing age, and persons exposed to contaminated objects (healthcare workers, persons receiving tattoos from unsterilized equipment, etc.) need continued prevention education and access to HBV immunization. Persons with chronic HBV need education on how to minimize the risk of transmitting the virus to close contacts or family members, and on lifestyle habits that reduce the risk or slow the progression of liver disease. In addition, testing pregnant women for HBV (i.e. Perinatal Hepatitis B Prevention Program) must continue to be a priority so that infants born to infected mothers can receive prompt and appropriate treatment at birth. Without intervention, 80%-90% of babies born to infected mothers will become chronically infected with HBV.

Acute Hepatitis B Case Rate, Kent County and Michigan, 1995-1999 (three-year averages)



	93-95	94-96	95-97	96-98	97-99
Kent County	2	1	1	1	1
Michigan	4	5	5	5	5

Organism: Virus.

Transmission: By contact with the blood of an infected person (i.e., through contaminated needles, tattoo and body piercing instruments, razors or toothbrushes) or by having sex with an infected person; from infected mother to child at birth.

Symptoms: Potentially none when first infected. If present, symptoms are usually vague and may include nausea, loss of appetite, tiredness, abdominal pain, joint pain, yellow skin or eyes, and/or dark urine.

Possible Complications: Chronic infection will develop in 1%-10% of adults, 20%-50% of children infected at 1-5 years of age, and 90% of infants infected at birth. Of those chronically infected, approximately 15%-25% will develop liver cirrhosis or liver cancer.

Treatment: There is currently no treatment for acute HBV infection. Only 35% of people with chronic HBV infection are able to clear the virus when treated with Interferon. Treatment may cause side effects that require careful monitoring.

Prevention: Hepatitis B-specific immune globulin (HBIG) and hepatitis B vaccine can prevent HBV transmission after high-risk exposures; administration of HBIG and hepatitis B vaccine within 12 hours of birth, followed by additional doses at one and six months of age, can prevent perinatal HBV transmission; sexual abstinence; safer sexual practices,stressing condom use; intravenous needle decontamination or exchange; blood and clotting factor screening; universal precautions.

Hepatitis C (HCV; Hepatitis-NANB [non-A, non-B])

Epidemiology:

Hepatitis C is regarded as an emerging disease, about which there is growing concern. It was not until 1988 that hepatitis C virus was discovered to be the main cause of non-A, non-B hepatitis, and it was not until 1992 that an adequate test for specific antibodies to the virus was implemented nationwide. Based on surveillance studies, it is estimated that 3.9 million Americans have been infected with HCV — approximately 2% of the U.S. population — and that 2.7 million are chronically infected. HCV infection is more common in minority populations (3.2% of African-Americans and 2.1% of Mexican-Americans are estimated to be infected with HCV vs. 1.5% of whites).

Persons at risk of HCV infection include those who received a blood transfusion or solid organ transplant (e.g., kidney, liver, heart) before 1992, or received blood products for clotting problems before 1987. Others at risk of contracting HCV include: injecting drug users, health care workers (with exposure to blood), long-term kidney dialysis patients, persons with multiple sex partners (partner(s) infected with HCV), persons with infected household contacts that shared items that may be contaminated with blood (e.g., razor), and children born to HCV infected mothers.

In Kent County, although there were no reports of persons newly-infected with HCV (diagnosis at the early stage is rare), 492 cases of HCV infection were reported in 1999. Consistent with nationwide estimates, approximately 70% of cases reported in Kent County are between the ages of 30 and 49, with males reported as infected more often than females (60% male vs. 40% female). Because chronic hepatitis C infection is not an officially reportable condition and not all infected persons have been tested, it is expected that the actual prevalence of hepatitis C in Kent County is higher than the number of reported cases suggest.

Currently, hepatitis C virus is considered to be the most common chronic blood-borne infection in the U.S., and is responsible for an estimated 8,000-10,000 deaths annually, a number that is expected to triple in the next 10 to 20 years. HCV infection is now the leading reason for liver transplantation among adults in the U.S. Current estimates of medical and work-loss costs of HCV-related acute and chronic liver disease are in excess of $600 million annually. There is no effective therapy or preventive vaccine for hepatitis C virus infection, and the impact of this disease on both public and private health care resources will likely be substantial.

Organism:	Virus.
Transmission:	By contact with the blood of an infected person (i.e., through contaminated needles, tattoo and body piercing instruments, razors or tooth brushes); less frequently through sexual contact.
Symptoms:	Potentially none when first infected. If present, symptoms are usually vague and may include nausea, fever, loss of appetite, tiredness, abdominal pain or joint pain; jaundice (yellowing of the skin or eyes) and dark urine occur less frequently than with hepatitis B.
Possible Complications:	Approximately 50%-80% of persons infected will develop chronic HCV infection (infection that does not clear within six months after the acute infection). Of those chronically infected, approximately 50% will develop liver cirrhosis or liver cancer 20 to 30 years after infection.
Treatment:	Success of available treatment methods for chronic hepatitis C virus infection ranges from 25% (Interferon alpha) to only 40%-50% (Ribavirin and Interferon combination). Both may cause significant side effects that require careful monitoring.
Prevention:	Sexual abstinence; safer sexual practices, stressing condom use; intravenous needle decontamination or exchange; blood and clotting factor screening; universal precautions. There is no vaccine for HCV.

A Note on Hepatitis Viruses

Both hepatitis A and hepatitis B can be prevented with vaccination and are discussed in that context in Part II of this report, *Vaccine-Preventable Diseases*. Hepatitis A, transmitted through fecal-oral contact, can be associated with some sexual practices, but is primarily a food-borne pathogen. Hepatitis A is discussed in Part I of this report, *Gastrointestinal Diseases*.

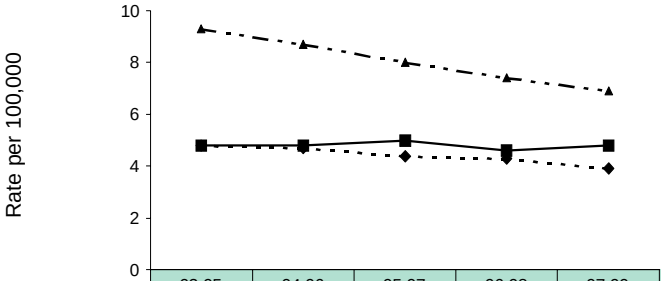
Overview of Tuberculosis

Tuberculosis (TB; TB Disease)

Epidemiology:
Because people with HIV, AIDS, or other conditions that weaken the immune system are particularly vulnerable to tuberculosis (TB), and because the number of people infected with HIV who are also infected with TB continues to rise, tuberculosis is increasingly discussed in the context of HIV – and so is included in this report.

A total of 17,531 cases of active tuberculosis (6 cases per 100,000 population) were reported to CDC from the 50 states and the District of Columbia in 1999, a 5% decrease from 1998, and a 34% decrease from 1992, when the number of cases peaked during a resurgence of TB in the United States. The 5-year average number of TB cases reported in Michigan is 393 (a case rate of 4 per 100,000 population), and in Kent County, 24 (a case rate of 5 cases per 100,000). These rates are just over half the national 5-year average case rate of 8 cases per 100,000 population.

Tuberculosis Case Rate, Kent County, Michigan, and United States, 1995-1999



	93-95	94-96	95-97	96-98	97-99
Kent County	5	5	5	5	5
Michigan	5	5	4	4	4
United States	9	9	8	7	7

Consistent with nationwide TB statistics, tuberculosis has been reported more commonly in men than women in both Michigan (58% men and 42% women) and Kent County (65% men and 35% women), in the past five years. The 5-year average case rate for tuberculosis in Kent County is approximately 6 cases per 100,000 men and 3 cases per 100,000 women.

The TB case rate in Kent County increases by age group, from birth to age 64, then decreases for persons aged 65 and older (the TB case rate increases steadily across all age groups in Michigan and nationally). Earlier diagnosis and a well-established public health tuberculosis clinic may contribute to efficient identification of cases at earlier ages in Kent County. TB is most prevalent in Kent County in

Organism: Bacteria.

Transmission: By contact with respiratory droplets (through coughing or sneezing) of an individual with active TB disease in the lungs or throat.

Symptoms: TB Infection: Most people who become infected with TB have no symptoms and cannot spread TB because the immune system can stop the bacteria from growing. TB Disease: Without treatment, TB infection can turn into active tuberculosis (TB disease) and can be transmitted to others. Symptoms of TB disease in the lungs (the most common site) include: a bad cough that lasts longer than 2 weeks and/or produces blood or sputum; pain in the chest; weakness; fatigue; weight loss; loss of appetite; chills; fever; night sweats.

Assessment: A TB skin test is used to screen people for TB infection. Review of symptoms, chest x-ray, sputum testing, and other assessments may be done for those with an initial positive skin test.

Prevention: Treatment with antibiotics can prevent TB infection from turning into TB disease and can suppress active TB disease.

Risks: People at increased risk for TB infection and/or disease include: close contacts of people with TB disease; individuals born in areas of the world where TB is common; elderly individuals; low-income individuals with poor access to health care; individuals who use illegal drugs; individuals with HIV, AIDS, or weakened immune systems; individuals who live or work in certain institutional settings such as nursing homes, correctional facilities, homeless shelters, and drug treatment centers; health care workers and others who may be exposed to TB on the job.

Overview of Tuberculosis

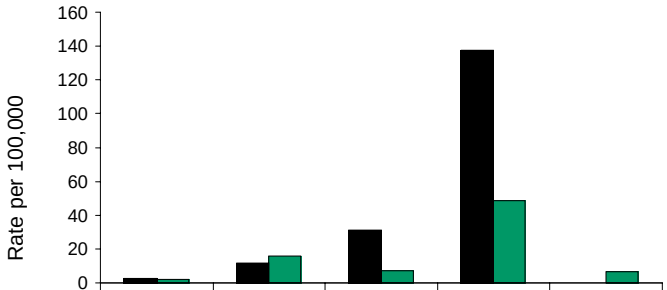
migrant workers, refugees, and immigrants from regions where TB is endemic (i.e., Eastern Europe, Southeast Asia). Because all of these groups are screened for TB when entering Kent County, cases are identified and treated earlier, resulting in relatively large case rates in the younger age groups.

As with many other reportable diseases, minority populations are affected by higher rates of tuberculosis. In Kent County, the TB case rate for Hispanics is 10 times that of whites, while the case rate for Asian/Pacific Islanders is 46 times the rate for whites. Although many individuals in these minority groups were likely exposed to TB in their countries of origin, treating their TB disease to prevent additional cases is a top priority of the U.S. public health system as well as the Kent County Health Department.

The resurgence of TB in the United States in the late 1980's coincided with the emergence of multidrug-resistant TB (MDR TB) and the HIV/AIDS epidemic. Development of MDR TB is usually attributed to improper prescriptions or patient noncompliance with medical treatment, and is often a corollary to HIV infection. Because HIV so severely weakens the immune system, people infected with both HIV and TB have a 100-times greater risk of developing active TB (and becoming infectious) than people not infected with HIV.

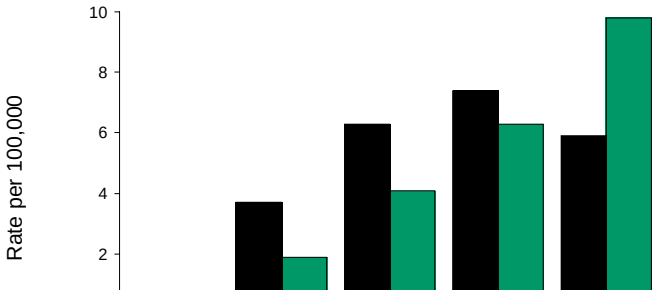
Since 1992, TB has declined in the U.S. Continued efforts to identify populations at risk of transmitting TB, screening individuals at risk of being exposed to TB, as well as providing prompt treatment and follow-up to individuals who are infected, are essential to maintaining this downward trend.

Tuberculosis Case Rate by Race/Ethnicity, Kent County, 1995-1999



	White	African American	Hispanic	Asian	Native American
Kent	3	12	31	138	0
Michigan	2	16	7	49	7

Tuberculosis Case Rate by Age, Kent County and Michigan, 1995-1999



	0-12	13-24	25-39	40-64	65+
Kent County	1	4	6	7	6
Michigan	0	2	4	6	10

A Final Word on Communicable Disease

Since the early 20th century, infectious disease transmission has decreased dramatically due to improvements in personal hygiene and environmental sanitation; safer food processing, storage, and preparation practices; and advances in medicine and science. Vaccinations have allowed for the global eradication of smallpox, as well as the virtual elimination of many diseases in the U.S. In addition, new and improved antibiotics decrease the severity and duration of illness when it does occur and, as a result, reduce the potential for disease transmission and improve the quality of life while infected.

The three parts of this report – on gastrointestinal diseases, vaccine-preventable diseases, and sexually transmitted disease — provide an essential overview of some of the most common infectious diseases that, in spite of the advances outlined above, continue to infect and affect us. Existing and emerging diseases, especially those that may be 'imported' through international travel or non-domestic food products and supplies, continue to pose a very real threat to our health, individually and collectively. Assuring access to medical care for those most at risk of disease, developing the means to prevent disease without knowing the causative agent, and promoting healthy living habits all help reduce the risk of communicable disease in the community.

Improving disease reporting and communication of disease occurrence at the local, state, national, and international levels is necessary to monitor disease and reduce transmission. Disease surveillance systems must be vigilant, yet flexible enough to adapt to the rapidly changing technology associated with disease prevention, as well as to new threats to the public's health: the emergence of new or antibiotic-resistant organisms, an influenza pandemic, or a bioterrorist event. Collaboration and cooperation between public and private health care systems to detect, treat, and most importantly, *prevent* communicable disease – gastrointestinal, vaccine-preventable, and sexually transmitted — is an effective and proven means of assuring the health of the community and the individuals in it, and is the ultimate goal of public health.

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Selected Web Resources

Centers for Disease Control and Prevention..... www.cdc.gov
Health Facts/Links..... www.cdc.gov/health/diseases.htm
Foodborne Illness..... www.cdc.gov/health/foodill.htm
Morbidity Mortality Weekly Report—Online..... www.cdc.gov/mmwr
National Immunization Program..... www.cdc.gov/nip
National Center for Infectious Diseases..... www.cdc.gov/ncidod
Division of Bacterial and Mycotic Diseases..... www.cdc.gov/ncidod/dbmd
Division of Parasitic Diseases..... www.cdc.gov/ncidod/dpd
Division of AIDS, STD, and Tuberculosis Laboratory Research..... www.cdc.gov/ncidod/dastlr
Division of Viral and Rickettsial Diseases..... www.cdc.gov/ncidod/dvrd
Emerging Infectious Diseases Journal—Online..... www.cdc.gov/ncidod/eid
Viral Hepatitis..... www.cdc.gov/ncidod/diseases/hepatitis
National Center for HIV, STD, and TB Prevention..... www.cdc.gov/nchstp/od/nchstp.html
Division of HIV/AIDS Prevention..... www.cdc.gov/hiv
Division of TB Elimination..... www.cdc.gov/nchstp/tb/
Division of STD Prevention..... www.cdc.gov/nchstp/dstd
Public Health Training Network..... www.cdc.gov/phtn

Food Safety and Inspection Service, United States Department of Agriculture..... www.fsis.usda.gov

Department of Health and Human Services..... www.dhhs.gov

American Medical Association..... www.ama-assn.org/foodborne

Kent County Health Department..... www.co.kent.mi.us/health

Michigan Department of Community Health..... www.mdch.state.mi.us
Health Statistics/Vital Records..... www.mdch.state.mi.us/pha/OSR/index.htm
Bureau of Epidemiology, Communicable Disease Epidemiology Division..... www.mdch.state.mi.us/pha/EPI

U.S. Government Food Safety Information Gateway..... www.foodsafety.gov

Reducing sexually transmitted diseases, hepatitis, and tuberculosis requires appropriate prevention education, accessible screening and treatment services, timely disease reporting, and individual responsibility.

Communicable Disease in Kent County Part III: Sexually Transmitted Diseases, Hepatitis and Tuberculosis

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