Communicable diseases are illnesses that are transmitted directly from a person or animal to person, or passed indirectly through contaminated food or water. Communicable diseases are caused by a variety of agents including bacteria, viruses, and other organisms and can be transmitted by a variety of ways. In spite of extraordinary scientific and technological progress in public health and health care, communicable diseases continue to be among the most common health problems people face.

- Preventing and controlling communicable diseases are critical duties of the public health system.
- Until the 1950’s, most Americans died of communicable diseases long before they were old enough to develop a chronic disease.
- There are many methods of reducing the risk of transmission of communicable diseases. A critical component of prevention is disease surveillance.
- Timely and accurate communicable disease reporting makes a difference between a ‘cluster’ of infected persons and a full-blown disease epidemic. As such, disease reporting is required by state law.
- In 1990, communicable diseases accounted for four of the top ten causes of death in the US. By 2002, only one communicable disease remained among the top ten causes of death nationally.

### Blood Borne Pathogens

Blood borne pathogens are transmitted through exchange of contaminated blood and body fluids. They include hepatitis B (HBV), hepatitis C (HCV) and HIV/AIDS. In Michigan and Ottawa County, HCV is the most prevalent blood borne pathogen. HBV, HBC and HIV/AIDS typically have long incubation periods. Infected persons often remain asymptomatic or have mild non-specific symptoms.

- Since the institution of routine HBV vaccinations, the national rate has been declining among all age groups. The highest decline (98%) was seen in those less than 12 years old from 1990 to 2003.
- Nationally, the number of deaths among persons with AIDS decreased 65% from 1995-1999. From 1999-2003, the number of deaths reported annually decreased 3%.
- In Michigan and Ottawa County, a similar trend is observed for HIV/AIDS and HBV. A slight increase in cases was observed from 2000-2004.
- In Ottawa County, the highest prevalence of HBV (29.4%) was found among persons age 25-29 years.
- In Michigan from 2000-2004, HCV was on the rise from 2,685 to 5,355 cases. The reverse is observed in Ottawa County.
- Of the county cases, 64.96% were males and 34.50% were females; 0.54% one case did not have a gender recorded.
- In Ottawa County, the highest prevalence of HCV (26.95%) was found among persons age 45-49 years followed by persons 40-44 years (20.49%).
- On average in Ottawa County, there were 74.2 HBC cases each year during 2000-2004.

### Vaccine Preventable Diseases

- In Michigan and Ottawa County from 2000-2004, the top three most prevalent vaccine preventable diseases were chickenpox, pertussis and H. influenzae disease.
- In Ottawa County from 2000-2004, males represented 67% of reported cases of pertussis and females accounted for 33%.
- In Ottawa County from 2000-2004, pertussis is most prevalent among individuals under 1 year (33%) followed by those 30-34 years old (17%).
- In comparison with Michigan, Ottawa County had a higher rate of chickenpox from 2000-2004 (MI= 294 versus OC= 371 per 100,000).
- In Ottawa County, the highest prevalence of chickenpox was found among children age 5-9 years (7%) followed by 10-14 years (2.15%) and 1-4 years (0.9%).
- Prior to the licensing of the chickenpox vaccine in 1995, chickenpox was responsible for an estimated 4 million illnesses, 11,000 hospitalizations and 100 deaths each year.
- In 1990 in the US, the cost of caring for children who contracted chickenpox was estimated at $3918 million annually.
Enteric Pathogens

Although death from gastrointestinal illness caused by enteric pathogens is no longer one of the top ten causes of death, enteric pathogens remain a major cause of illness in the US. It is estimated, however, that only eight percent of persons in the US with gastrointestinal illness seek medical care.1

- In Michigan and Ottawa County, the top three prevalent gastrointestinal illnesses are giardiasis, salmonellosis and campylobacter.
- In both Michigan and Ottawa County, there has been a decreasing trend in the rate of giardiasis and shigellosis from 2000-2004. Ottawa County experienced a steep decline from 2000-2003.
- From 2000-2004 the rates of campylobacter, salmonellosis and E. coli have remained stable for both Michigan and Ottawa County.
- The age distribution of campylobacter in Ottawa County from 2000-2004 showed the highest prevalence among persons age 45-49 (15%) followed by those 1-4 years (10.8%).2
- The age distribution of salmonellosis in Ottawa County from 2000-2004 showed the highest prevalence among those children age 1-4 (14.9%) followed by 15-19 years (12.3%).3
- In Ottawa County from 2000-2004, there were 160 cases of giardiasis.7
- In Ottawa County, the highest prevalence was found among children age 2-4 years (27.5%) followed by 5-9 years and 35-39 years (both 11.2%)x
- The graphical representation of giardiasis in quarters indicates a seasonal trend. There is a decline in number in cases in the second and fourth quarter and an increase in the third quarter (summer season).

Respiratory Diseases

- Nationally disparities in tuberculosis (TB) rates (per 100,000) persist among racial and ethnic populations: Asians (29.3), Native Hawaiian or Other Pacific Islanders (21.8), non-Hispanic blacks (11.6), Hispanics (10.6), American Indian or Alaska Natives (6.1), and non-Hispanic whites (1.4).4
- In Michigan and Ottawa County, the top three most prevalent respiratory diseases are Meningitis, TB and Legionellosis.
- The age distribution of legionellosis in Ottawa County showed the highest prevalence amongst individuals aged 40-44 years (33.3%), 50-54 years (33.3%) and greater than 70 years old (33.3%) from 2000-2004.
- In Ottawa County and Michigan, meningitis has been on the decline since 2001.
- In the county, the highest prevalence was found among children age 5-9 (13.4%) followed by 10-14 years (11.3%) and under 1 year (9.7%).7

Sexually Transmitted Diseases

- In Michigan and Ottawa County from 2000-2004, the top three most prevalent sexually transmitted disease were chlamydia, gonorrhea and syphilis. The incidence of chlamydia has been on the rise.
- From 1999-2004 in Ottawa County, chlamydia was most prevalent among those 20-24 years and among females.5
- During 1999-2004, gonorrhea was diagnosed most often among those 20-24 years and among females.6
- In Ottawa County from 2000-2004, there were 160 cases of giardiasis.7
- In Ottawa County, the highest prevalence was found among children 1-4 (14.9%) followed by 10-14 years (11.3%) and under 1 year (9.7%).7

Conclusion

Since the early 20th century, communicable disease transmission has decreased dramatically due to improvements in personal hygiene; environmental sanitation; safer food processing, storage and preparation practices and advances in medicine and science. Improving disease reporting and communication of disease occurrence at the local, state, national and international levels is necessary to monitor disease and reduce transmission. Collaboration and cooperation between public and private health care systems to detect, treat and most importantly, prevent communicable disease is an effective and proven means of assuring the health of the community and the individual. Ultimately, this is the goal of the public health system.

Demographic Watch

Chlamydia is the most frequently reported infectious disease in the United States. 6

Approximately 75% of women and 50% of men infected with chlamydia have no symptoms and may not seek healthcare. In the US during 1999-2003, the reported chlamydial infection rate among men increased 58% compared to a 27% increase among women. The Ottawa County STD clinic sees approximately 1900 patients annually. Almost 11% of the population seen by the STD program are diagnosed with chlamydia. In Ottawa County the female to male ratio of chlamydial infection ranged from 3.5 in 2000 to 2.8 in 2004.