

# Communicable Disease



## HIGHLIGHTS

- Seniors have the highest incidence rates of tuberculosis compared to other age groups. The incidence rates for TB have been higher among Peel seniors compared to Ontario seniors between 1995 and 2004.
- In 2005, more than one-third (36%) of Peel seniors reported that they ever received pneumococcal vaccinations. Incidence rates for invasive pneumococcal disease ranged from 22 and 30 per 100,000 seniors between 2002 and 2004.
- The proportion of seniors in Peel immunized against influenza was higher in 2005 (82%) than in 2001 (72%).
- The incidence rates for influenza have been high among seniors in Peel during the last few influenza seasons (2003/2004 and 2004/2005) compared to other influenza seasons, despite higher immunization rates.
- In 2003, there were 878 emergency department visits made by seniors in Peel due to pneumonia and influenza. The rates of emergency department visits for pneumonia and influenza increased by age group for both males and females in Peel.
- Pneumonia and influenza were among the top 10 causes of death among Peel seniors in 2001.

## INTRODUCTION

Communicable diseases are illnesses caused by organisms or the toxins they produce. They are spread directly from an infected person, animal or environmental source. Sometimes transmission occurs indirectly by contaminated animals and objects. The leading communicable diseases among seniors living in Peel in 2004 are shown in Table 8.1. Some of the top communicable diseases include sexually transmitted and bloodborne infections (i.e., hepatitis C and B) which were discussed in the previous chapter on sexual health. This chapter of the report will focus on tuberculosis, invasive pneumococcal disease and influenza and assess the impact these diseases have on Peel's seniors.

**Table 8.1: Leading Communicable Diseases Among Seniors, Region of Peel, 2004**

Rank	Communicable disease	Number of cases
1	Hepatitis C	55
2	Campylobacteriosis	39
3	Hepatitis B carrier	37
4	Tuberculosis	35
5	Invasive pneumococcal disease	21
6	Influenza	16

**Source:** Reportable Disease Information System (RDIS), Peel Public Health, as of 04/11/2005.

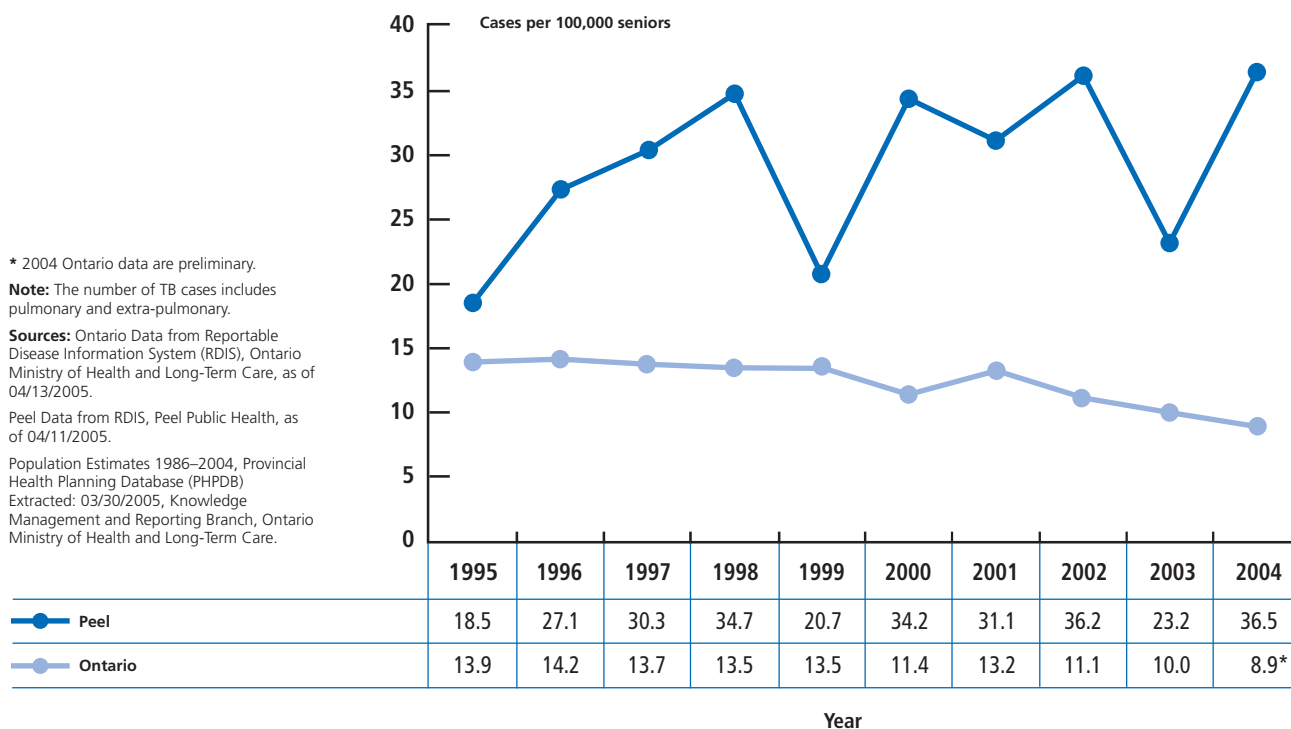
## TUBERCULOSIS

Tuberculosis (TB) is a disease caused by bacteria called *Mycobacterium tuberculosis*. It mainly affects the lungs but can affect other parts of the body as well. TB is spread from person-to-person when someone with infectious TB disease in their lungs or larynx coughs or sneezes. Tuberculosis found in other parts of the body cannot be spread to other people.<sup>66, 67</sup>

### Incidence of Tuberculosis

Seniors have the highest incidence rates of tuberculosis compared to other age groups. In 2004, there were 117 cases of TB in Peel and 30% occurred among seniors. The incidence rates for TB have been higher among Peel seniors compared to Ontario seniors between 1995 and 2004 (see Figure 8.1). The higher rates in Peel may be due to the higher proportion of immigrants in Peel compared to Ontario and the higher proportion of recent immigrants in Peel from TB-endemic countries.<sup>67</sup> The TB rates have decreased in Ontario between 1995 and 2004, but have been more erratic in Peel from year-to-year.

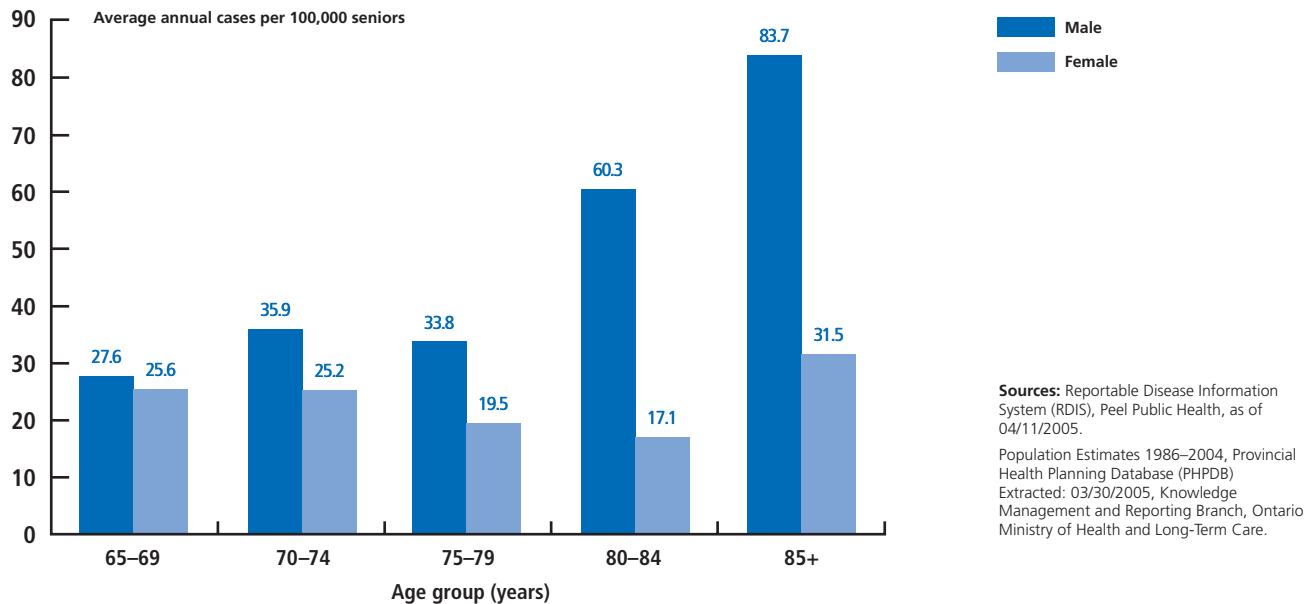
**Figure 8.1: Incidence of Tuberculosis by Year, Region of Peel and Ontario, 1995–2004**



Almost two-thirds (72%) of tuberculosis cases between 1995 and 2004 among seniors in Peel were pulmonary, most of these were reactivated TB cases. Of most importance to public health are the active pulmonary cases of TB as these types of TB cases can be transmitted from person-to-person.

The incidence rates of tuberculosis increased by age for male seniors in Peel and were higher than the rates for female seniors among all age groups (see Figure 8.2).

**Figure 8.2: Incidence of Tuberculosis by Age Group and Sex, Region of Peel, 1995–2004 Combined**



### Emergency Department Visits for Tuberculosis

There were fewer than five emergency department visits for tuberculosis among Peel seniors in 2003.

### Hospitalizations from Tuberculosis

In 2003, there were seven hospitalizations for tuberculosis among Peel seniors. The average length of hospital stay from tuberculosis among Peel seniors was 36 days.

### Mortality from Tuberculosis

There were approximately 11 deaths among seniors due to tuberculosis in Peel between 1997 and 2001.

## INVASIVE PNEUMOCOCCAL DISEASE (IPD)

IPD is a bacterial infection caused by a type of bacteria called *streptococcus pneumoniae* (or pneumococcus). This type of bacteria can cause any of the following: pneumonia (lung infection), bacteraemia (infection of the blood) or meningitis (infection of the lining of the brain and spinal cord).<sup>68</sup>

Pneumonia, bacteraemia and meningitis can sometimes cause death or long lasting complications such as deafness, especially in people with a high-risk medical condition,<sup>68</sup> such as:

- chronic heart, kidney and lung disease;
- diabetes mellitus;
- Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) or any other disease that suppresses the immune system.

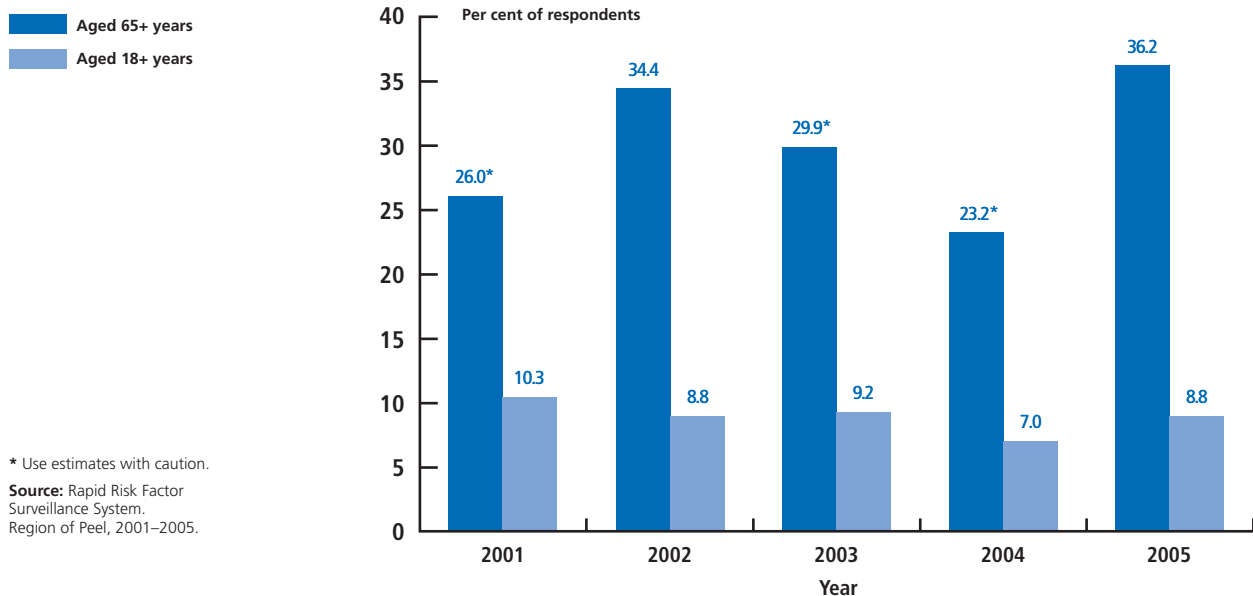
### Pneumococcal Immunizations

The pneumococcal vaccine can prevent pneumonia and other infections caused by 23 types of the *Streptococcus pneumoniae* bacteria. These 23 types account for approximately 90% of cases of pneumococcal disease. The vaccine is recommended for people 65 years of age and older and for people with high-risk medical conditions.

About 80% of cases occur in these high-risk groups. The vaccine protects between 50 to 80 per cent of people against pneumococcal infection. Vaccination also makes the disease milder for those who may catch it. The pneumococcal vaccine has been in use in Canada since 1983.<sup>68</sup>

As seen in Figure 8.3, very few seniors living in the community in Peel reported that they have received pneumococcal vaccinations (slightly more than one-third of seniors in 2005). However, the proportion of seniors who ever received a pneumococcal vaccination was much higher than in the proportion reported in the general population aged 18 years and older.

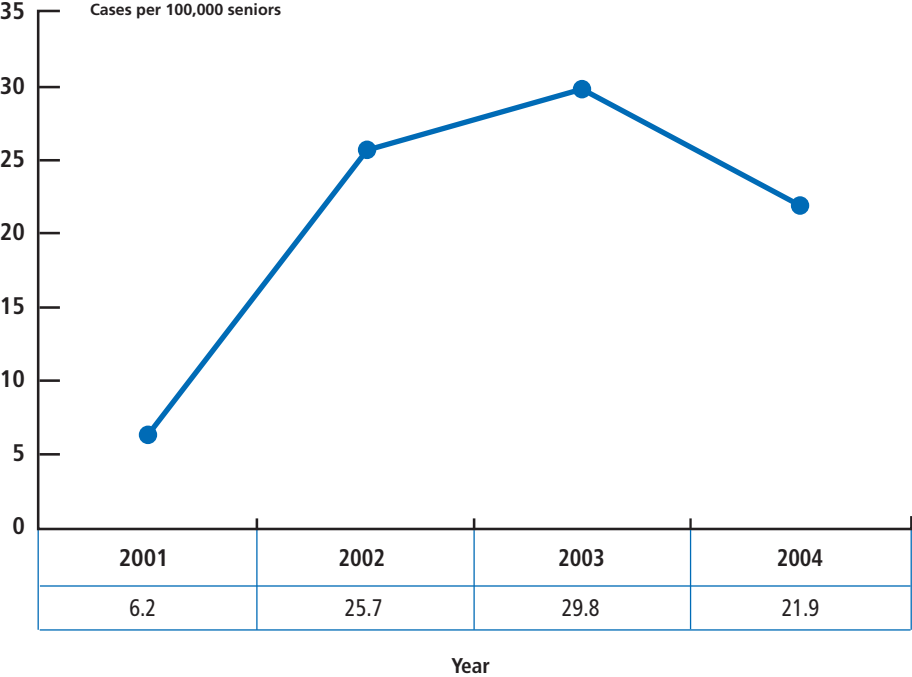
**Figure 8.3: Proportion of Population Who Ever Had a Pneumococcal Vaccination, Region of Peel, 2001–2005**



\* Use estimates with caution.  
**Source:** Rapid Risk Factor Surveillance System, Region of Peel, 2001–2005.

The incidence rates for IPD in Peel have remained between 22 and 30 per 100,000 seniors between 2002 and 2004 (see Figure 8.4). The sharp increase in the incidence rate for IPD between 2001 and 2002 is likely due to a change in the case definition in 2001. The reporting case definition became broader which resulted in an increased number of cases as more people met the case definition.

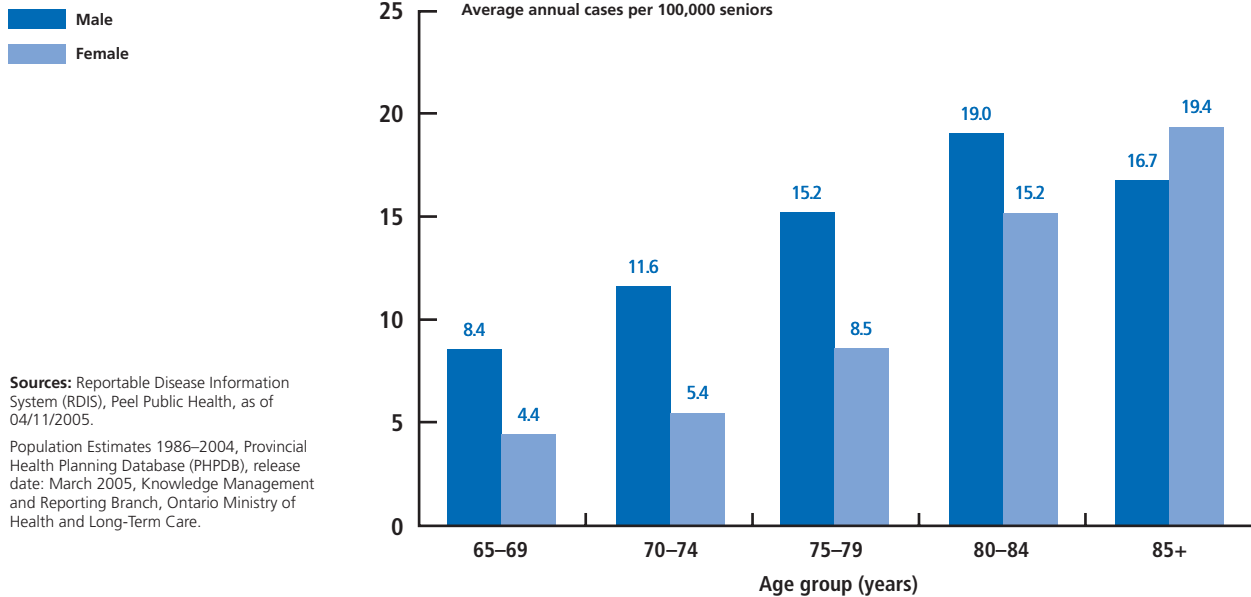
**Figure 8.4: Incidence of Invasive Pneumococcal Disease by Year, Region of Peel, 2001–2004**



**Sources:** Reportable Disease Information System (RDIS), Peel Public Health, as of 04/11/2005.  
 Population Estimates 1986–2004, Provincial Health Planning Database (PHPDB), release date: March 2005, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

The incidence rates for invasive pneumococcal disease in Peel seniors increased by age group among females and males (see Figure 8.5).

**Figure 8.5: Incidence of Invasive Pneumococcal Disease by Age Group and Sex, Region of Peel, 1995–2004 Combined**



**Sources:** Reportable Disease Information System (RDIS), Peel Public Health, as of 04/11/2005.  
Population Estimates 1986–2004, Provincial Health Planning Database (PHPDB), release date: March 2005, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

## INFLUENZA AND PNEUMONIA

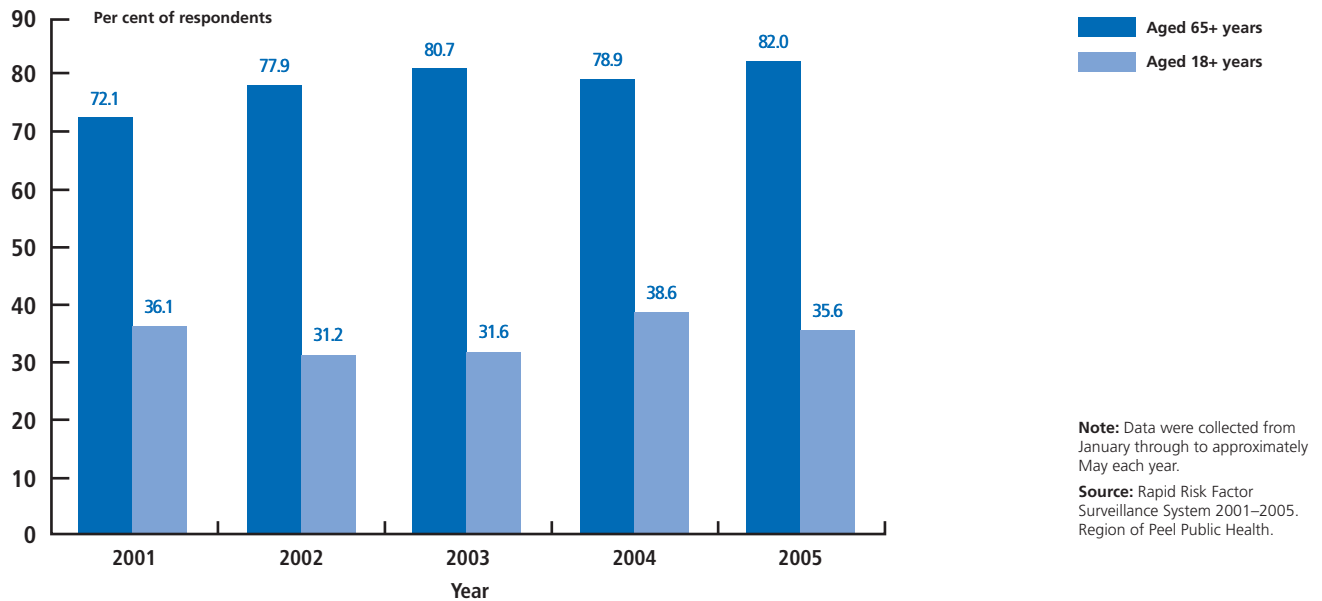
Influenza is a highly infectious respiratory illness caused by the influenza virus. Although influenza symptoms such as fever, headache, cough and muscle ache are similar to the symptoms of the common cold, they are more sudden and severe. In addition, influenza is more likely to result in severe complications such as pneumonia. Seniors are a high-risk group for developing these severe complications.<sup>56, 69</sup>

### Influenza Immunizations

Immunization against influenza every fall is important for seniors who are most vulnerable to this communicable disease. Free influenza vaccine has been made available annually to all Ontario residents aged six months and older since 2000.<sup>70</sup>

According to 2005 data from the Rapid Risk Factor Surveillance System for Peel, 82% of seniors had a flu shot since September of the previous year. The proportion of seniors in Peel immunized against influenza in 2005 was higher than in 2001 (72%) as shown in Figure 8.6. In long-term care facilities in Peel, 93% or more of residents were immunized against influenza in each influenza season between the 1998/1999 and the 2003/2004 influenza seasons.<sup>69</sup>

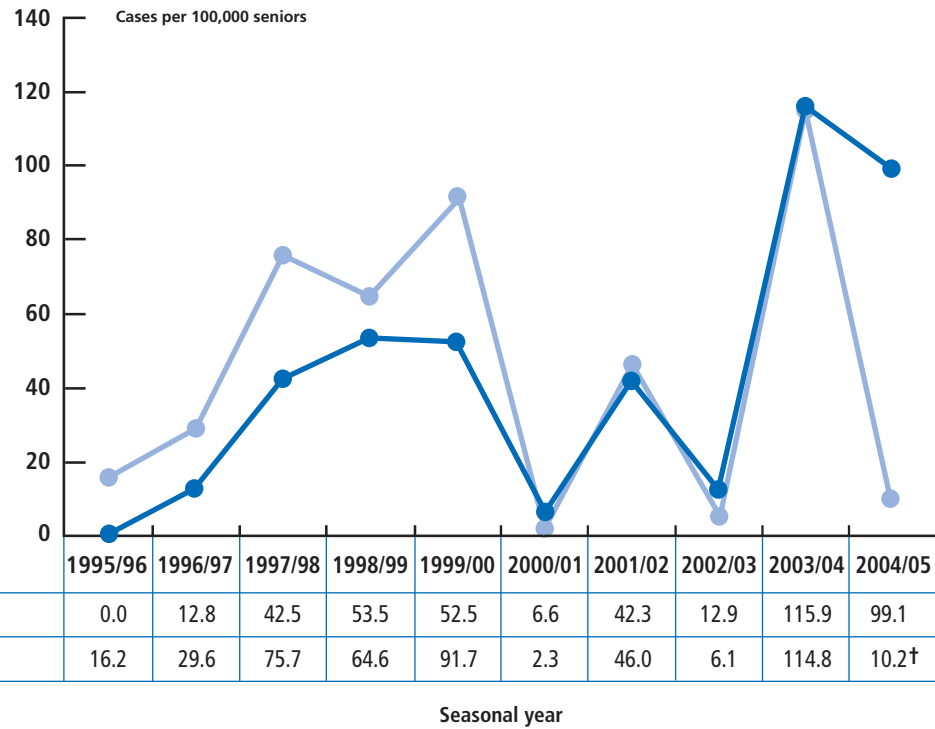
**Figure 8.6: Proportion of Population Immunized with Influenza Vaccine Since September of the Previous Year by Age Group, Region of Peel, 2001–2005**



### Incidence of Influenza

During the 2004/2005 influenza season, which typically runs from September to April each year, there were 336 influenza cases reported in Peel. More than one-quarter (28%) of these cases were among those aged 65 and older. The incidence rates for seniors from the 1995/1996 influenza season to the 2004/2005 influenza season are shown in Figure 8.7. The incidence rates fluctuate from season-to-season. The incidence rates for influenza have been high among seniors in Peel during the last few influenza seasons (2003/2004 and 2004/2005) compared to other influenza seasons, despite high immunization rates in the senior population. This increase in incidence during more recent influenza seasons may be due to increased use of newly developed rapid tests for influenza. In addition, heightened awareness and testing of respiratory illnesses may be a result of the outbreak of Severe Acute Respiratory Syndrome (SARS) which occurred in southern Ontario in the spring of 2003.<sup>69</sup>

**Figure 8.7: Incidence of Influenza by Seasonal Year,\*  
Region of Peel and Ontario, 1995/1996–2004/2005**



\* Seasonal year from July to June (e.g., 1996/97 included all cases from July 1, 1996 to June 30, 1997), except for the 2004/05 season; Peel data from July 1, 2004 to February 14, 2005; Ontario data from July 1, 2004 to December 31, 2004.

† 2004/05 Ontario data are preliminary.

Sources: Ontario data from Reportable Disease Information System (RDIS), Ontario Ministry of Health and Long-Term Care, as of 04/13/2005.

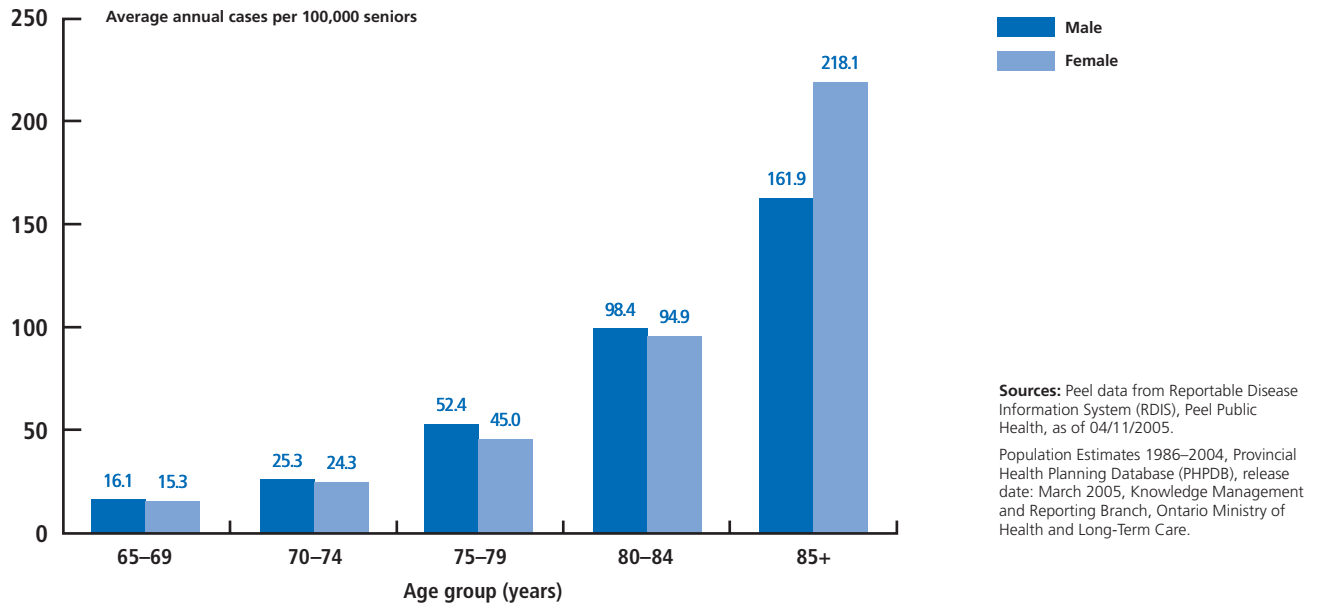
Peel data from RDIS, Peel Public Health, as of 04/11/2005.

Population Estimates 1986–2004, Provincial Health Planning Database (PHPDB), release date: March 2005, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

The incidence rates of reported influenza increased by age group for both males and females in Peel (see Figure 8.8). The rates between males and females were similar for most age groups, except among seniors aged 85 years and older, among whom females had higher rates than males.



**Figure 8.8: Incidence of Influenza by Age Group and Sex, Region of Peel, 1995–2004 Combined**

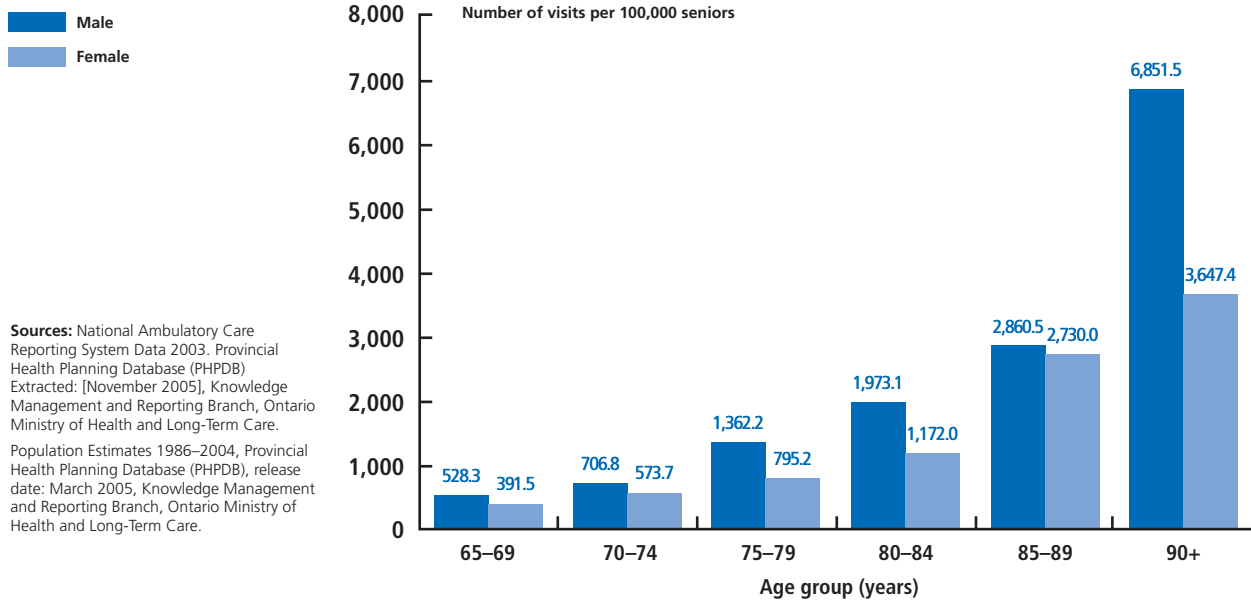


### Emergency Department Visits for Pneumonia and Influenza

In 2003, there were 878 emergency department visits due to pneumonia and influenza made by seniors in Peel.

The rates of emergency department visits for pneumonia and influenza increased by age group for both males and females in Peel (*see Figure 8.9*). Rates were higher for males compared to females across all age groups, particularly for those aged 90 years and older.

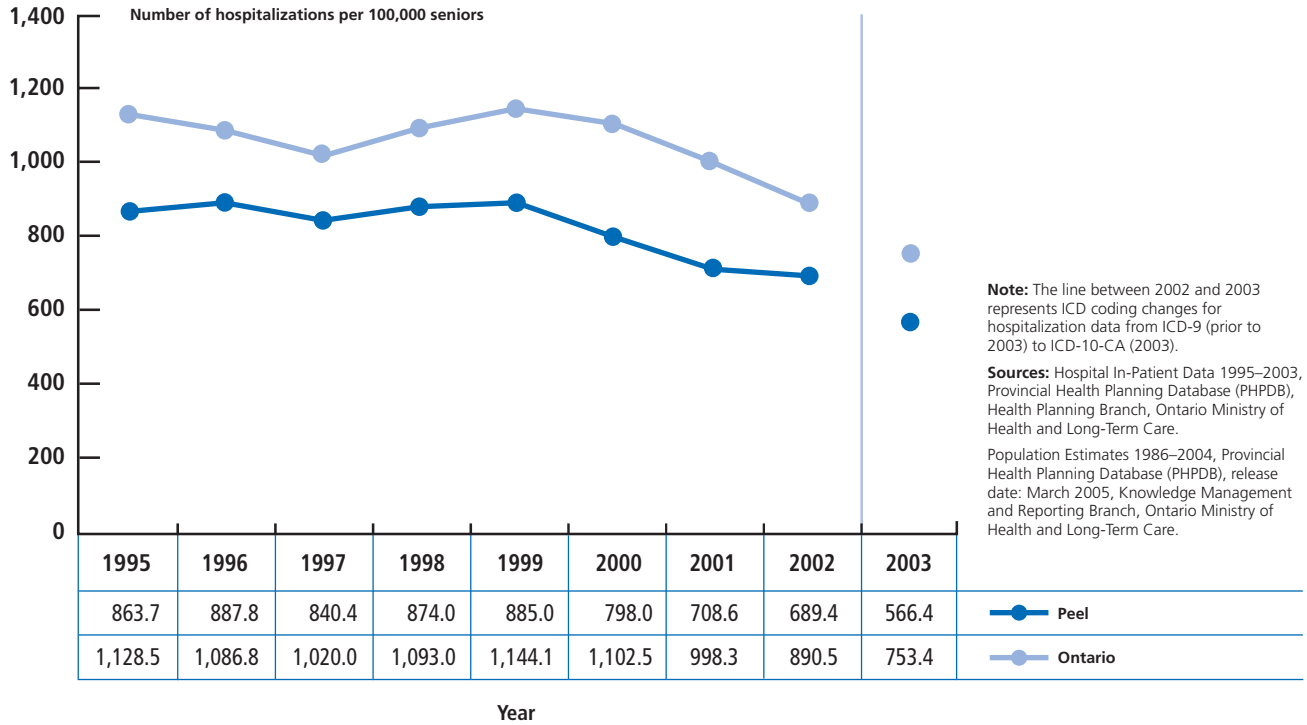
**Figure 8.9: Emergency Department Visits for Pneumonia and Influenza by Age Group and Sex, Region of Peel, 2003**



### Hospitalization for Pneumonia and Influenza

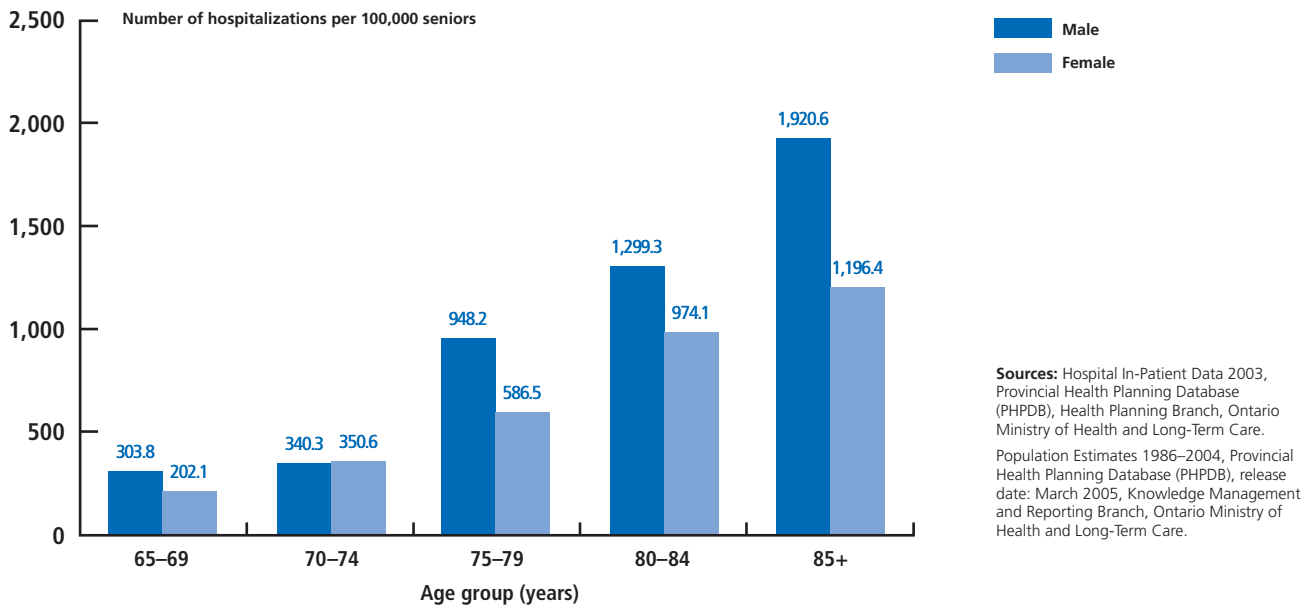
The hospitalization rates for pneumonia and influenza among seniors were higher in Ontario compared to Peel between 1995 and 2003 (see Figure 8.10). Hospitalization rates were relatively stable between 1995 and 1999 in both Peel and Ontario; however, hospitalization rates decreased between 1999 and 2003. This decline between 2002 and 2003 is due in part to the change in hospitalization data coding for pneumonia in 2003 from ICD-9 to ICD-10-CA (see data methods section for more details).

**Figure 8.10: Hospitalization for Pneumonia and Influenza by Year, Region of Peel and Ontario, 1995–2003**



Hospitalization rates for pneumonia and influenza increased by age in Peel for both males and females (see Figure 8.11).

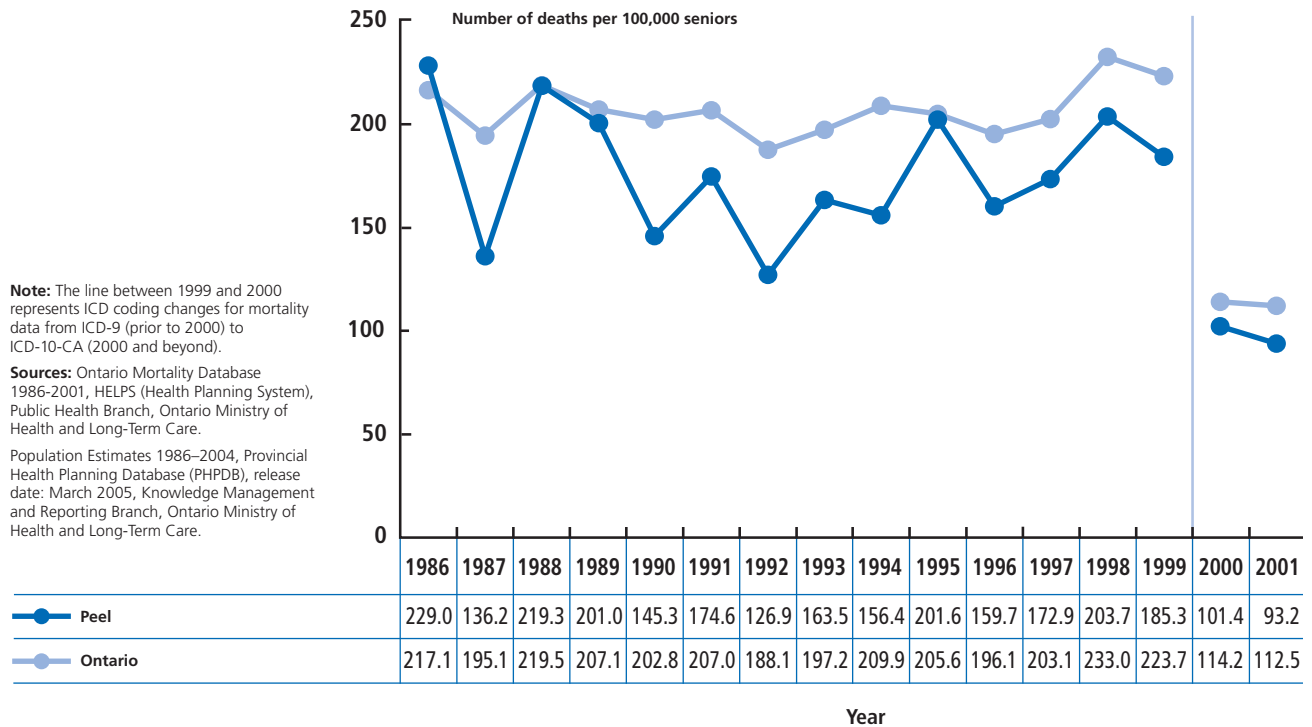
**Figure 8.11: Hospitalization for Pneumonia and Influenza by Age Group and Sex, Region of Peel, 2003**



## Mortality from Pneumonia and Influenza

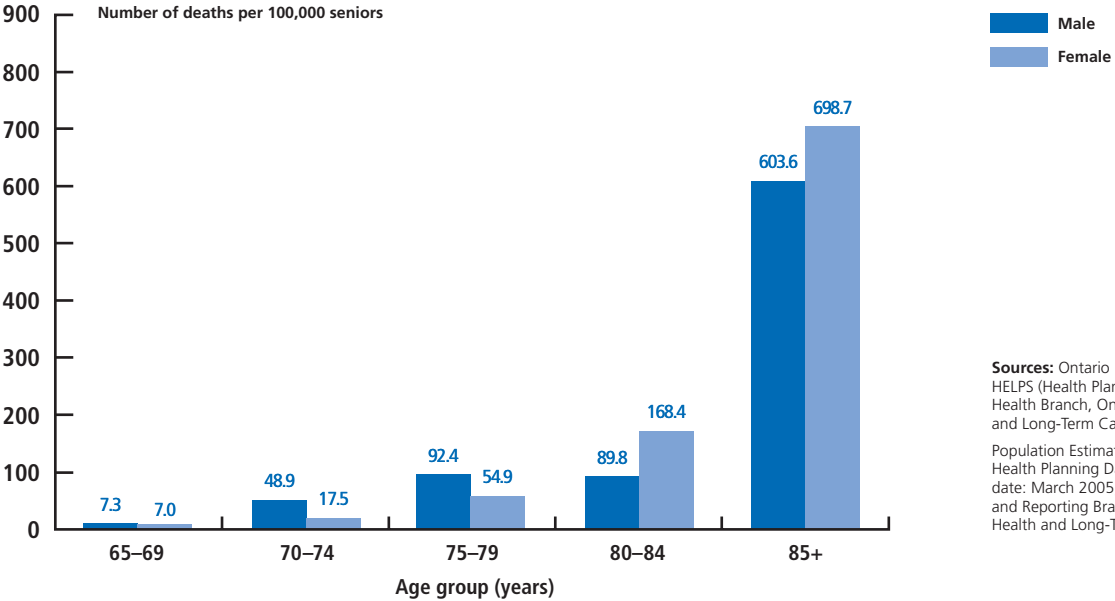
Pneumonia and influenza were among the top 10 causes of death among Peel seniors (see Appendix 3). The mortality rate for pneumonia and influenza fluctuated in Peel and Ontario between 1986 and 2001 (see Figure 8.12). The sudden drop in mortality rates in 2001 and 2002 in both Peel and Ontario is due to mainly the coding change in mortality data from ICD-9 to ICD-10-CA (see data methods section for more details).

**Figure 8.12: Mortality from Pneumonia and Influenza by Year, Region of Peel and Ontario, 1986–2001**



Mortality rates for pneumonia and influenza increased by age in Peel and were higher for males compared to females up to 79 years of age, but then higher for females compared to males 80 years of age and older (see Figure 8.13).

**Figure 8.13: Mortality from Pneumonia and Influenza by Age Group and Sex, Region of Peel, 2001**



**Sources:** Ontario Mortality Database 2001, HELPS (Health Planning System), Public Health Branch, Ontario Ministry of Health and Long-Term Care.  
Population Estimates 1986-2004, Provincial Health Planning Database (PHPDB), release date: March 2005, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care.

## SUMMARY

### Tuberculosis

The incidence rates for TB were higher among Peel seniors compared to Ontario seniors between 1995 and 2004. The rates have decreased in Ontario between 1995 and 2004. Rates have been more erratic in Peel from year-to-year likely due to immigration patterns.

Almost two-thirds (72%) of tuberculosis cases between 1995 and 2004 among seniors in Peel were pulmonary. The incidence rates of tuberculosis increased by age group for male seniors in Peel and were higher than the rates for female seniors among all age groups.

In 2003, there were seven hospitalizations for tuberculosis among Peel seniors. The average length of hospital stay from tuberculosis among Peel seniors was 36 days. There were approximately 11 deaths among seniors due to tuberculosis in Peel between 1997 and 2001.

### Invasive Pneumococcal Disease (IPD)

Very few seniors in Peel living in the community reported that they ever received pneumococcal vaccinations (slightly more than one-third of senior respondents) in 2005. However, the proportion of seniors who ever received a pneumococcal vaccination was much higher than the proportion in the general population aged 18 years and older.

The incidence rates for IPD in Peel have remained between 22 and 30 per 100,000 seniors between 2002 and 2004. The incidence rates for IPD in Peel increased by age group for females and up to 84 years of age for males.

### Influenza and Pneumonia

According to the Rapid Risk Factor Surveillance System for Peel (2005), 82% of seniors had a flu shot since September of the previous year. This represents a 10% increase from the 72% of Peel seniors who were immunized against influenza in 2001. In long-term care facilities in Peel, over 93% of residents were immunized against influenza each season between the 1998/1999 and the 2003/2004 influenza seasons.

The incidence rates for influenza have been high among seniors in Peel the last few influenza seasons (2003/2004 and 2004/2005) compared to other influenza seasons, despite high immunization rates among this age group. This may be due in part to increased use of newly developed rapid tests for influenza. In addition, heightened awareness and testing of respiratory illnesses may be a result of the outbreak of Severe Acute Respiratory Syndrome (SARS) which occurred in southern Ontario in the spring of 2003.

The incidence rates of influenza increased by age group for both males and females in Peel. The rates between males and females were similar for most age groups, except for seniors aged 85 years and older among whom females had higher rates than males.

In 2003, there were 878 emergency department visits made by seniors in Peel due to pneumonia and influenza. The rates of emergency department visits for pneumonia and influenza increased by age for both males and females in Peel. Rates were higher for males compared to females across all age groups, particularly for those 90 years and older.

The hospitalization rates for pneumonia and influenza were relatively stable between 1995 and 1999 in both Peel and Ontario; however, hospitalization rates decreased between 1999 and 2003. Hospitalization rates for seniors with pneumonia and influenza increased by age in Peel for both males and females.

Pneumonia and influenza were among the top 10 causes of death among Peel seniors in 2001. Mortality rates for seniors with pneumonia and influenza increased by age in Peel and were higher for males compared to females up to 79 years of age, but then higher for females compared to males for the age groups 80 years of age and older.