Haliburton, Kawartha, Pine Ridge District Health Unit
2005/2006 Influenza Season Summary

Introduction

Influenza is a common respiratory illness affecting millions of Canadians each year. In Canada, the influenza season usually runs from November to April and an estimated 10-25% of Canadians may get influenza each year. Between 4,000 and 8,000 Canadians die every year from influenza and its complications. Influenza illness is also associated with reduced work productivity and an increased burden on the health care system[1]. This report provides a summary of influenza activity in the Haliburton, Kawartha, Pine Ridge (HKPR) District during the 2005/2006 season.

Methods

This summary report includes data collected from two main sources:

- **Laboratory reports of sporadically-occurring influenza cases in the HKPR District**
  Local laboratories report confirmed cases of influenza to the Health Unit. The Health Unit then reports laboratory confirmed cases of influenza to the Public Health Division (PHD) of the Ministry of Health and Long-Term Care (MOHLTC) through the integrated Public Health Information System (iPHIS).

- **Reports of influenza and respiratory infection in institutions in the HKPR District**
  Under the *Health Protection and Promotion Act* (HPPA), nursing homes, homes for the aged, facilities operating under the *Development Services Act*, acute care and chronic care hospitals operating under the Public Hospitals Act must report respiratory infection outbreaks. Retirement homes are not required to report under the HPPA.

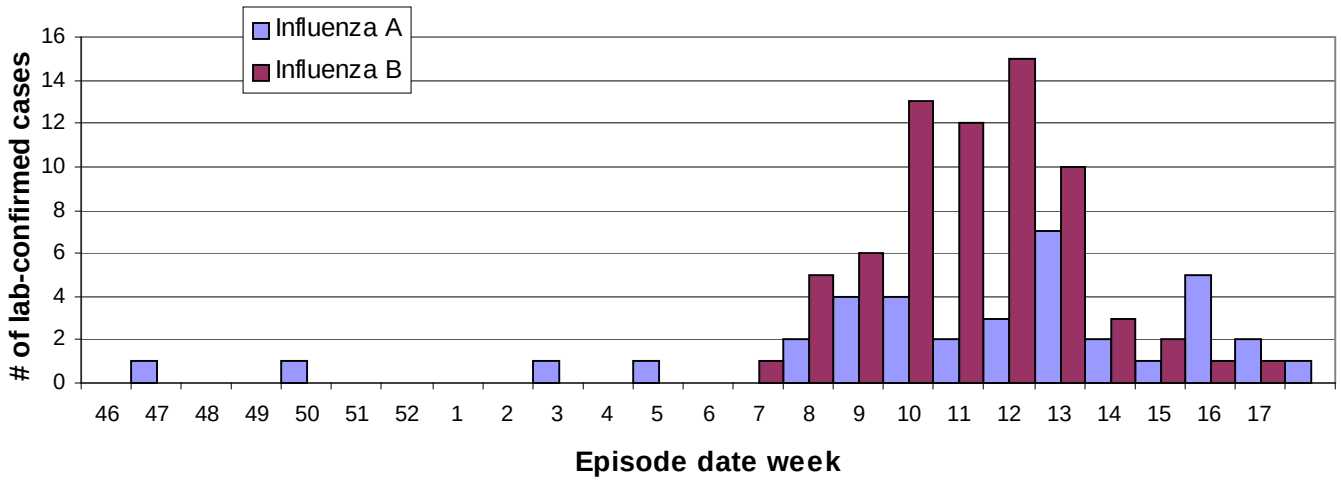
Vaccine coverage data were estimated based on the number of doses distributed by the Health Unit minus the number of doses returned and wasted for the 2005/2006 season. Mortality data, morbidity data and vaccine coverage among laboratory confirmed cases were extracted from iPHIS using Cognos ReportNet.

Epidemiology

A total of 106 cases of influenza were reported to the HKPR District Health Unit during the 2005/2006 season. The onset date of the first case was November 23, 2005 and was reported to the Health Unit on December 7, 2005. The onset date of the last case was May 2, 2006 and was reported to the Health Unit on May 15, 2006.

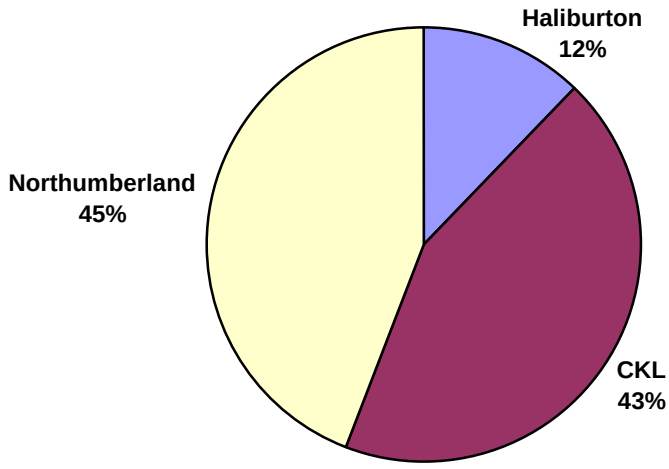
No deaths and no hospitalizations were reported among cases. Thirty-six per cent of the cases reported receiving the flu shot this season (n=38), 57% reported not receiving the flu shot this season (n=60) and immunization status was unknown for the remaining 7% of cases (n=8). The majority of cases reported were influenza B (65%, n=69) and the remaining 35% were influenza A (n=37). Fifty-five per cent of the cases reported were female (n=58), and the remaining 45% of the cases reported were male (n=49). In HKPR District during the 2005/2006 influenza season the majority of influenza cases were reported among children (14 years and under with 38.7% of reported cases) and the elderly (65+ years with 12.3% of reported cases).

Figure 1: Number of laboratory confirmed cases of influenza reported in HKPR District by episode date week, by aetiological agent, 2005/2006 season



The distribution of laboratory confirmed cases by county is presented in Figure 2. The observed distribution of reported cases is expected based on population size for the three counties.

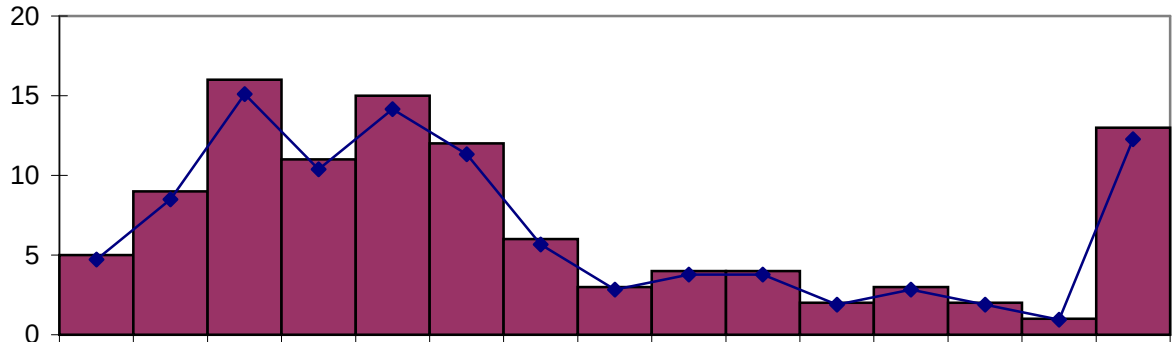
Figure 2: Proportion of laboratory confirmed cases of influenza reported in HKPR District by county, 2005/2006 season



For epidemiological purposes it is useful to compare historical data. Therefore the 2005/2006 season was compared with data available from the 2004/2005 season. During the 2004/2005 influenza season there were a total of 140 laboratory confirmed cases of influenza reported in the HKPR District. Sixty-six per cent of reported cases were influenza A and 34% of reported cases were influenza B. HKPR District observed a shift in the type of influenza reported from the 2004/2005 season to the 2005/2006 season. There was a greater proportion of influenza A cases reported during the 2004/2005 season as compared to a greater proportion of influenza B cases reported during the 2005/2006 season.

During the 2005/2006 season there were less cases of influenza reported in the elderly (65+ years) and more cases of influenza reported in children and young adults (<30 years) in comparison to the 2004/2005 season. Please refer to figures 3 and 4 below. The Public Health Agency of Canada (PHAC) also observed a similar trend in the age distribution of influenza cases across the country for the 2005/2006 season[2]. PHAC reported that influenza A was responsible for the majority of hospitalizations reported in children <16 years[3]. Although the number of cases reported in HKPR District was very small, influenza B predominantly affected children and young adults, with the exception of children <1 year.

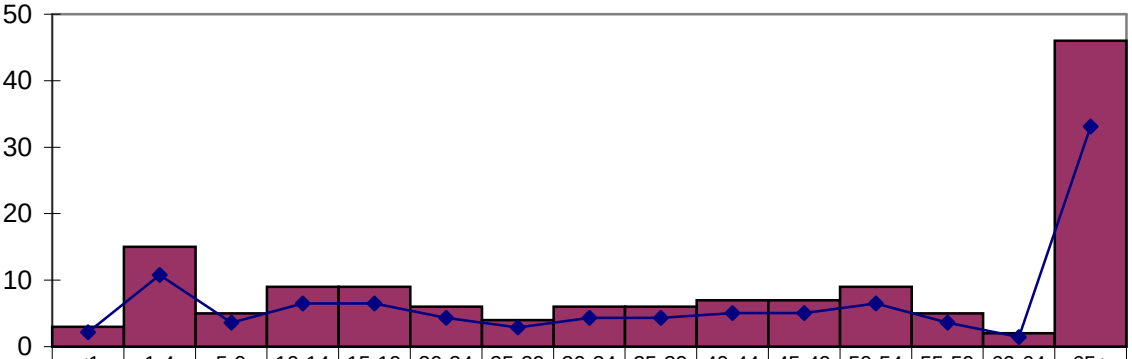
Figure 3: Number and proportion of laboratory confirmed cases of influenza reported in HKPR District, by age group, 2005/2006 season



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
# of cases	5	9	16	11	15	12	6	3	4	4	2	3	2	1	13
% of cases	4.7	8.5	15.1	10.4	14.2	11.3	5.7	2.8	3.8	3.8	1.9	2.8	1.9	0.9	12.3

Age groups (years)

Figure 4: Number and proportion of laboratory confirmed cases of influenza reported in HKPR District, by age group 2004/2005 season



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
# of cases	3	15	5	9	9	6	4	6	6	7	7	9	5	2	46
% of total cases	2.2	10.8	3.6	6.5	6.5	4.3	2.9	4.3	4.3	5.0	5.0	6.5	3.6	1.4	33.1

Age groups (years)

Local Respiratory Outbreaks
A total of 18 respiratory institutional outbreaks and one community respiratory outbreak were reported in HKPR District during the 2005/2006 influenza season. The causative agents of those outbreaks were as follows: 2 influenza B, 1 influenza A, 1 influenza A & B (at the same time), 1 rhinovirus, 1 parainfluenza II, 2 respiratory synctial virus (RSV) and 13 undetermined organism(s).

Provincial Summary
As no influenza summary has yet been provided by the MOHLTC, provincial summary data were obtained from the Ontario Influenza Bulletin. In Ontario, a total of 2330 cases of influenza were reported for the 2005/2006 influenza season. Influenza A accounted for 49% of cases, 44% of cases were influenza B and 7% of cases were unspecified. A total of 757 respiratory outbreaks were reported in Ontario for the 2005/2006 influenza season. The breakdown by agent is as follows: influenza A (16.7%), influenza B (2.8%), influenza A and B (0.7%), parainfluenza all types (5.9%), other organisms (13.3%) and no organism(s) identified (60.6%)[4]. Unfortunately no provincial age specific data are available at this time.

National Summary
National influenza surveillance is conducted by PHAC through the Flu Watch program. The results of the 2005/2006 influenza season are based on data reported up to April 8, 2006. The 2005/2006 season started later than usual in Canada with activity first increasing towards the end of December. Flu Watch data indicate that overall the 2005/2006 influenza season was relatively mild. Also, when compared with the previous two seasons, the 2005/2006 season was a milder season in terms of lower proportion of positive laboratory tests for influenza, fewer LTCH outbreaks, and fewer influenza surveillance regions reporting widespread and localized activity[3]. As noted above, in contrast to the 2004/2005 season, which heavily affected the elderly residing in LTCHs, influenza in the 2005/2006 season had a greater impact on children. Of the laboratory-confirmed influenza infections reported, 44.6% were in children <15 years of age and 17.0% were in adults >= 65 years of age[3].

Slightly more influenza A than influenza B viruses were isolated across the country during the 2005/2006 season. Of the 5,696 positive influenza identifications, 3,246 (57.0%) were influenza A viruses and 2,450 (43.0%) were influenza B viruses[3]. The distribution of influenza type follows the provincial trend (slightly more influenza A versus B reported), however the local HKPR trend is the opposite with slightly more influenza B versus A reported. It is important to note when interpreting local HKPR data that the number of cases reported are small which results in high variability of the data presented.

For the 2005/2006 influenza season the National Microbiology Laboratory (NML) antigenically characterized 1018 influenza viruses. A/Wisconsin/67/2005-like viruses were antigenically characterized for the first time this season in Canada. It is the recommended A/H3N2 component for the 2006/2007 vaccine. All of the influenza B viruses characterized have been B/Malaysia/2506/2004-like (B/Victoria/02/1987 lineage), which is the recommended influenza B component for the next season's vaccine[5].

Vaccine Composition
This year's (2005/2006) influenza vaccine contained the following viral antigens:

- A/New Caledonia/20/99 (H1N1)
- A/New York/55/2004 (H3N3)
- B/Jiangsu/10/2003

A/New York is antigenically equivalent to A/California, and B/Jiangsu is antigenically equivalent to B/Shanghai[6].

Vaccine Coverage

Ontario's Universal Influenza Immunization Campaign is in its 6th consecutive year. The program provides free influenza vaccine to anyone aged six months and older who lives, works or goes to school in Ontario. During the 2005/2006 season approximately 39% of HKPR residents received the annual flu shot.

For the 2005/2006 season the average influenza vaccine coverage rate for staff in the four acute care settings in the HKPR District was 59% (range 35-77%). For Long-Term Care Homes (LTCHs) in the HKPR District the average influenza vaccine coverage rate for staff was 83% (range 70-100%) and for residents was 93% (range 82-100%).

For the 2004/2005 season the average influenza vaccine coverage rate for staff in the four acute care settings in the HKPR District was 58% (range 32-91%). For Long-Term Care Homes (LTCHs) in the HKPR District the average influenza vaccine coverage rate for staff was 86.5% (range 73-98%) and for residents was 94% (range 82-100%). Vaccine coverage in acute and long-term care facilities among staff and residents has remained consistent over the past two influenza seasons.

For the 2005/2006 influenza season, 91% of the influenza A strain characterized by the NML matched those included in the 2005/2006 Canadian vaccine. However, 9% of the influenza A strains characterized were A/Wisconsin/67/2005-like viruses and were not covered by this season's vaccine. In addition, 99% of the influenza B strains characterized by the NML belong to the B/Victoria/02/1987 lineage and were not covered by this season's vaccine[5]. This may explain why the per cent of reported influenza B cases nearly doubled from the 2004/2005 season (34%) to the 2005/2006 (65%) season.

Antiviral Resistance

This season, 371 (81%) of the influenza A isolates tested by the NML were resistant to Amantadine. For the 2005/2006 influenza season the Public Health Agency of Canada recommended that health care providers in Canada not prescribe Amantadine to treat and prevent influenza. Oseltamivir (Tamiflu) or Zazamivir (Relenza) were the recommended antiviral medication for treatment or prevention of influenza for the 2005/2006 season[2].

Conclusion

In the HKPR District during the 2005/2006 season, influenza B infections were more commonly reported than influenza A infections. This may be due to the fact that this season's vaccine was a poor match to the circulating strain of influenza B. However, overall HKPR District did experience a decrease in the total number of cases reported as compared to the previous season. The slight increase in vaccine coverage rates in the community may be a potential explanation, as well as the fact that there was a good match between the annual vaccine and the circulating influenza A strain. As stated by the World Health Organization (WHO) influenza B virus is associated with limited outbreaks of relatively mild disease, it may occasionally cause severe epidemics with considerable mortality rates. However, due to frequent changes in the antigens constituting the viral subtype, influenza A is the principal cause of widespread epidemics of high mortality and of influenza pandemics[7]. This may also explain the milder influenza season experienced in HKPR District. Influenza activity this season, both in HKPR District and in Canada has had a lesser impact on the elderly population and a greater impact on children and young adults.

According to the Ontario Influenza Bulletin it was observed that the number of reported cases of influenza in HKPR District were significantly higher than other jurisdictions (e.g. within the central east region Peterborough and Durham both reported significantly less cases of influenza)[5]. Possible explanations for the discrepancy in case counts by jurisdiction include: more influenza B circulating in one jurisdiction versus another (as noted above there was a poor vaccine match for influenza B). Testing patterns of local physicians may have been influenced by the amount of promotion conducted by the Health Unit to encourage physicians to test for influenza. Routine testing may differ between jurisdictions (e.g. when the influenza virus is detected in a jurisdiction physicians may stop swabbing patients). Vaccine coverage rates were similar across all three jurisdictions. As noted above it was observed that influenza activity had a lesser impact on the elderly population and a greater impact on children and young adults. This age distribution among cases does not support the discrepancies in case counts across jurisdictions as HKPR and Peterborough have similar demographics (i.e. similar proportions of children and elderly). As well Durham's population has a greater proportion of children and less elderly than HKPR therefore based on the 2005/2006 age distribution trend one would expect that Durham would have more cases reported. Durham did report less influenza activity in their local schools through their sentinel school surveillance program as well as an increase in the promotion of handwashing to prevent infection.

It is always important to remember that the true number of sporadically occurring cases of influenza is not completely depicted since many individuals who experience influenza-like symptoms do not seek medical attention. As well, physician practices govern the number of tests that are done on individuals who present with influenza-like symptoms.

References

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