# FLU & U NEWSLETTER

## ZANAMIVIR STUDY

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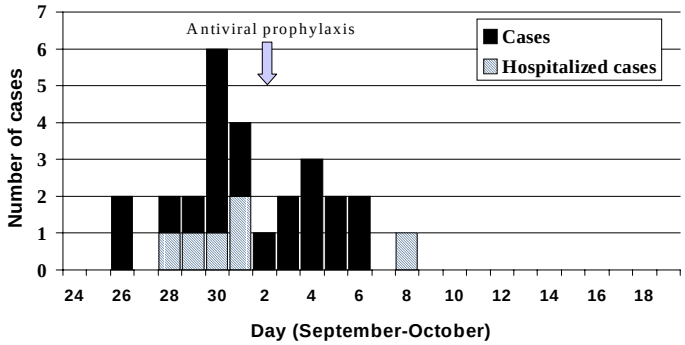
This newsletter has been prepared to provide you with new information on influenza and its prevention in long-term care, and has been developed by interested researchers from Ontario and Manitoba with backgrounds in infectious diseases and public health. The newsletter accompanies information on a study/compassionate release program of the neuraminidase inhibitor zanamivir (Relenza) for the control of influenza A and B outbreaks in long term care. A second newsletter will follow providing updates on the study and influenza activity. Submissions for the second newsletter are welcomed.

## *Using zanamivir to control outbreaks of influenza*

To our knowledge, before the 1999/2000 season, zanamivir was used in 2 nursing home outbreaks in Canada. In one amantadine resistance had developed. Zanamivir was demonstrated to be feasible to use. In these outbreaks, it was demonstrated that 96% of residents could make some attempt to inhale. Although 26% has some difficulty with inhalation from the device, the estimated dose delivered to these residents was 50% of the total, which may be adequate for prophylaxis. Use of zanamivir was associated with termination of the outbreak, but the number of cases had been decreasing prior to its institution, and no conclusion of efficacy could be made. In the second outbreak, zanamivir was used in a mixed outbreak of influenza A and B in a chronic care facility, and was associated with termination of the outbreak.

The first outbreak of the 1999/2000 season in which zanamivir efficacy was tested occurred on Sep 29, 1999 in a 256 bed nursing home in the Toronto area (rapid antigen testing on specimens from 3 ill residents was positive). On September 30, standard precautions for outbreak control, including vaccination for all residents and staff, were initiated. By Oct 1, 11 cases from 4 of 5 units had been identified. Antiviral prophylaxis with zanamivir was initiated on Oct 2.

For this outbreak, staff classified residents as capable of using a diskhaler or not; and residents deemed capable were offered zanamivir. Residents not capable, and those refusing zanamivir were offered amantadine. Residents' ability to use the diskhaler was reassessed during administration of the first two doses, and amantadine substituted for zanamivir for those with difficulty. Residents ill for >48 hours were not treated; those ill for <48 hours were treated with zanamivir (10mg BID) or amantadine (dosing as per NACI guidelines) for 5 days. Asymptomatic residents were prescribed prophylactic zanamivir (10mg OD) or amantadine until the outbreak was over. 43/246 (24%) eligible residents were not prescribed zanamivir: 32 were judged unable to use the inhaler, 4 refused all therapy, and 7 preferred amantadine. An additional 7 (2.8%) residents were switched to AM after difficulty with two attempts at inhalations.



Overall, 27 cases were identified in the outbreak (see epidemic curve, Figure 1). After the start of antiviral prophylaxis, 6/177 (3.4%) residents were prescribed zanamivir, 2/44 (4.5%) were prescribed amantadine, and 1 of 4 refusing prophylaxis developed illness meeting the case definition (P=.09). No side effects were identified due to zanamivir, and no resident required discontinuation of amantadine. Cases with onset after the initiation of prophylaxis were somewhat less likely to require hospital admission (1/11 vs. 5/16, P=0.34).

In this outbreak 84% (196/235) of residents were able to comply with inhalations of zanamivir. Nursing staff easily identified those who could not. Zanamivir was as effective as amantadine in prevention of influenza A, and its use was associated with termination of the outbreak.

Obviously, more experience with zanamivir in the control of outbreaks is necessary. Drug cost is at the moment not covered by provincial formularies. Although it will be a more expensive alternative, there will be cost savings associated with not having to calculate creatinine clearances on all residents regularly, and individualizing amantadine dosing. Because zanamivir does not select for resistance as rapidly as amantadine does, it is also possible that it will be somewhat more effective in control.

A second neuraminidase inhibitor (oseltamivir, or Tamiflu), available as a pill and suspension, will become available in Canada early in the year 2000. It has also been shown to be effective in prophylaxis of influenza, and will likely also be efficacious in outbreak control. To date, no significant drug interactions have been identified. Its most common side effects are nausea and vomiting, which have been reported in 2-6% of the elderly taking the medication. It is excreted renally, and some dosage adjustment may be necessary, but only for creatinine clearances less than 20-30ml/min.

## Status of vaccination programs in Canadian long-term care facilities

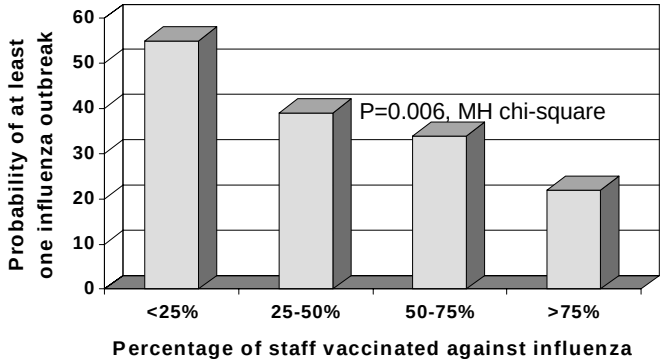
To assess vaccine use and antiviral prophylaxis in Canadian long term care facilities (LTCF)s, we have performed surveys of Canadian residential LTCFs with ≥25 beds in 1991, 1995 and 1999.

In 1998, mean reported influenza vaccination rates were 87% for residents and 40% for staff, significant increases over 1990, when 78% of residents were vaccinated and 81% of facilities reported staff vaccination rates of <25%. The mean pneumococcal vaccination rate among residents was 67%, also significantly increased. Higher resident vaccination rates were reported from LTCFs with an infection control practitioner (ICP) (P=0.002), and those obtaining consent for vaccination on admission (P=0.02). Predictors of higher staff vaccination rates included smaller size of facility (P<0.001), and presence of an ICP (P=0.01). Facilities without influenza outbreaks reported higher staff flu vaccination rates (P=0.006, see Figure below).

LTCFs with an ICP were more likely to have a policy on amantadine use (81% vs. 52%, P=.001). Of those LTCFs reporting influenza A outbreaks, 84% prescribed amantadine to residents in 97/8 and 91% in 98/9. Most (74%) offered amantadine to staff . Amantadine was discontinued due to side effects in only 2.1% of residents.

The results of these surveys demonstrate that vaccination rates are increasing steadily in LTCFs across the country. However, both staff influenza vaccination and resident pneumococcal vaccination rates remain suboptimal, and there is still room to improve resident influenza vaccination rates. These data also support Potter's conclusion (J Infect Dis, January 1997) that staff vaccination reduces the risk of influenza outbreaks.

**Relationship between LTCF staff vaccination rates and number of influenza outbreaks, 1998/9**



The following two pages contain details of two important events in Ontario in 1998/99 with implications for the prevention of influenza outbreaks in long term care. The first was a coroner's inquest into an influenza outbreak in a nursing home with a relatively high mortality rate, and a staff vaccination rate of <25%. Shortly after receiving the recommendations, the Ontario Ministry of Health and Long Term Care made annual influenza vaccination mandatory for staff of Ontario long term care facilities. The second event was an Ontario Labour Relations Board decision in favour of a nursing home who implemented a policy in which staff who refused both influenza vaccination and amantadine prophylaxis would be excluded from work during an influenza outbreak.

# CORONER'S INQUEST

On September 22, 1999, the Ontario Coroner's Office released a list of 25 recommendations from an inquest into an influenza outbreak in a Kitchener nursing home. The outbreak occurred in January 1999, and resulted in 17 deaths among 238 residents and 49 cases among 200 staff.

The inquest focused on issues of surveillance, outbreak recognition, and reporting outbreaks to public health, specimen collection and reporting of positive results, and the implementation of control measures (anti-viral medication, masks, gowns, gloves)

Below is a partial list of the recommendations released by the Coroner's Office that public health departments and LTCFs facilities are to consider for implementation:

1. Provincial legislation by July 1, 2000 requiring residents and staff of LTCFs to have annual influenza vaccine unless medically contraindicated. (The Ontario Ministry of Health and Long Term Care has made this mandatory in 1999.)
2. During influenza outbreaks, public health departments in Ontario should enforce orders excluding non-vaccinated workers who refuse to take amantadine prophylaxis.
3. All LTCF should have a provincially funded infection control practitioner.
4. Surveillance for respiratory illness should be performed for both residents and staff and reviewed daily to ensure prompt recognition of outbreaks.
5. Prophylactic anti-viral drugs (Amantadine) for unimmunized staff members should be provincially funded and available at the facility to ensure timely access for staff.
6. Serum creatinine levels and physician orders for amantadine should be available prior to influenza season. These orders can be retained as part of the influenza outbreak response at the facility
7. Funding formulas for facilities should be revised to ensure that there are no financial disincentives accrued as a result of delay of new admissions to the facility or the use of additional staff to provide extra resident care during an outbreak.
8. LTCF policies and practices around the use of staff sick time should ensure that staff do not attend work when ill with respiratory symptoms during an outbreak.
9. Public health departments should ensure that staff working in multiple LTCFs, and who have respiratory tract symptoms during can be identified in the event of an outbreak.
10. LTCFs should ensure that their standing consent forms address:
    a) yearly influenza vaccination;
    b) pneumococcal vaccination;
    c) administration of anti-viral agents in the event of an outbreak.
11. In advance of the flu season LTCFs should maintain a list of unvaccinated staff who will need amantadine prescribed or excluded from work if an outbreak occurs.

# ARBITRATION HEARING

A hearing was held into a group grievance filed against **Trillium Ridge Retirement Home** by the **Service Employees Union, Local 183**. The grievance was the result of a policy enforced during an influenza A outbreak in the facility in February 1998 that requiring staff:

- ✓ to be vaccinated against influenza, and/or
- ✓ take the anti-viral amantadine, or
- ✓ take time off, missing shifts.

The union felt that this was in violation of their collective agreement. **The following are excerpts from the Arbitrator's written report;**

**Arguments:**

**The Union** argued that the Employer's requirement to have employees receive influenza vaccination and/or take amantadine constituted an assault or battery. The Union argued that the employees did not understand that they had a choice whether or not to take vaccination and/or amantadine. Some employees experienced "unpleasant" side effects from taking amantadine.

**The Employer** maintained that it was implementing directives issued by the Medical Officer of Health regarding outbreak control measures to prevent the spread of influenza. They argued that "**it was the right and responsibility of the employer to safeguard the residents of the facility from contracting influenza which could be fatal to the frail elderly population**".

The policy offered staff the following choices during the influenza outbreak;

(a) ***receive vaccination with the current influenza vaccine***, or
(b) ***receive vaccination during an outbreak and wait two weeks to acquire immunity***, or
(c) ***take amantadine as prescribed and return to work within 48 hours***, or
(d) ***remain off work without pay until the outbreak was declared over***.

If there was a medical contraindication to receiving the vaccine and to amantadine, a staff member was exempt from the policy.

**Conclusions:**

The arbitrator rendered the following decision;

> **"… the measure of refusing to permit non-immunized staff to work their scheduled shifts during the outbreak was reasonable and not arbitrary in the circumstance."**
>
> **"…The policy was clear and brought to the attention of the employees affected and it was consistently enforced…For the reasons given, the group grievance is dismissed."**
>
> **"…to avoid any misunderstanding about the content of the policy, the Employer should post the policy document in readily accessible locations in all departments of the facility".**

In her rationale, the arbitrator argued that ample evidence was provided to show that vaccination of staff and residents at long-term care facilities is an effective means to prevent transmission of influenza A. This evidence demonstrated a beneficial effect of vaccination in both preventing transmission of the infection and reducing the severity of infections and associated complications. The likelihood of serious influenza-related complications such as infection with opportunistic bacteria, pneumonia and death in this elderly population was felt to warrant the measures being taken to prevent transmission of influenza in long term care.