Fraser Health Primary Care Summary – Initial Assessment of Patients with Suspected Pandemic Influenza Virus

1. PRIMARY CARE SUMMARY - OVERVIEW

1.1. Scope and purpose of this document

This document is intended for use in Fraser Health during a declared pandemic outbreak for those individuals (family physicians, health care workers, designates) responsible for completing the initial assessment and disposition of patients suspected of having acquired the pandemic influenza virus.

This summary is designed to provide guidance for health care workers (HCW’s) in Fraser Health based on the best evidence available from previous pandemic and interpandemic periods. In addition, the latest relevant information regarding avian influenza A/H5N1 is included. Guidance may evolve as clinical/pathological information on the eventual pandemic virus emerges. Therefore, once an influenza pandemic is underway, users are strongly urged to ensure that they refer to the most up-to-date version of these guidelines available on the Fraser Health website www.fraserhealth.ca.

The advice is specific to a pandemic situation and does not apply to the management of seasonal increases in influenza, community acquired pneumonia, lower respiratory tract infections, or exacerbations of COPD.

1.2. The impact of an influenza pandemic on primary care

Estimates of case-numbers and excess deaths in a pandemic are based on the average attack rates and case-fatality rates calculated from previously-documented influenza pandemics in the 20th century. Modeling suggests that between 20% and 50% of the population in British Columbia may become infected, and that 15% to 35% of the population would become clinically ill. The rate of outpatient visits is estimated at 40 to 400 per 1,000 people, the rate of hospitalizations is estimated at 0.2 to 13 per 1,000 people, and the rate of death is estimated at 0.014 to 7.65 per 1,000 people in the province (estimates of the Fraser Health Pandemic Influenza Preparedness Plan, and based upon the BCCDC Provincial Plan).

The numbers of consultations for influenza may be accompanied by a marked increase in physician visits for related problems, including: anxiety about symptoms, which may or may not be caused by influenza but reflect the concerns of patients for their own health, for the health of household members and contacts, and/or concerning the availability of antiviral medication.

Education resources for patients will be available through a major campaign to provide public information through the media, and through the use of a pre-developed self-care guide (please see the Fraser Health Pandemic Influenza Self-Care Guide – Appendix F of the Toolkit).

NOTE: This document is an incomplete work-in-progress, intended for the use of Fraser Health professional health care providers during an influenza pandemic. Please contact Fraser Health at pandemic@fraserhealth.ca if you have suggestions or for permission to use these proprietary documents.
2. GENERAL MANAGEMENT IN PRIMARY/ASSESSMENT CARE OF SUSPECTED PANDEMIC INFLUENZA CASES

2.1. Overview

Management decisions should be based primarily on:

- an assessment of illness severity;
- identification of those who are at high risk of severe disease and complications; and,
- current advice from public health officials based on the epidemiology of the pandemic.

Patients who are not considered to be at high risk and who have no suggesting features of severe disease or complications may not need to be seen in face-to-face consultations by a primary care clinician.

Patients with features of severe disease or serious complications will need assessment and may need admission to a higher level of care, including an acute care or an alternative care site during the pandemic.

2.2. Triage

A significantly increased demand for primary care clinician advice and consultation should be anticipated. A number of strategies may be required including:

- Telephone triage and advice (e.g., BC Nurse Line).
- Use of triage algorithms and clinical treatment pathways to enhance the capacity of the practice to see higher numbers of patients.
- Delivery of treatment plans and patient information by all practice staff.
- Linking closely with the local community response to identify those ill patients at home who may only require social support services in order to avoid hospital admission.
- Linking closely with acute and alternative care facilities to ensure efficient arrangements are made for patients requiring a higher level of care.

It may be useful for the triage system to include criteria for patients that DO NOT have influenza-like features (such as large, tender lymph nodes in the neck, white spots on the tonsils, or non-respiratory symptoms [e.g., urinary tract symptoms]).

2.3. Patients without influenza-like illnesses

With widespread concern during a pandemic, there are likely to be significantly higher rates of patient visits for all respiratory tract infections (e.g., febrile colds, sore throat with temperatures), which are normally managed at home using over the counter remedies. Demand management will be crucial to avoid having practices become overwhelmed.

Patients with non-influenza-like-illness (ILI), who would normally self-medicate should be advised not to seek medical care where possible to minimize the chance of contracting influenza.
during a visit to their family physician, walk-in clinics, assessment centres, or emergency departments. This will require specific practice-based educational strategies in addition to the mass public education by public health officials.

A sensible use of family physician practice time will be to manage patients in the high risk groups (see Clinical Features Overview) and those with complications. Family physicians, assessment centre staff, and emergency departments should make it clear that antivirals will only be available for those fitting a strict clinical definition of the novel strain of influenza during the pandemic (see Clinical Features Guide – Appendix B).

**Recommendations:**

- **Health professionals should use a Fraser Health-wide adopted clinical definition when diagnosing a novel influenza A virus** (see Clinical Features Guide – Appendix B).

- **Family physicians should formulate triage arrangements in advance of a pandemic to allow them to predominantly assess high risk patients and those developing complications.**

- **Triage and treatment plans which can be overseen by the primary care physician but delivered by office staff should be in place for patients not considered to be at high risk and who have no suggesting features of severe disease or complications. Similar plans will be required for the “worried well.”**

- **Family physicians should formulate plans according to the Fraser Health Pandemic Precautions – General Guidelines (Appendix C) to minimize the contact of patients without ILI with patients suffering from ILI in practice waiting rooms.**

**2.4. General advice and symptomatic treatment**

All patients presenting at family physicians’ offices, assessment centres, or emergency departments with symptoms suggestive of influenza (except perhaps those in whom urgent admission is required) should be given general recommendations and advice on symptomatic treatment. It is important that clinicians identify and address individual concerns and expectations, provide information about the illness, and provide information about what patients can do to help themselves and when they should seek further help. This information is provided in the Fraser Health Pandemic Influenza Self-care Guide (Appendix F).

**2.5. Addressing the patient’s agenda**

Influenza can present with quite severe symptoms, which may result in considerable anxiety or expectations of treatment to “cure” the illness. These concerns and expectations are likely to be heightened in the event of a pandemic. Furthermore, in a pandemic situation, patients’ ideas about their illness are likely to be affected by the experiences of others they know or even the stories they have heard through friends, neighbours, or the media. Failure to identify and address
the patients unique ideas about their illness, and their main concerns, is likely to lead to dissatisfaction, and may result in increased rates of visits, leading to an increased drain on primary care resources at a time when they are likely to be stretched.

In order to effectively deal with these issues, it will be necessary for primary care clinicians to use all of their skills in identifying the patient’s agenda. Developing an interested, concerned manner is as important as the specific questions asked.

2.6. Providing information about the illness

Like addressing the patient’s agenda, providing the patient with accurate information about the nature of the illness, symptoms to expect, and the likely course of the illness, is extremely important in conditions, such as influenza, that are for the most part self-limiting. Some useful information that can be provided to the patient is outlined below. You can also refer patients to the Fraser Health Pandemic Influenza Self-care Guide (Appendix F).

**Information about influenza to provide to patients**:  
- Influenza is caused by number different types of “influenza” viruses.
- The incubation period is 1-7 days and infected adults are usually contagious from the day before to 5 days after illness onset.
- Fever usually declines after 2-3 days and normally disappears by the 6th day.
- Cough, weakness, and fatigue can persist for 1-2 weeks and up to 6 weeks.
- Antibiotics do not benefit most people with influenza but are sometimes needed to treat secondary infections.
- Antivirals may be beneficial if given to ill individuals within 48 hours of symptom onset (if available).

*To be modified according to the latest definition once pandemic outbreaks occur.*

2.7. Providing information about symptomatic treatment

There is little scientific evidence for most symptomatic and self-help treatment, but experience suggests that some of the following measures may help, and are unlikely to cause harm:

- Treatment of fever, myalgias, and headache with Acetaminophen or Ibuprofen.
- Rest.
- Drink plenty of fluids.
- Stop smoking.
- Consider steam inhalation, short course of topical decongestants, throat lozenges, and saline nose drops.

2.8. Providing information about when patients should seek further help, and modify help-seeking behavior
Family physicians and other frontline staff should share information with patients about the best use of medical services, and specific advice should be given about when they should seek further help. Possible examples of what should prompt a patient to re-visit are provided below. You can also refer patients to the Fraser Health Pandemic Influenza Self-Care Guide for more information (Appendix F).

### Examples of what should prompt patients to re-visit:

- Shortness of breath at rest or while doing very little,
- Painful or difficult breathing,
- Coughing up bloody sputum,
- Fever for 4-5 days and not starting to get better (or getting worse),
- Started to feel better but now developing high fever and feeling unwell again, and/or
- Drowsiness, disorientation, or confusion.

### 2.9. Severity assessment and criteria for referral to an acute care facility: Which patients require referral?

Patients with uncomplicated influenza infection usually do not require referral to an acute care facility. Patients who might require admission to an acute care facility fall into two main groups: those with worsening of a pre-existing medical condition and those with an influenza-related complication.

#### 2.10. Worsening of a pre-existing medical condition

Patients who experience a worsening or clinical deterioration of pre-existing medical problems due to influenza infection should be managed according to recommended best practice for the medical condition in question. For instance, a patient with an acute exacerbation of COPD triggered by influenza infection should be managed according to current guidelines for COPD.

Those with a worsening of a pre-existing condition are likely to be in a group at “high risk” of influenza-related respiratory complications and consequently at risk of hospitalization or death (please see Clinical Features Guide, Appendix B). This group should be promptly reassessed if the illness is getting worse to consider for referral to an acute care facility.

#### 2.11. Influenza-related pneumonia

Pneumonia is the commonest influenza-related complication requiring hospital admission.

Patients complaining of new or worsening dyspnea should be carefully assessed for signs of pneumonia. If pneumonia is diagnosed, a disease severity assessment using the CRB-65 score is recommended, and referral to an acute care facility be made accordingly. The CRB-65 score is offered as a clinical assessment tool and does not replace clinical judgment.
In addition, in view of the rapid and fulminate course of primary viral pneumonia, patients with pneumonia who have bilateral chest signs (crackles or wheeze) should be referred to an acute care facility for further assessment, including a chest x-ray.

2.12. **Severity assessment used to determine the management of influenza-related pneumonia in patients in the community (CRB-65 score)**

**Score 1 point for each feature present:**

- Confusion (new disorientation in person, place or time).
- Respiratory rate ≥ 30/min
- Blood pressure (SBP < 90mmHg or DBP ≤ 60mmHg)
- Age ≥ 65 years

<table>
<thead>
<tr>
<th>CRB-65 score</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Likely suitable for home treatment</td>
</tr>
<tr>
<td>1 or 2</td>
<td>Consider hospital referral, particularly with score 2</td>
</tr>
<tr>
<td>3 or 4</td>
<td>Urgent hospital referral</td>
</tr>
</tbody>
</table>

2.13. **What severity assessment strategy is recommended for patients referred to an acute care facility with influenza-related pneumonia?**

The CURB-65 severity assessment tool may be used for the stratification of hospitalized patients with influenza-related pneumonia into disease severity groups. In addition, the presence of diffuse bilateral lung infiltrates on chest radiography consistent with primary viral pneumonia is an adverse prognostic feature. Such patients should be treated as for severe pneumonia. In all instances, clinical judgment is essential when assessing disease severity.

2.14. **Severity assessment used to determine the management of influenza-related pneumonia in patients admitted to an acute care facility (CURB-65 score)**

**Score 1 point for each feature present:**

- Confusion (new disorientation in person, place or time).
- Urea > 7 mmol/l
- Respiratory rate ≥ 30/min
- Blood pressure (SBP < 90mmHg or DBP ≤ 60mmHg)
- Age ≥ 65 years

<table>
<thead>
<tr>
<th>CURB-65 score</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Likely suitable for home treatment</td>
</tr>
<tr>
<td>1 or 2</td>
<td>Consider short in-patient stay or acute care facility supervised out-patient treatment</td>
</tr>
<tr>
<td>3 or 4</td>
<td>Manage in an acute care facility as severe pneumonia</td>
</tr>
</tbody>
</table>
NOTE: New bilateral lung shadowing on CXR consistent with primary viral pneumonia should be taken as a feature of severe pneumonia regardless of CURB-65 score.

Recommendations:

- Patients with bilateral lung infiltrates on chest radiography consistent with primary viral pneumonia should be managed as having severe pneumonia regardless of CURB-65 score.

- In an acute care facility, patients with influenza-related pneumonia and who have a CURB-65 score of 3 or more are at high risk of death and should be managed as having severe pneumonia (see below).

- Patients who have a CURB-65 score of 2 are at increased risk of death. They should be considered for short stay inpatient treatment or supervised outpatient treatment at a temporary influenza hospital. This decision is a matter of clinical judgment (see below).

- Patients who have a CURB-65 score of 0 or 1 are at low risk of death. They can be treated as having non-severe pneumonia and may be suitable for home treatment.

2.15. Other complications

Other influenza-related complications are uncommon. There are no specific recommendations relating to criteria for acute care facility admission or disease severity assessment in these cases.

Recommendations:

- Patients with clinically defined uncomplicated influenza infection would be expected to make a full recovery. They require good symptomatic management, information about the natural history, and advice as to when to re-visit.

- Patients with new or worsening symptoms – particularly shortness of breath or recrudescent fever not responding to treatment – should be examined to assess the presence and severity of influenza-related pneumonia.

- Patients with worsening of pre-existing co-morbid medical conditions should be managed according to best practice for that condition with reference to published disease-specific guidelines, if available.

- In patients with influenza-related pneumonia clinically, acute care facility referral and assessment should be considered for patients with a CRB-65 score of 1 or 2 (particularly score 2) and urgent admission for those with CRB-65 score of 3 or more (see above).
• Patients with bilateral chest signs of pneumonia should be referred to an acute care facility for further assessment regardless of CRB-65 score (see above).

2.16. Severity assessment and criteria for referral to an acute care facility: Which pediatric patients require referral?

The most severely ill children should be referred for assessment for admission to an acute care facility. Indicators are:

• Signs of respiratory distress:
  o markedly raised respiratory rate
  o grunting
  o intercostal recession
  o breathlessness with chest signs
• Cyanosis
• Severe dehydration
• Altered conscious level
• Complicated or prolonged seizure
• Signs of septicaemia – extreme pallor, hypotension, floppy infant

*(See below for a useful severity assessment for respiratory distress)*.

**Table: Respiratory Distress Severity Assessment**

<table>
<thead>
<tr>
<th>Infants</th>
<th>Mild</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature &lt;38.5°C</td>
<td>Temperature &gt;38.5°C</td>
<td></td>
</tr>
<tr>
<td>Resp. rate &lt; 50 breaths/min</td>
<td>Resp. rate &gt; 70 breaths/min</td>
<td></td>
</tr>
<tr>
<td>Mild recession</td>
<td>Moderate to severe recession</td>
<td></td>
</tr>
<tr>
<td>Taking full feeds</td>
<td>Nasal flaring</td>
<td>Cyanosis</td>
</tr>
<tr>
<td></td>
<td>Cyanosis</td>
<td>Intermittent apnoea</td>
</tr>
<tr>
<td></td>
<td>Cyanosis</td>
<td>Grunting respiration</td>
</tr>
<tr>
<td></td>
<td>Cyanosis</td>
<td>Not feeding</td>
</tr>
<tr>
<td></td>
<td>Cyanosis</td>
<td>Signs of dehydration</td>
</tr>
</tbody>
</table>

**Older children**

| Temperature <38.5°C | Temperature >38.5°C |
| Resp. rate < 50 breaths/min | Resp. rate > 50 breaths/min |
| Mild breathlessness  | Severe difficulty in breathing |
| No vomiting          | Nasal flaring |
| Cyanosis             | Cyanosis            |
| Grunting respiration | Signs of dehydration |
2.17. When should ICU admission be considered?

The indications for transfer to ICU are no different in patients with influenza infection compared to other patients. All patients who require referral to an ICU will have influenza-related respiratory failure. In a pandemic situation when ICU beds may not be readily available, prioritization of patients on an individual basis matched against available resources will be expected.

**Recommendations:**

- Patients with primary viral pneumonia in respiratory failure ought to be considered for transfer to ICU.
- Patients with influenza admitted to ICU ought to be managed by specialists with appropriate training in intensive care, respiratory medicine, and infectious diseases.

2.18. Indications for transfer to ICU – CHILDREN

- Failing to maintain a SaO2 of >92% in FiO2 of >60%.
- Hypotension.
- Severe respiratory distress and a rising PaCO2.
- There is a rising respiratory rate and pulse rate with clinical evidence of severe respiratory distress with or without a raised PaCO2.
- There is recurrent apnea or slow irregular breathing.
- There is evidence of encephalopathy.

2.19. What to do when there are no PICU beds available?

In a pandemic situation, pediatric high dependency and intensive care beds are likely to fill quickly and will be insufficient to meet demand. Children will have to be triaged on the basis of the severity of their disease (acute and co-existing), and the likelihood of their achieving full recovery. Early discussion with tertiary specialists in respiratory medicine, pediatric intensive care, and pediatric infectious diseases for support in management is encouraged.
3. **GENERAL INVESTIGATIONS**

3.1. **What general investigations should be done in the community during an influenza pandemic?**

**Recommendations:**

- General investigations, including a chest x-ray, are not necessary for the majority of patients managed in the community.

3.2. **What general investigations should be done on all adults referred to an acute care facility or temporary influenza hospital?**

3.2.1. **Radiology**

In acute uncomplicated influenza, the chest X-ray is usually normal. When primary viral pneumonia occurs as a complication, particularly in elderly adults, the chest X-ray often shows multiple infiltrates or consolidation. Cavitations or pleural changes suggest bacterial super-infection. In combined viral-bacterial pneumonia, the clinical features typically appear later than primary viral pneumonia and the chest X-ray often shows cavitation or pleural effusions. Secondary bacterial pneumonia usually occurs after apparent improvement from the viral infection; the chest -ray may show consolidation.

**Recommendations:**

- A chest x-ray may be obtained during the assessment of a suspected case of influenza (if practical) prior to referral to the acute care facility.

3.2.2. **Blood tests**

In those patients severe enough to require acute care, the following tests may be useful but will depend on current resources:

- CBC: a leukocytosis with left shift may occur in those with primary viral pneumonia, mixed viral-bacterial pneumonia or secondary bacterial pneumonia.
- Lymphopenia has been noted in human cases of severe avian H5N1 influenza. Urea and electrolytes may reveal evidence of hypo or hypernatraemia or renal impairment.
- Creatine kinase (CK) if severe myalgia and concerned regarding rhabdomyolysis.

**Recommendations:**

- The following blood tests should be obtained in patients admitted to an acute care facility (if practical prior to admission):
  
  a. Full blood count*
b. Urea, creatinine and electrolytes*
c. In patients with suspected secondary bacterial infection, the C-reactive protein (CRP) level may aid diagnosis.*

3.2.3. Other tests

Recommendations:

- Pulse oximetry should be carried out in all patients presenting to secondary care.
- If the oxygen saturation is below 92%, appropriate O2 therapy to be provided.
- An ECG should be obtained for patients with cardiac complications, and considered for patients with respiratory complications.*

(*if lab and ECG resources are available)
4. MICROBIOLOGICAL INVESTIGATIONS

4.1. What microbiological investigations should be undertaken for patients in the community?

The aim of microbiological investigations early in a pandemic will be to confirm that influenza A is circulating in the local community. Once a pandemic is established in the community, microbiological investigations are not recommended routinely or likely to be available readily. Routine testing for bacterial pathogens is not recommended at any stage.

Recommendations:

- Where possible, early in a pandemic, nose and throat swabs in virus transport medium should be collected from patients and submitted to the local laboratory (under local public health guidance).
- Once a pandemic is established a rapid screening test should be the only investigation (if available).
REFERENCES


APPENDIX 1: EMPIRICAL Antibiotic RECOMMENDATIONS FOR BRONCHIAL COMPLICATIONS OF INFLUENZA WITHOUT PNEUMONIA MANAGED IN THE COMMUNITY

Previously well adults with uncomplicated influenza, or acute bronchitis complicating influenza, in the absence of pneumonia, do not routinely require antibiotics.

Antibiotics should be considered in those previously well adults who develop significant worsening of symptoms (particularly recrudescent fever or increasing breathlessness).

A prescription for prophylactic antibiotics should be strongly considered for patients at high risk of complications - to be used if the illness is not starting to improve after 24 hours or there is worsening of symptoms (as above).

Most patients can be adequately treated with a week’s course of oral antibiotics.

See the treatment table below for a summary of antibiotic choices.
### Table: Preferred and alternative initial empirical antibiotic treatment regimens and parenteral to oral switch regimens for pneumonic and non-pneumonic lower respiratory tract infections complicating influenza managed in acute care facilities

<table>
<thead>
<tr>
<th>PREFERRED ALTERNATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[1] Hospital-treated, non-pneumonic bronchial complications (including exacerbations of COPD and acute bronchitis) requiring antibiotic therapy</strong> • co-amoxiclav 625mg tds PO, • Macrolide (erythromycin 500 mg qds PO or clarithromycin 500 mg bd bPO)</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>doxycycline 200mg stat and 100mg od PO</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>Fluoroquinolone with enhanced pneumococcal activity, e.g. levofloxacin 500 mg od PO or moxifloxacin 400mg od POc</td>
</tr>
<tr>
<td><strong>[2] Hospital-treated, not severe pneumonia</strong> • co-amoxiclav 625mg tds PO</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>doxycycline 200mg stat and 100mg od PO</td>
</tr>
<tr>
<td>OR if IV needed</td>
</tr>
<tr>
<td>• co-amoxiclav 1.2 g tds IV</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>Macrolide (erythromycin 500 mg qds PO or clarithromycin 500 mg bd bPO)</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>levofloxacin 500 mg od IV</td>
</tr>
<tr>
<td><strong>[3] Hospital-treated, severe pneumonia</strong> • co-amoxiclav 1.2 g tds IV</td>
</tr>
<tr>
<td>or cefuroxime 1.5 g tds IV</td>
</tr>
<tr>
<td>or cefotaxime 1g tds IV PLUS</td>
</tr>
<tr>
<td>Macrolide (erythromycin 500 mg qds PO or clarithromycin 500 mg bd bPO)</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>Beta-lactamase stable antibiotic (co-amoxiclav 1.2 g tds IV or cefuroxime 1.5 g tds IV or cefotaxime 1g tds IV)</td>
</tr>
</tbody>
</table>

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APPENDIX 2: EMPIRICAL ANTIBIOTIC CHOICE FOR ADULTS WITH INFLUENZA-RELATED PNEUMONIA MANAGED IN THE COMMUNITY

The principles of antibiotic selection for patients with influenza-related pneumonia who can be managed in the community is similar to those for the management of sporadic community acquired pneumonia in general, except that adequate cover for Staph aureus, in addition to cover for S pneumoniae, should be included in any empirical regimen.

For this reason, oral co-amoxiclav or a tetracycline, such as doxycycline, is the preferred regimen.

A macrolide (e.g., erythromycin or clarithromycin) is an alternative for those intolerant of the preferred first choices.

Recommendations:

- Co-amoxiclav or a tetracycline is preferred.
- A macrolide (erythromycin or clarithromycin) is offered as an alternative choice for those intolerant of penicillin.
- Those with features of severe infection (i.e., bilateral chest signs or CRB-65 score of 3 or more) should be admitted to a facility with a higher level of care.
- For those referred to hospital, family physicians may consider administering antibiotics immediately where the illness is considered life-threatening or where delays (>2 hours) in admission are likely.

Table: Preferred and alternative initial empirical antibiotic treatment regimens for adults with pneumonic and non-pneumonic lower respiratory tract infections (including exacerbations of COPD and acute bronchitis) complicating influenza managed in the community

<table>
<thead>
<tr>
<th>PREFERRED</th>
<th>ALTERNATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-amoxiclav 625mg tds PO (for 1 week), OR</td>
<td>Macrolide (erythromycin 500 mg qds PO or clarithromycin 500 mg bd bPO)</td>
</tr>
<tr>
<td>Doxycycline 200mg stat and 100mg od PO X 10 days</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3: ANTIVIRAL TREATMENT AND BACKGROUNDER

Overview

The antiviral treatment of choice is oseltamivir (Tamiflu™). Dosage strength and duration may need to be modified once more information becomes available on efficacy. In addition, the dosage may be modified if probenicid is used concurrently.

Currently recommended adult and pediatric dosages of oseltamivir:

ADULTS: 75 mg twice daily for five days (NOTE: Dose to be reduced by 50% if creatinine clearance is less than 30 mL per minute).

CHILDREN: Weight-adjusted twice-daily doses (suspension) for five days in children older than one year of age

- 30 mg twice daily for those weighing 15 kg or less
- 45 mg for those weighing more than 15-23 kg
- 60 mg for those weighing more than 23-40 kg
- 75 mg for those weighing more than 40 kg

NOTE: Higher doses and longer courses of treatment may be considered should the pandemic influenza virus strain cause severe infections once it arrives.

From clinical trial data accrued to date and based on seasonal, interpandemic influenza, the anticipated positive effect of antivirals in a pandemic will be:

- reduction of illness duration by 24 hours, and therefore more rapid mobilization of affected individuals including essential workers
- a possible reduction in hospitalization of infected individuals
- a reduction of subsequent antibiotic use by infected individuals

The evidence accrued to date does not suggest there will be a reduction of overall mortality.

Who should receive antiviral drugs?

Ideally, antiviral treatment should be offered to every patient over the age of one year who:

- has an acute influenza-like illness
- fever (38°C in adults, or 38.5°C in children) and
- presents within 48 hours of the onset of symptoms.

Note: Patients who are unable to mount an adequate febrile response (e.g., the immunocompromised or very elderly) may still be eligible for antiviral treatment despite the lack of documented fever.
There is no evidence of benefit for antiviral therapy commenced more than 48 hours after the onset of ILI in otherwise healthy patients. Immunosuppressed patients, including those on long term corticosteroid therapy, may suffer more prolonged viremia, and could possibly benefit from antiviral therapy commenced later than 48 hours after the onset of ILI. However, there is no evidence to support this hypothetical situation.

**What side-effects occur during use of oseltamivir?**

<table>
<thead>
<tr>
<th>Primary Side-effects</th>
<th>Nausea, vomiting, abdominal pain, dyspepsia, diarrhea, headache, fatigue, insomnia, dizziness, conjunctivitis, nose-bleed, rash, ear disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare Side-effects</td>
<td>Hypersensitivity reactions</td>
</tr>
<tr>
<td>Very Rare Side-effects</td>
<td>Hepatitis, Stevens-Johnson syndrome</td>
</tr>
</tbody>
</table>

**Delivery of antivirals in primary care**

Federal, provincial, and Fraser Health are working collaboratively to develop a plan for the stockpiling, distribution, and administration antiviral drugs (NIs) in the event of an influenza pandemic. This plan, however, is still in development (February 2006).

Please note that at this stage of pandemic planning, there is no plan for antivirals to be distributed through family physician offices and local pharmacies.

While planning for antiviral distribution and allocation has largely been at the federal, provincial, regional levels, Fraser Health recognizes the need to engage all frontline stakeholders (e.g., pharmacists, family physicians, public health offices) to ensure a practical, efficient, and operational distribution system is in place prior to a pandemic. This system will be necessary to the maximize the benefits from the limited antiviral supply, and discussions/strategizing will continue into the next phase of planning.