

**Federal Bureau of Prisons
Health Services Division**

Pandemic Influenza Plan

Module 3: Health Care Delivery (October 2009)

What's New in This Document?

Since the May 2008 version of Module 2, the following has been revised to reflect updated recommendations by the Centers for Disease Control and Prevention (CDC) regarding the current pandemic H1N1 influenza. Throughout the module, changes are highlighted in yellow.

- Specific information about pandemic H1N1 influenza is included throughout.
- CDC recommends that 2009 H1N1 influenza testing *not* be routinely performed on persons presenting with ILI. Exceptions: hospitalized patients and atypical clinical presentation.
- The following CDC definition for influenza-like-illness (ILI) will be utilized within the BOP: “Fever (temperature of 100° F [37.8° C]) plus either cough or sore throat—in the absence of a known cause other than influenza”.
- Recommendations for antiviral therapy have been updated.
- Recommendations regarding the use of inmate patient care assistants have been deleted.

The BOP Pandemic Influenza Plan contains the main plan and four separate modules which cover the unique health-related aspects of pandemic flu emergency response. These include:

- Module 1: Surveillance and Infection Control
- Module 2: Antiviral Medications and Vaccines
- Module 3: Health Care Delivery
- Module 4: Care for the Deceased

Each module contains template Standard Operating Procedures that are provided as separate, modifiable, WordPerfect® files. The Standard Operating Procedures correlate with the Action Steps listed for the Preparation Stage. They are designed to standardize, guide, and simplify each facility’s planning process.

The Bureau of Prisons has based its Pandemic Influenza Plan on the federal government response stages. The BOP plan combines the federal stages to organize action steps into three phases: Preparation, Response, and Recovery.

Federal Stage	Federal Government Response Stages*	Federal Stages	BOP Plan
0	New domestic animal outbreak in at-risk country	0-1	Preparation
1	Suspected human outbreak overseas		
2	Confirmed human outbreak overseas	2-5	Response
3	Widespread human outbreaks in multiple locations overseas		
4	First human case in North America		
5	Spread throughout United States		
6	Recovery & preparation for subsequent waves	6	Recovery

*Note: The Federal Government Response Stages should not be confused with the World Health Organization phases of pandemic influenza which are different and overlap.

Module 3: Health Care Delivery – Contents

Overview	1
Action Steps by Pandemic Stage	4
Standard Operating Procedures for Preparation Stage (available in WordPerfect® format)	6
Attachment 3.1 BOP Pandemic Influenza Clinical Practice Guideline.....	8
Attachment 3.2 Medical Supply List for Pandemic Flu.	16
Attachment 3.3 Non-prescription and Prescription Drugs for Pandemic Flu.	17
Attachment 3.4 Oral Rehydration Solution Recipe.....	18

Overview

During pandemic flu, health care delivery may have to be altered to accommodate increased number of inmates who are sick with the flu, and for shortages in personnel, equipment, and supplies. Standards of care that apply under normal circumstances may have to be modified. In the event of severe disruption, the allocation of scarce personnel, equipment and supplies may have to be shifted to focus on saving the most number of lives possible rather than the traditional focus on saving individual lives.

Each facility should develop plans for health care delivery during pandemic flu, based on the relative degree of disruption to the prison health care system. The framework below outlines how standards of care may shift throughout a pandemic based upon both increased demand for health services and reduction of health care resources.

Potential Alterations in Health Care Delivery Based on Degree of Disruption Associated with Pandemic Flu	
Degree of Disruption	Alteration in Health Care Delivery
Normal conditions → ▶ normal resources & demands	Normal standards of care
Mild disruption → ▶ slightly reduced health care staffing ▶ some inmates ill; few severely ill ▶ community hospitalization available	Near normal standards of care <i>Possible adjustments include:</i> ▶ altered site of care for flu patients ▶ rearrange health care staffing/roles ▶ reduce preventive health care services (continue TB screening & influenza vaccination) ▶ maintain chronic care clinics ▶ provide care for minor ailments, as feasible
Moderate disruption → ▶ health care staffing somewhat reduced ▶ some shortages of supplies/medications ▶ limited laboratory capability ▶ many inmates ill; some severely ill ▶ limited community hospitalization available for sickest inmates	Revised medical care standards <i>Possible adjustments include:</i> ▶ prioritize delivery of chronic care ▶ minimize pill line; provide 4-6 week supply of chronic care medications to some inmates ▶ eliminate most preventive health care except TB screening, influenza & pneumococcal vaccination ▶ focus on key life-saving care ▶ send severely ill to hospital ▶ eliminate care for low priority health problems
Severe disruption → ▶ health care staffing significantly reduced ▶ significant shortages supplies/medications ▶ no lab capability; no chest radiography ▶ numerous inmates ill; many severely ill ▶ no contract health care or subspecialists ▶ no community hospitalization available	Total system/standards alteration <i>Possible adjustments include:</i> ▶ focus on key life-saving care ▶ cohort sickest inmates/provide palliative care ▶ deliver care in accordance with priorities established by the BOP Medical Director

The degree of disruption caused by pandemic flu will be dictated in large part by how infectious the virus is (the *flu attack rate*) and the virulence of the virus (the *death rate*). In preparing for pandemic flu, planners in local facilities should review the chart below to assess the impact of pandemic flu on their facility to estimate the number of inmates who would become ill based on various flu illness attack rates and associated death rates.

Pandemic Influenza: Projected Number of Flu Cases and Flu-Related Deaths (per 1000 inmates, based on flu attack rates and flu death rates)						
Flu Attack Rate	Projected Flu Cases (per 1000 inmates)	Projected Flu-Related Deaths (per 1000 inmates)				
		Rate of Death Among Flu Victims				
		1%	2%	3%	4%	5%
30%	300	3	6	9	12	15
40%	400	4	8	12	16	20
50%	500	5	10	15	20	25

The current pandemic 2009 H1N1 influenza usually results in relatively mild illness. The 2009 H1N1 flu has caused greater disease burden in people younger than 25 years of age than among older people. At this time, there are few cases and deaths reported in people older than 64 years old, which is unusual when compared with seasonal flu. However, pregnancy and other previously recognized high risk medical conditions from seasonal influenza appear to be associated with increased risk of complications from 2009 H1N1. These underlying conditions include asthma, diabetes, suppressed immune systems, heart disease, kidney disease, neurocognitive and neuromuscular disorders and pregnancy.

BOP institutions are encouraged to review the issues identified below and start planning for health care delivery with pandemic flu.

Influenza Clinical Guidelines: Attachment 3.1 outlines clinical practice guidelines for pandemic flu. Facility clinicians should carefully review these guidelines and assess how they would be applied in this facility. Training should be provided on the clinical practice guidelines for health care staff in preparation for pandemic flu.

Prioritizing care for other health problems: With the increased demands posed by flu and the potential for reduction in health care resources, it may be necessary to prioritize health care for health care problems other than flu. In the event of pandemic flu, the Medical Director will issue specific guidance for prioritizing delivery of health care.

In preparation for pandemic flu, facilities should develop a means for rapidly identifying patients who require daily life-sustaining interventions or supervised medication. Included in the highest priority group are insulin dependent diabetics, renal dialysis patients and other seriously ill patients. Priority also should be given to inmates who, if untreated, would provide problems related to security, e.g., treatment of schizophrenics or those with other mental health problems; seizure disorders. It is also important to identify lower priority problems for which treatment or evaluation can be deferred.

Health Care Staffing: Current (or reduced) health care staffing levels may be inadequate to

meet the demand both of routine health care and that created by a surge of flu cases. Alternative staffing plans should be developed to provide 12 to 24-hour coverage. Facilities should plan to supplement highly trained health care staff with non-health care staff.

In the event that 24-hour shifts become necessary, staff should be advised to bring changes of clothes, bedding, medications, etc., so they can be as comfortable as possible. There should be a place for staff to take rest breaks and provide a way for them to shower and do laundry.

Logistics: A practical approach to delivering care for hundreds of sick inmates must be developed by each facility. Outlined below are considerations when planning for pandemic flu.

- ▶ **Location:** Identify appropriate locations to house and care for large numbers of inmates who are sick with flu. Determine how and where sick inmates would be housed based upon different estimates for the percentage of inmates who are ill (i.e., 20%, 30%, 40%, 50%). Ideally these locations would be located adjacent to bathroom facilities. Possible locations include existing dormitories, gymnasium, or chapel. Bunk beds may or may not be suitable depending upon the how sick the inmates become.
- ▶ **Mattresses/Cots:** Mattresses can be placed either on cots (ideally) or on the floor. However, it is important to devise some method to elevate the head of the bed to facilitate breathing. Given that flu patients may suffer from vomiting, diarrhea and incontinence, some method should be devised to assure that mattresses are impervious (either existing plastic covers or covering the mattresses with plastic bags).
- ▶ **Linens:** At least two sets of sheets will be needed for each sick inmate with plans for laundering them. Towels, wash cloths or rags will be needed for cleaning and drying.
- ▶ **Other:** Anticipate the need for bedpans and urinals. Develop plan for disposing of human waste. Plan for something to use as emesis basins, e.g., paper bags lined with plastic bags (for easy disposal of waste). *Attachment 3.2* lists other supplies to consider for stockpiling.

Organization of Health Care Delivery: Consider methods to most efficiently delivery health care during pandemic flu, including altered roles for staff and how to organize care for large numbers of inmates. During pandemic flu “lock-down” may be utilized for social distancing. Strategies should be developed to overcome the significant obstacles posed by “lock-down” for health care delivery. Pill lines may need to be suspended (except for controlled substances and high risk medications, e.g., haldol). To facilitate medication delivery, certain groups of inmates may need to be cohorted, e.g., insulin dependent diabetics.

Action Steps by Pandemic Stage

Preparation (Federal Response Stages 0–1)

(See page 7 for the [Standard Operating Procedures](#) for the Preparation stage.)

1. Identify staff persons responsible for planning for and directing health care delivery during pandemic influenza.
2. Review *Attachment 3.1, Pandemic Influenza Clinical Practice Guideline* and assure training of clinical staff.
3. Calculate estimates of the number of ill inmates in your facility based on the percentage who become ill.
4. Identify high and low priority health care delivery functions.
5. Develop plans for augmenting health care staffing during pandemic flu (12 to 24-hour staffing, use of non-health care staff).
6. Develop plans for “**Influenza Isolation Room**” wards to accommodate up to 20%, 30%, 40% and 50% of the inmate population.
7. Develop plan for increasing par levels of medical and related supplies with pandemic flu.
8. Develop plan for increasing par levels of pharmaceuticals with pandemic flu.
9. Develop facility-specific plan for health care delivery during pandemic flu.

Response (Federal Response Stages 2–5)

Begin when there are confirmed human outbreaks of pandemic flu anywhere in the world:

1. Reach par levels for medications and supplies.
2. Providing training updates to non-health care staff to assist in caring for inmates with pandemic flu.
3. Prepare and stock temporary exam rooms in areas identified.

Begin after a suspected pandemic influenza case is diagnosed in the facility:

4. **Adjust staffing schedules as needed to accommodate for health care staffing shortages.**
5. **On an ongoing basis assess the capability of health services to provide medical care. As needed, triage and prioritize provision of care. If necessary,** suspend most preventive health care services except TB screening, and influenza and pneumococcal vaccination.
6. Treat acute influenza cases in ward setting. Reorganize health care delivery to increase efficiency.
 - a. Implement clinical guidelines for flu with emphasis on:
 - ▶ maintaining adequate hydration
 - ▶ treating high priority flu patients with antivirals per CDC priority groups
 - ▶ treating suspected secondary pneumonia with antibiotics
 - b. Inmates with a CRB-65 Score of 3 to 5 should be hospitalized (if community resource is available). Inmates with a CRB-65 Score of 2 should be considered for hospitalization. See *Attachment 3.1, Pandemic Influenza Clinical Practice Guideline*.
 - c. **Assess availability of** resources such as **community hospitalization,** laboratory testing, chest radiography and ventilatory support.

7. If decision is made to lock down:
 - a. Consider suspending pill lines and issuing safe and reasonable quantities of pill line medications (except for controlled substances and high risk medications).
 - b. Insulin will still have to be administered because it has to be refrigerated and requires needle and syringe. Consider clustering inmates on insulin.

Recovery (Federal Response Stage 6)

Previous flu pandemics have been associated with subsequent “waves” of flu after an initial wave resolves. After an initial pandemic flu outbreak, subsequent outbreaks are likely. The recovery period will involve both recovering from the pandemic emergency, evaluating the BOP response to it and preparing for subsequent waves of pandemic flu.

1. Begin discharge of inmates from isolation wards.
2. Initiate terminal cleaning procedures for quarantine areas.
3. Resume normal operations of the Health Services Unit.
4. Prepare for secondary / tertiary waves of pandemic flu.
5. Return to normal staffing schedules. Provide additional time off, if possible.
6. Evaluate delivery of health services during pandemic flu.
7. Write a summary report, identifying recommendations for future waves of the pandemic for the Regional and Central Office.

<p>Module 3: Health Care Delivery Standard Operating Procedures - Preparation Stage (Federal Response Stages 0–1)</p>				
<p>During the Preparation stage, adapt this Standard Operating Procedure template to the unique circumstances of your facility. A modifiable WordPerfect version is posted on: Sallyport/Resources/Log-in Screens/OpsPlanner.</p>				
<p>1. Identify staff persons responsible for planning for and directing health care delivery during pandemic influenza.</p>				
<p>The staff person assigned is: An alternate staff person is:</p>				
<p>2. Review Attachment 3.1, Pandemic Influenza Clinical Practice Guideline and assure training of clinical staff.</p>				
<p>The following plan will be followed to assure that staff are updated on the Pandemic Flu Clinical Practice Guideline:</p>				
<p>3. Calculate estimates of the number of ill inmates in your facility based on the percentage who become ill.</p>				
<p>Multiply “multiplier” by the “# inmates in facility” to calculate projected number ill..</p>				
	Percent ill	Multiplier	# inmates in facility	Projected # ill
	20%	0.2		
	30%	0.3		
	40%	0.4		
	50%	0.5		
<p>3. Identify high and low priority health care delivery functions.</p>				
a.	<p>Identify categories of inmate health problems that will require ongoing care during a pandemic emergency and the current number of inmates who fall into that category. Indicate the illnesses that are high priority for ongoing health care and the number of inmates which fall in each category: insulin dependent diabetes (___), renal dialysis (___),..... The following illnesses are high priority for security reasons: schizophrenia (___), seizure disorders (___),...</p>			
b.	<p>Identify categories of health problems and health services which are low priority and non-essential which could be eliminated with pandemic flu.</p>			
c.	<p>In a pandemic emergency, inmates with high priority medical problems will be identified rapidly as follows:</p>			
<p>4. Develop plans for augmenting health care staffing during pandemic flu.</p>				

a.	Develop alternative plans for 12 to 24-hour staffing and describe here:
b.	Develop list of health care functions which can be performed by non-licensed individuals.
c.	Identify non-health care staff with health care experience who might be utilized during pandemic flu.
5.	Develop plans for “isolation” wards to accommodate up to 20%, 30%, 40% and 50% of the inmate population.
a.	Identify locations where care can be provided to large numbers (ideally adjacent to toilet facilities), e.g., gymnasium, chapel, existing dormitories. Bunk beds may not be appropriate depending upon illness severity.
b.	Identify what will be utilized for beds (cots or mattresses on floor).
c.	Identify method to elevate the heads of the mattresses.
d.	Assure that mattresses utilized can have impervious cover, e.g., existing plastic covering, large plastic trash bags.
6.	Develop plan for increasing par levels of medical and related supplies.
	Referencing Attachment 3.2 , develop and implement facility-specific plan for increasing par levels of certain medical supplies as follows:
7.	Develop plan for increasing par levels of pharmaceuticals with pandemic flu.
	Referencing Attachment 3.3 , develop and implement facility specific plan for increasing par levels of certain over-the-counter and prescription drugs for treating flu and other chronic illnesses as follows:
8.	Develop facility-specific plan for health care delivery during pandemic flu.
	Address reassignment of health care roles, flow of health care delivery, clustering of sickest inmates, methods for overcoming inefficiencies posed by “lock-downs”, documentation, etc.

Attachment 3.1. BOP Pandemic Influenza Clinical Practice Guideline

This Pandemic Influenza Clinical Practice Guideline is made available to the public for informational purposes only. The Federal Bureau of Prisons (BOP) does not warrant these guidelines for any other purpose, and assumes no responsibility for any injury or damage resulting from the reliance thereof. Proper medical practice necessitates that all cases are evaluated on an individual basis and that treatment decisions are patient specific. Consult the BOP Clinical Practice Guideline Web page to determine the date of the most recent update to this document:
<http://www.bop.gov/news/medresources.jsp>.

References. These guidelines are adapted from:

(1) Department of Health and Human Services, Pandemic Influenza Plan, Supplement 5 Clinical Guidelines (December 2, 2005). Available from: <http://www.hhs.gov/pandemicflu/plan/#part2> and

(2) British Thoracic Society. Guidelines for the clinical management of patients with an influenza-like illness during an influenza pandemic (January 2007). Available from:
<http://www.brit-thoracic.org.uk/Portals/0/Clinical%20Information/Influenza/Guidelines/pandemicflupdf07.pdf>

(3) Infectious Disease Society of America. Seasonal influenza in adults and children—diagnosis, treatment, chemoprophylaxis, and institutional outbreak management: clinical practice guidelines of the Infectious Diseases Society of America. CID 2009;48:1003-1032. Available from: <http://www.idsociety.org/Content.aspx?id=9088>

Contents

1. Clinical Diagnosis
2. Clinical Features of Uncomplicated Influenza
3. Complications of Influenza
4. Influenza-Related Pneumonia
5. Clinical Management of Influenza
 - a. Patient Education and Symptomatic Treatment
 - b. Patient Assessment
 - c. Triage
 - d. Criteria for Hospital Referral
 - e. Use of Antiviral Medication
 - f. Use of Antibiotics

The following guidelines are based upon experience with seasonal influenza, as well as reports on previous occurrences of pandemic influenza. The manifestations of pandemic influenza cannot be fully predicted.

1. Clinical Diagnosis

Laboratory testing for influenza is primarily a surveillance tool used to determine whether or not the respiratory illness that is being seen is in fact influenza. **With pandemic 2009 H1N1 flu, CDC recommends that laboratory testing *not* be done except for persons who are hospitalized or have an atypical clinical presentation.** After it has been determined that influenza is circulating, a clinical definition for influenza is generally utilized. The clinical manifestations of infection by influenza viruses are diverse, ranging from asymptomatic infection to fulminant respiratory distress leading to respiratory failure and death.

The three-fold combination of *fever, cough, and acute onset of symptoms* are the most predictive clinical features. Importantly, the predictive value of a clinical definition of influenza-like illness (ILI) increases significantly when they occur in the context of *influenza circulating in the community*. **During the current pandemic 2009 H1N1 influenza, the following clinical definition should be utilized in the BOP for surveillance and clinical purposes.**

**BOP Influenza-Like Illness (ILI)
 Clinical Case Definition**

Fever (temperature of 100° F [37.8° C]) plus either cough or sore throat—in the absence of a known cause other than influenza.

2. Clinical Features of Uncomplicated Influenza

The range of symptoms associated with uncomplicated influenza infection are summarized in Table 1. *Fever* is the paramount symptom and may reach 41° C although more usually it ranges between 38-40° C. The peak occurs within 24 hours of onset and lasts typically for 3 days (range 1-5 days). The *cough* is generally dry, but in 40% of cases it may be productive. A productive cough together with chest tightness and substernal soreness is more common in patients with underlying chronic lung disease. *Myalgia* affects mainly the back and limbs. *Gastrointestinal symptoms are uncommon with seasonal flu, but have occurred in approximately 25% of individuals with pandemic H1N1 influenza.*

Table 1. Range of Symptoms Associated with Uncomplicated Seasonal Influenza Infection	
Fever (~100%)	Anorexia (~60%)
Cough (~85%)	Rhinorrhea (~60%)
Malaise (~80%)	Myalgia (~53%)
Chills (~70%)	Sore throat (~50%)
Headache (~65%)	Gastrointestinal symptoms (<10%)

Clinical findings include a toxic appearance in the initial stages, hot and moist skin, a flushed face, and injected eyes. Tender cervical lymphadenopathy is found rarely (~10%). In uncomplicated infection, the illness usually resolves in seven days. However, cough, malaise and lassitude may persist for weeks. The spectrum of clinical disease associated with a pandemic strain cannot be predicted.

3. Complications of Influenza

Influenza virus infection has been associated with worsening of certain clinical conditions, i.e., heart failure, diabetes, coronary heart disease, asthma, and chronic obstructive pulmonary disease. Individuals in the following risk groups have a higher risk of developing complications to seasonal influenza. *The same groups have been found to be at higher risk with pandemic 2009 H1N1 influenza.*

Table 2. Risk Groups for Complications from Seasonal & Pandemic 2009 H1N1 Influenza
<ul style="list-style-type: none"> ▶ <i>Pregnant women (antiviral therapy definitely recommended)</i> ▶ <i>Adults 65 years of age or older</i> ▶ <i>Persons with the following medical conditions: chronic pulmonary disorders (including asthma), cardiovascular disorders (except hypertension), renal disorders, hepatic disorders, hematological disorders (including sickle cell anemia), neurologic disorders, neuromuscular disorders, metabolic disorders (including diabetes mellitus), immunosuppression, including that caused by medications or HIV</i>

In addition, there are specific complications associated with influenza infection, regardless of existing medical conditions.

Respiratory:

- **Acute bronchitis** is common, more often occurring in the elderly and those with chronic medical conditions.
- **Primary viral pneumonia** is uncommon in seasonal flu, but was a frequent occurrence in the 1918-19 pandemic flu, particularly among young adults.
- **Secondary bacterial pneumonia** occurs frequently, typically 4-5 days after illness onset.

Cardiovascular: ECG abnormalities are common, usually with no cardiac symptoms. These include non-specific T wave and rhythm changes and ST segment deviation. Myocarditis and pericarditis both are rare complications.

Central nervous system: CNS complications rarely occur. These include encephalitis/encephalopathy (which generally occurs in the first week of illness) and transverse myelitis and Guillain-Barre syndrome which are both very rare.

Other complications include otitis media (common in children). Very rarely toxic shock syndrome and parotitis occur.

4. Influenza-Related Pneumonia

The incidence of pneumonia complicating influenza infection varies widely, from 2% to 38%, depending on viral and host factors. Pneumonia generally occurs more frequently and with greater severity in patients with preexisting chronic cardiac and respiratory conditions.

In the context of an influenza pandemic, the presence of an ILI and new or worsening dyspnea should prompt a careful examination for presence of complicating pneumonia. Two main types of influenza-related pneumonia are recognized: primary viral pneumonia and secondary bacterial pneumonia.

Primary viral pneumonia:

Primary influenza viral pneumonia has been a prominent feature of previous influenza pandemics, but is a relatively rare outcome of seasonal influenza in adults.

- **Onset:** Typically become breathless within the first 48 hours of the onset of fever. An initially dry cough may become productive of blood-stained sputum. Presence of cyanosis and/or tachypnea.
- **Chest auscultation:** Bilateral crepitations and wheeze are usual.
- **Chest x-ray:** most commonly bilateral interstitial infiltrates in the mid-zones.
- **Mortality:** Rapid clinical deterioration with respiratory failure may ensue. The mortality rate in hospitalized patients is high (>40%) even with maximum supportive treatment.

Secondary bacterial pneumonia:

With *seasonal flu*, bacterial pneumonia occurs approximately 4 times more often than viral pneumonia.

- **Chest auscultation:** rales, rhonchi, diminished breath sounds.
- **Chest x-ray:** usually demonstrates a lobar pattern of consolidation.
- **Common etiologies:** *Streptococcus pneumoniae*, *Staphylococcus aureus*, group A *Streptococcus*, and

Haemophilus influenzae

- **Mortality:** Mortality rate ranges from 7-24%.

Mixed viral-bacterial pneumonia: Bacterial and viral pneumonia can occur concurrently. Chest radiograph may demonstrate lobar consolidation superimposed on bilateral diffuse lung infiltrates. Mortality is similar to that for primary viral pneumonia (>40%).

5. Clinical Management of Influenza

a. Patient Education and Symptomatic Treatment

All inmates presenting with symptoms suggestive of influenza (except those for whom urgent admission is required) should be given general advice on symptomatic treatment, be provided information about the illness and address individual concerns. Key messages are outlined below.

Table 3. Key Patient Education Messages - Pandemic 2009 H1N1 Influenza

- The incubation period (time period from exposure to development of symptoms) is typically 1–4 days.
- Infected adults are presumed to be contagious from one day before symptoms until 24 hours after temperature is normal (without fever-reducing medications). However, patients should be very careful to continue to cover their cough and wash hands frequently for a few days after that.
- Fever usually declines after 2–3 days and normally disappears by the sixth day of illness.
- 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.
- Generally recommended symptomatic treatment for influenza includes:
 - Treat fever, myalgias and headache with acetaminophen or ibuprofen.
 - Rest
 - Drink plenty of fluids.
- Inmates should promptly report occurrence of shortness of breath and worsening of symptoms after initial improvement.

b. Patient Assessment

General daily assessment of inmates with influenza-like illness (ILI) should include:

- Observation of level of awareness (presence of lethargy, confusion, disorientation).
- Observation of hydration status (dry, sticky mouth; thirst; decreased {dark} urine output; headache; dizziness). Hydration is critically important. All staff should be alert to signs of dehydration and offer flu patients fluids every hour or two, as needed. A recipe for oral rehydration solution is provided in *Attachment 3.4*.
- Vital signs (temperature, pulse, respirations, blood pressure), if indicated.

The following groups of inmates with ILI should be considered for closer nursing/clinician observation:

- cognitively impaired
- mentally ill (particularly those on psychotropic medications)
- chronically ill inmates (e.g., diabetes, chronic respiratory illness, immunocompromised, etc.)
- those exhibiting signs and symptoms of deteriorating clinical status (see Table 4, next page)

Table 4. Influenza Signs and Symptoms Meriting Clinical Evaluation
<ul style="list-style-type: none">• Signs of dehydration<ul style="list-style-type: none">• low blood pressure / rapid heart rate• orthostatic hypotension (BP that drops when going from lying down to standing)• poor skin turgor (skin lacks normal elasticity and sags back into position slowly when pinched up into a fold)• delayed capillary refill• shock• Signs of respiratory distress (Perform pulse oximetry, if available.)<ul style="list-style-type: none">• respiratory rate >30/min• shortness of breath at rest or while doing very little• painful or difficulty breathing• blood in sputum. .• Changes in level of awareness<ul style="list-style-type: none">• drowsiness• disorientation• confusion• Fever for 4–5 days which does not improve (or gets worse).• Clinical improvement and then develops high fever and feels poorly again. (Consider bacterial pneumonia).• Lack of improvement after two days of antiviral drugs.

c. Triage

In the event of pandemic flu, there is likely to be a significantly increased number of inmates seeking consultation. Barriers to care should be removed, e.g., eliminating co-pays for clinic visits for flu symptoms.

Decisions regarding clinical management of patients with influenza should be based primarily on an assessment of the illness severity; identification of whether or not the person is in an “at risk” group (see Table 2); availability of community hospitalization resources, and current recommendations of the CDC and the BOP Medical Director.

d. Criteria for Hospital Referral

Most adults with uncomplicated influenza infection do not require hospital referral. Patients who might require hospital admission fall into two main groups: those with worsening of a pre-existing clinical condition and those with an influenza-related complication.

- **Worsening of pre-existing medical condition:** Patients with clinical deterioration of a preexisting medical condition should be managed according to best practice for the medical condition in question.
- **Influenza-related pneumonia:** The most common influenza-related complication requiring hospital admission is pneumonia. Patients who complain of new or worsening dyspnea should be carefully assessed for signs of pneumonia. If pneumonia is diagnosed, disease severity should be assessed.

For pandemic flu it is recommended that a validated severity assessment tool be utilized to assess disease severity and need for hospital referral. The CRB-65 score (Table 5) is a well validated severity assessment tool developed for patients with community acquired pneumonia. However, this system has not been validated for influenza-related pneumonia. It should be used as a supplement and not replace the judgment of the individual clinician.

Table 5. CRB-65^{1,2} Severity Score (for Use With Pandemic Influenza)

CRB-65 Severity Scoring Tool	
Clinical Factor	Points
Confusion	1
Respiratory Rate >30 per min.	1
Systolic BP <90 mm Hg or Diastolic BP ≤69 mm Hg	1
Age ≥65	1
TOTAL	

¹CRB-65= Confusion, Respiratory Rate, Blood Pressure, 65 years of age or older

Recommendations Based Upon CRB-65 Score		
Score	Recommended Action	Death Rate
0	Likely suitable for treatment in facility	0.9%
1	Consider hospital referral, particularly with a score of "2"	5.2%
2		12.0%
3 or 4	Urgent hospital referral	31.2%
Any score – if bilateral chest signs of pneumonia		Consider hospital referral

²Adapted from: British Thoracic Society. *Guidelines for the clinical management of patients with an influenza-like illness during an influenza pandemic* (January 2007).

In the event that community hospitalization is unavailable, BOP facilities should develop plans for congregating severely ill inmates for provision of care, including if necessary, palliative care.

e. Use of Antiviral Medication

See Module 2. Antiviral Medication and Vaccines for a more thorough discussion of antiviral medications. The following guidelines should be followed when administering antiviral medication.

- **Antiviral medication should be offered as *treatment* only to inmates with risk factors for influenza complication (see Table 2) who have:**
 - acute influenza-like illness *and*
 - fever (> 100° F [37.8° C]) *and*

In general, antiviral medication is administered only to those with symptom onset occurring in the previous 48 hours. However, antiviral therapy should be administered after 48 hours for pregnant women and anyone with severe illness.
- Potential benefits of antiviral treatment include:
 - a reduction of illness duration by 24 hours
 - a possible reduction in hospitalization

- a reduction in subsequent antibiotic use.
- **Recommended antiviral treatment:** Utilize *Attachment 2.1. Antiviral Medication–Medical Evaluation, Consent and Prescribing Form* found in Module 2, Antiviral Medications and Vaccines.

Two antiviral medications are options for treating 2009 H1N1 influenza: Oseltamavir (Tamiflu™) and Zanamivir (Relenza™). Relenza is an inhaled medication and may be inappropriate for individuals with underlying respiratory disease. Dosing of these medications is as follows:

- Tamiflu 75 mg twice daily for five days. For patients with renal function impairment (creatinine clearance between 10–30 ml/min) the dose is 75 mg *once daily* for 5 days.
- Relenza two 5 mg inhalations (10 mg total) twice per day for five days.

f. Use of Antibiotics

The use of antibiotics in adults with influenza not complicated by pneumonia is determined by the presence of any co-morbid illnesses and the timing of symptom onset.

- **Patients without severe pre-existing illnesses:** Features of an acute bronchitis, with cough, retrosternal discomfort, wheeze and sputum production are an integral part of the influenza. In previously well individuals who do not have pneumonia or new focal chest signs, antibiotics are *not* indicated. If the patient is seen later in the course of the illness and the illness is worsening, i.e., reoccurring fever or increasing breathlessness, then a worsening bacterial bronchitis or developing pneumonia is possible and the use of antibiotics should be considered.
- **Patients with severe pre-existing illness:** Those at high risk of influenza-related complications of either COPD or other severe co-morbid disease should be strongly considered for antibiotics. If the patient does not begin to improve over the next 48 hours after starting an antibiotic they should be assessed for pneumonia.
- **Patients with influenza-related pneumonia:** Patients should be assessed for severity of illness and, if needed, referred for inpatient hospitalization utilizing the CRB-65 Score (Table 5, previous page). All patients with suspected pneumonia should be treated with antibiotics.

Antibiotics should cover the likely bacterial pathogens including *Streptococcus pneumoniae*, *H. influenzae*, and *Staphylococcus aureus*, including MRSA (in the context of endemic MRSA transmission in a facility).

Attachment 3.2. Medical Supply List for Pandemic Flu

Each facility should consider the list of supplies below and determine the degree to which par levels should be increased.

Beds/ Mattresses/Linens

- Cots with mattresses (or mattresses placed on floor)
- Impervious cover for mattresses (if needed), i.e., large plastic bags
- Mechanism to elevate head of bed (e.g., rolled towels, other creative ideas)
- Linens (need enough to change linen on average once or twice a day) with plan for laundering
- Towels, wash cloths, rags

Medical supplies

- Electronic thermometers
- Thermometer covers
- Automatic blood pressure cuffs
- Extra stethoscopes (to stay in each room)
- Bed pans / urinals
- Emesis basins (or paper bags lined with plastic bags for easy disposal)

Other supplies

- Plastic cups
- Flexible drinking staws
- Disposable dishes
- Plastic bags of all sizes (always useful)
- Heavy duty rubber bands (to close plastic bags)
- Duct tape (always useful)
- EPA registered disinfectant
- Clipboard, pens, charting forms

Oral rehydration solution (ORS) ingredients

Salt

Sugar

Baggies - to pre-mix sugar/salt mixture

One-gallon (new) containers for storing oral rehydration solution

Attachment 3.3. Non-prescription and Prescription Drugs for Pandemic Flu

Each facility should consider the list of drugs below and develop a plan for increasing par levels.

Over-The Counter Medications (for treating influenza patients).

Each institution pharmacy should attempt to increase stock in the pharmacy to accommodate a prescription distribution based upon a 15% attack rate. These include:

- ibuprofen
- acetaminophen
- aspirin
- loperamide

Additionally, it is suggested that the institution health services staff work with their local commissary to look at the possibility of increasing commissary par levels for cough syrup/drops and antihistamines.

Prescription drugs (for treating influenza patients)

Oseltamivir (Tamiflu™) - antiviral stockpile quotas communicated by memo
Zanamivir (Relenza™) - antiviral stockpile quotas communicated by memo

Antibiotics

Doxycycline 100 mg
Amoxicillin-clavulanate 500mg/125mg
Erythromycin 500 mg
Clarithromycin 500 mg

Prednisone 5 mg

Albuterol or other bronchodilator

Prescription drugs (critical chronic care medications)

Attachment 3.4. Oral Rehydration Solution

Prevention and treatment of dehydration associated with influenza may be the most important life saving measure available.

Oral rehydration solution (ORS) is an effective treatment for all causes of dehydration. It consists of uncontaminated water and specified amounts of salt and sugar.

Signs and symptoms of dehydration include: dry mouth, increased pulse (>90/minute), poor skin turgor (doesn't bounce back when pinched), decreased urine output and dark urine.

If dehydration is suspected, administer ORS by mouth. Use of a bendable straw may be helpful. If the patient is too ill to drink, someone must sit with them and administer the fluids using a teaspoon. **Usual treatment consists of 3 quarts (or 13 cups of fluid) per day.**

Signs of ORS "working" include:

- increased alertness of patients
- increased urination

Continue to push ORS. Once the patient is well hydrated the patient can be switched to other clear fluids, such as juice, clear soup or tea and then graduate to crackers, toast and then other food.

Oral Rehydration Solution "Recipe"

The recipe for ORS should be followed closely to get the right proportion of salt and water. The solution can be flavored with sugar-free drink mix.

Oral Rehydration Solution (ORS) Recipe
1 gallon of uncontaminated water
10 tablespoons sugar
4 teaspoons salt
Directions: Stir up. Do not boil. Can add sugar-free drink mix to flavor. Use within 24 hours.
Reference: Rehydration Project (homepage on the internet): rehydrate.org/solutions/homemade.htm {extrapolated from recipe of 1 liter water, 8 tsp sugar, 1 tsp salt}