Telephone Triage of Patients with Influenza

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The current H1N1 influenza (swine flu) outbreak has patients and physicians understandably concerned. Many people with a respiratory illness want to get examined, but physicians are concerned about spreading illness among other patients in their waiting rooms. It would be helpful to have a protocol to decide which patients need to be examined and which ones might be able to have empiric treatment. This editorial outlines one such approach, based on the epidemiology and clinical characteristics of influenza virus infection.

Seasonal influenza burden during epidemic periods in primary care practice. Influenza infections typically represent a small, but significant percentage of the annual caseload in family medicine settings. During October through May—the respiratory virus season and the period of seasonal influenza in the United States—acute respiratory tract infections with fevers of 100°F (37.8°C) or greater, coupled with a cough or sore throat, may comprise 2 to 3 percent of all patient visits. When influenza is present in the community, the vast majority of these febrile respiratory illnesses are attributable to influenza infection. During the period of peak prevalence, typically lasting two to three weeks, influenza can account for up to 11 percent of cases.⁴

Influenza care needs during a pandemic. A pandemic spread of a novel influenza virus presents a significant problem to primary care practice. The lack of experience with surge capacity has been recently documented in primary care.² Moreover, the nature of current care provision—bringing ill patients into a medical setting—runs counter to public health principles for a communicable disease. Timely provision of appropriate care is a necessary precondition to mitigate the effects of pandemic influenza. The reduction of medically induced secondary contact and transmission is a desired goal.

Basic virology. Influenza is a highly contagious virus spread by respiratory droplets or direct contact with respiratory tract secretions.³ Transmission is usually limited to about six days after the onset of symptoms and coincides with the peak of symptoms, namely fever, malaise, cough, sore throat, and body aches.⁴

Telephone triage and management. Because of the contagious nature and the tendency for patients with influenza to seek medical care during the period of highest infectivity, there are compelling reasons to provide appropriate triage over the phone and, therefore, limit the number of patients presenting for evaluation and management. Moreover, highly effective antiviral medications exist,⁵⁹ but their effectiveness is significantly constrained by the need to initiate therapy within the first 36 to 48 hours after symptom onset.¹⁰ However, the achievement of early therapy can be obstructed by high caseloads during the epidemic period, thus precluding beneficial intervention.

With the arrival of the H1N1 influenza pandemic, health care facilities need to adapt to novel approaches to influenza care. Given the conflicting demands of surge capacity and critical timing of antiviral initiation, evaluating and initiating antiviral treatment over the phone (and perhaps via other electronic

avenues) offers physicians the ability to manage large numbers of patients in a safe and consistent manner.

Telephone triage protocol. The use of a telephone triage protocol by nursing staff offers one possible approach to early intervention and reduced waiting room transmission. The protocol provided here (Table 1) is based on the best medical evidence and has been utilized successfully in a busy urban family practice clinic.

TABLE 1. TRIAGE PROTOCOL FOR PATIENTS WITH SUSPECTED INFLUENZA INFECTION (ANTIVIRAL MEDICATIONS)

- 1. Has H1N1 influenza (swine flu) been documented in the community? If no, do not use this protocol.
- 2. Is there a documented fever of 100°F (37.8°C) or higher? If no, go to item 12.
- 3. Does the patient have symptoms of rhinorrhea/nasal congestion, cough, or a sore throat? If no, go to item 12.
- 4. Did the illness start abruptly (e.g., going from feeling well to quite ill in a few hours)? If no, go to item 12.
- 5. Is there any rash? If yes, go to item 11.

There is an 80 percent likelihood of influenza infection (when influenza is present in the community).

6. Is the patient between the ages of 5 and 49 years? If no, go to item 11.

- 7. Has the illness been present for less than 36 hours? If no, go to item 11.
- 8. Does the patient or patient's parent or caregiver feel that the patient should be seen by a physician? If yes, go to item 11.

9. Does the patient have an ongoing chronic illness, or is there any coexisting psychiatric illness or any indication of renal failure?

If yes, go to item 11.

10. This patient is a candidate for over-the-phone prescribing of antiviral therapy. Advise follow-up if condition worsens and routine follow-up two to three days after initiating therapy. Discuss the potential side effects (see Table 2).

11. This patient should be evaluated (interviewed and/or examined) by a physician.

12. The illness may be influenza or another respiratory virus. If significant concerns exist on the part of the patient, parent, or other person, consider scheduling a visit with a health care professional. Otherwise, advise hydration, rest, acetaminophen or ibuprofen for fever and aches, and follow-up as needed.

Is influenza present in the community? (Step A, item 1 of triage protocol). The triage protocol for suspected influenza infection is initiated after influenza viruses, including H1N1 influenza viruses, have been identified in the community (or other geopolitical unit) through culture or antigen detection. National and state-based influenza surveillance (<u>http://www.cdc.gov/flu</u>, <u>http://www.cdc.gov/h1n1flu</u>)

can help describe the prevalence of influenza. Surveillance systems also provide essential information on the virologic attributes of circulating viruses; for example, strain types, reactivity to vaccine-induced antisera, and resistance patterns. Prior to detections of influenza in the community, clinical evaluation and laboratory testing is essential to identifying etiologic agents and the onset of influenza outbreaks.

Does the patient have an illness characterized by an acute onset, a fever of 100°F (37.8°C) or higher, and a cough or sore throat, and no coincident rash? (Step B, items 2 through 5 of triage protocol: influenza case detection). Physicians should keep appraised of any changes in the case definition of H1N1 influenza (http://www.cdc.gov/swineflu/casedef_swineflu.htm). If these conditions are all present, there is at least an 80 percent likelihood of influenza illness.¹¹⁻¹⁴ Immunization or past-season influenza infection could reduce the severity of symptoms, precluding the attainment of these criteria. However, such patients may not require treatment. Other infectious agents can cause similar symptoms and should be kept in mind when interviewing patients or their parents. Physicians should ask about potential exposures to other ill people one to three days prior to the onset of symptoms. Because influenza has a highly characteristic incubation period of 24 to 72 hours,15 such epidemiologic evidence is supportive of an empiric diagnosis of influenza.

Is the patient between the ages of 5 and 49 years? (Step C: items 6 through 8 of triage protocol: *eligibility*). People in good health and in this age range tend to suffer the least influenza-related morbidity and mortality and make good potential candidates for empiric therapy.¹ Other potential causes of acute febrile illness, such as urinary tract infection, must be considered in younger (and often preverbal) children.

Was the onset of illness less than 36 hours ago? The influenza antivirals are effective only if initiated early. If started after 48 hours after illness onset, there are largely ineffective.¹⁰

Is the patient, parent, family member, or triage staff sufficiently concerned? If this level of concern exists, evaluation by a physician is indicated. There is evidence that contextual information in primary care is highly important in diagnosing rare disease.¹⁶

Does the patient have comorbid, chronic disease; renal failure; or significant psychiatric illness, or is she pregnant or breastfeeding? (Step D, item 9 of triage protocol: contraindications). These conditions may require careful intervention with antiviral medications and monitoring. Accordingly, these patients should be seen for an urgent care appointment.

For patients matching the flow sheet criteria, over-the-phone provision of antiviral therapy allows more efficient, earlier, and more effective interventions, while reducing the potential clinical volume, reducing within-clinic transmission of influenza, and permitting enhanced attention to more complicated cases. Moreover, the patient seen for routine follow-up two or three days after initiation of antiviral therapy may have significantly reduced viral shedding

Candidates for over-the-phone influenza management should receive information and discussion on potential medication side effects, advice on adjuvant therapies including antipyretics (acetaminophen or ibuprofen), rest and hydration, advice on reducing exposures to other family members and high-risk contacts, and encouragement to call back if their condition worsens of if they have any questions or concerns. This is also a good time to provide reminders on influenza immunization. A routine follow-up visit can be scheduled at the discretion of the clinic.

Prescriptions for antiviral medication can be called in or faxed to the pharmacy. Table 2 offers information on antiviral selection, dosing, and duration. Keep in mind that pharmaceutical formularies often exclude some of the drugs. The patient's insurance plan, drug benefit package, and the process for obtaining rapid previous approval of restricted drugs must be kept in mind. Also, because of a surge in patient need for antivirals, attention needs to be paid to availability of medications.

Medication (brand)	How supplied	Usual dosage	Schedule
Oseltamivir (Tamiflu) (for ages >=1 year)	75 mg	75 mg	Twice a day for five days
< 33 lb (15 kg)	60 mg/5 mL	30 mg (2.5 mL)	Twice a day for five days
33 to 50.7 lb (15 to 23 kg)	60 mg/5 mL	45 mg (3.75 mL)	Twice a day for five days
50.8 to 88.2 lb (23 to 40 kg)	60 mg/5 mL	60 mg (5 mL)	Twice a day for five days
> 88.2 lb (40 kg)	75 mg	75 mg	Twice a day for five days
Zanamivir (Relenza) (for ages 7 years)	5 mg powder	2 puffs	Twice a day for five days

TABLE 2. ANTIVIRAL THERAPY FOR H1N1 INFLUENZA (SWINE FLU)*

*—Therapy must be initiated no later than 48 hours after initial symptoms.

Influenza antivirals are effective treatments for influenza infection. However, their effectiveness is highly related to the timing of initiation of therapy—the earlier the better. In large meta-analyses, these medications can reduce the length of influenza illness by approximately one day.⁵⁹ In addition, early initiation of antiviral medication may reduce shedding of virus from the infected person¹⁷ and has been shown to reduce complications of influenza.¹⁸

Dr. Temte serves on the Advisory Committee on Immunization Practices. The opinions and assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Advisory Committee on Immunization Practices.

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