LabWire
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Preseason Guidance on Influenza for Physicians

Like the Centers for Disease Control and Prevention (CDC) and the Michigan Department of Community Health (MDCH), Bronson's preparedness plans for the 2009-10 influenza season are well underway. Preseason predictions, in sports and infectious diseases, are not worth much after the season starts, but it is certain that the new influenza strain called novel H1N1 has changed the way we will manage influenza cases this season. We have new and specific guidance from the CDC this year on how to test, treat and prevent influenza (cdc.gov/h1n1flu/).

Novel H1N1 emerged in the U.S. last April, has since persisted in the southern hemisphere, and is predicted to return this fall. It has not changed much genetically since April, so its presentation should be similar to what we saw in the spring. Novel H1N1 could be described as less virulent but more contagious than the seasonal strains we see every year. It causes a shorter and milder form of disease, but seems to appear in outbreaks that spread quickly through schools and other congregate settings. Two patient groups that have shown increased incidence of hospitalization due to H1N1 are pregnant women and the obese. Children are more at risk and the elderly are at less risk of H1N1 disease than the general population, presumably because of retained immunity from cross-reacting virus strains that circulated many years ago.

Testing

There are two testing issues this year. The first is the limited availability of the specific test for novel H1N1. This test is an amplified nucleic acid (PCR) test for genes specific to this strain, and it is only available from the MDCH. Michigan physicians received a communication from MDCH on 8/14/09 outlining their testing policy.

MDCH will test only specimens from the following groups:

- Hospitalized patients with severe influenza-like illness
- Patients with influenza-like illness with unusual presentation
- Pregnant women with severe influenza-like illness
- Outbreaks or clusters of influenza-like illness in congregate settings
- Influenza-related deaths of individuals of any age

One can see that it will be somewhat difficult to get a specimen tested for novel H1N1, and we will need to tell patients that we can test them for influenza in general (types A or B), but our routine laboratory tests will not pick out the new H1N1 strain specifically. For patient management, it really doesn't matter which of the four potential circulating influenza strains the patient has; they are all managed the same. If you have a patient in one of the five eligible groups, you need to communicate with the laboratory to get the H1N1 testing because there are special forms to be completed before testing can be done.

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A second testing issue is the limitation of the rapid influenza detection tests (RIDT), or rapid antigen tests sometimes used as rapid or point of care tests for influenza. It has become clear that these tests are insensitive as screening tests for seasonal influenza in the best situations, and they are probably even less sensitive for detecting the novel H1N1 virus (MDCH communication of 8/14/09). If the test is positive during the influenza season, the patient probably has some strain of influenza, but if the rapid antigen test is negative, it means almost nothing, and additional testing should be done to confirm the negative result. The nonvalue of the rapid antigen tests for influenza screening has caused many physicians and hospitals to rethink their testing algorithms and drop the rapid test as an option this year. Bronson admitted several patients with novel H1N1 influenza in the spring, and all of them who had rapid antigen tests gave negative results; the rapid antigen test misled us and we found the virus only by conventional smear and culture. Bronson has not decided to stop doing the rapid antigen test, but we will monitor the situation closely and if we find that the rapid antigen test is not adding value, we may restrict its use.

Treatment

The treatment of influenza has become complicated with the emergence of amantadine and rimantadine resistance among influenza A strains in 2006 and the emergence of oseltamivir resistant strains in 2008. So far, most circulating strains of novel H1N1 influenza are susceptible to the two neuraminidase inhibitors, oseltamivir (Tamiflu®) and zanamivir (Relenza®). Of concern, however, is that several oseltamivir-resistant novel H1N1 strains have been recovered, and it apparently takes only one genetic mutation to make the virus resistant, so we may need to reconsider how we use this drug for influenza. Resistance emerged in patients who were treated for longer than five days. Neuraminidase inhibitors exert their effect early in the infection and reduce the duration of the disease by only one to two days. If the patient has been febrile for longer than 48 hours, treating with oseltamivir does not have much effect, and treating for longer than five days only increases the selection for resistance. Experts are also questioning (*continued on back*)

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(*continued*) the widespread use of oseltamivir for prophylaxis because of the resistance problem. The developing consensus about treatment of influenza is moving towards a more conservative approach. If your patient is not in one of the high-risk groups, if their disease is not severe and if it has been more than 48 hours since onset, treatment with antivirals will probably not change the course of the disease.

Immunization

In contrast to the bad news on diagnosis and treatment, it appears that immunization will be quite effective this year for the prevention of both seasonal and novel H1N1 influenza. The seasonal vaccine has been produced in ample supply and is being distributed to providers already in August. The CDC advises us to begin immunizing people as soon as we get the seasonal vaccine because the new H1N1 vaccine is coming in October, and we would like to be finished with the first vaccine before we begin the second. The seasonal vaccine is essentially recommended for everyone this year, although the high-risk groups for initial targeting remain the same as last year. Since there is no seasonal vaccine shortage, there is no need to prioritize patients into risk groups this year; immunize everyone at the first opportunity.

The novel H1N1 vaccine will be supplied by the federal government through county health departments. Providers will receive it sometime in mid-October. Since school-age children are a targeted recipient group, there are plans for school-based immunization programs. The vaccine will be allocated to each county based on population. Our local health departments should keep us informed on how to get our vaccine when it arrives. The H1N1 vaccine will likely be distributed in multiple shipments as it is manufactured, so we may need to prioritize our patients into first and second-tier groups. It now appears that two doses of the novel H1N1 vaccine will be required, probably three to four weeks apart, so patients who receive the first dose should be told when to return for their second dose.

LabWire is published monthly by Bronson Laboratory Services. If you have a topic you would like addressed in this publication, please call 341-8997 or send your request to Jeff Pearson, MD (pearsonj@bronsonhg.org).

Patient management

Simple infection control techniques can prevent the spread of respiratory viruses. Hand washing, covering your cough, staying home when you are sick, and protecting vulnerable populations are important for controlling all influenza strains.

Physician offices should consider the implications of H1N1 on their patient management and traffic flow.

- Febrile patients should be segregated from well patients and should spend a minimum amount of time in the waiting room.
- Signage and waterless hand disinfectant should be provided in waiting areas and people encouraged to use them when they arrive.
- Coughing patients should be provided a mask to wear.

Telephone triage is very helpful to determine if a sick patient should be seen in the office and to help manage them when they arrive. Most patients with novel H1N1 influenza do not require an office evaluation or hospitalization, just as most do not require testing or treatment. **Do not send a patient to the hospital Emergency Department unless you feel that they need to be admitted to the hospital, and do not send patients to any Bronson Outpatient Testing & Diagnostics location for influenza testing to avoid seeing them in your office.** A telephone triage tool for influenza-like illness has recently been published in the journal American Family Physician (aafp.org/online/en/home/publications/journals/afp/preprint/influenza-telephone-triage.html).

Bronson will be updating our information and guidance on influenza as things change and the season progresses. If you have any questions or concerns about managing influenza in the 2009-2010 season, please visit bronsonhealth.com/flu or e-mail fludoctor@bronsonhg.org and we will try to find the answer for you.

Do not send a patient to the hospital Emergency Department unless you feel that they need to be admitted to the hospital, and do not send patients to any Bronson Outpatient Testing & Diagnostics location for influenza testing to avoid seeing them in your office.

Criteria for H1N1 Testing at Michigan Department of Community Health (MDCH)

- Hospitalized patients with severe influenza-like illness
- Patients with influenza-like illness with unusual presentation
- Pregnant women with severe influenza-like illness
- Outbreaks or clusters of influenza-like illness in congregate settings
- Influenza-related deaths of individuals of any age

Note: If you have a patient in one of these five groups, contact the lab at 341-6440 for instructions.

Rapid Flu Antigen Tests Perform Very Poorly for H1N1

- Rapid influenza testing has poor clinical utility for detecting H1N1.
- A negative rapid flu test result does not exclude influenza virus infection.
- Do not use a negative result to send a symptomatic child back to school, rule out an institutional outbreak, or dictate infection control measures.
- A diagnosis of influenza should be considered based on a patient's clinical presentation and empiric antiviral treatment should be considered, if indicated.

What to do When Influenza Testing is Indicated (H1N1 or seasonal flu)

- Order the Respiratory Viral Smear for Influenza A and B.
- This test shows good performance for detecting influenza A (detects both seasonal and H1N1 strains, does not differentiate).
- The respiratory viral smear is performed Monday through Saturday on day shift, with same day results if the specimen is received in the laboratory by 12 noon.
- Do not order both rapid flu testing and respiratory viral smear. They can't be performed on the same specimen. The respiratory viral smear is preferred.
- Do not write orders for "swine flu" or "H1N1." This testing is only for certain patient groups at the state lab and takes 4-7 days for results.