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Resources for Management of 2009 H1N1 Influenza

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The World Health Organization declared the 2009 H1N1 influenza the first influenza pandemic in 41 years on June 11, 2009.[1] It is also known as "swine flu" or novel H1N1. Since this time, information on the topic has been continuously evolving. As of August 2009, most (98%) of the circulating influenza viruses in the US were the H1N1 virus.[2] The purpose of this newsletter is to provide prescribers with a summary of resources and information available.

Groups at High Risk of H1N1 Complications

Specific groups appear to be at a particularly high risk of complications and are similar conditions that increase the risk of complications from seasonal influenza (Table 1).[2]

Table.1. Groups at High Risk of H1N1 Complications[2]

- < 5 years old (risk highest in < 2 years old),
- ≥ 65 years old,
- Pregnant women,
- Persons with chronic pulmonary [including asthma], cardiovascular [except hypertension], renal, hepatic, hematological [including sickle cell disease], neurologic, neuromuscular, or metabolic disorders [including diabetes mellitus],
- Persons with disorders that that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration
- Immunosuppression (including drug-induced and HIV)
- < 19 years old on chronic aspirin (risk of Reye Syndrome)

Recommendations for Vaccination

Due to initial supply limitations, the Center for Disease Control (CDC) Advisory Committee on Immunization Practices (ACIP) has identified five target groups that are at greatest risk for infection for complications from H1N1 and should be the first targets for vaccination (Table 2). The ACIP has also established a subset of target groups in case the initial supply of H1N1 vaccine is insufficient for the aforementioned five target groups.[3]

Table.2. Vaccination Target Groups (not in order of priority)[3]

- 6 months–24 years old
- Pregnant women
- Persons who live with or provide care for infants < 6 months old.
- Persons 25–64 years old at high risk for influenza-related complications (see Table 1)
- Health-care and emergency medical services personnel

Recommendations for Insufficient Vaccine Supply[3]

- 6 months–18 years old with high risk for complications (Table 1).
- Pregnant women
- Persons who live with or provide care for infants < 6 months old
- Health-care and emergency medical services personnel who have direct contact with patients or infectious material (Oregon includes front line law enforcement, state corrections officers, and active duty national guard)

The availability of multiple influenza vaccinations, vaccination types and antivirals presents several timing considerations that are summarized in Table 3.

Table.3 . Special Timing Considerations

- <10 years old require two doses of H1N1 vaccine 1 month apart, ≥10 years old require only 1 dose[4]
- There is a potential for antiviral agents to reduce the effectiveness of live attenuated influenza intranasal H1N1 vaccine (LAIV). Give LAIV 48 hours after antiviral treatment is completed. If needed, antiviral treatment should be given 2 weeks after receiving LAIV.[4]
- FDA approved use in age ranges and populations vary between manufacturers. Refer to manufacturer's package inserts for specific information (Table 4). [4]
- Simultaneous administration of the inactivated H1N1 and inactivated seasonal flu vaccine is acceptable if given in different anatomic sites.
- Concomitant receipt of live intranasal and inactivated vaccines is acceptable; however, 2 live intranasal vaccines cannot be given simultaneously and should be separated by at least 4 weeks (i.e. can't give LAIV seasonal and H1N1 together)

Table 4. FDA Age Approvals For Vaccines

Vaccine	Manufacturer	Age
Inactivated H1N1	CSL	≥ 18 years old
Inactivated H1N1	Novartis & Diagnostics Limited	≥ 4 years old
Inactivated H1N1	Sanofi Pasteur, Inc	≥ 6 months old
LAIV	Med Immune	2-49 years old

Recommendations For Adult Antiviral Use

Prophylaxis

Post-exposure prophylaxis is recommended for those groups in Table 5 who have also had a close contact of a person with confirmed or suspected 2009 H1N1 or seasonal influenza during the infectious period (one day prior and until 24 hours after fever ends). Oseltamivir 75mg by mouth daily or two 5-mg inhalations of zanamivir once daily should be given to adults. Therapy should be initiated within 48 hours of exposure and continue for up to 10 days after the last known exposure.

Treatment

Antiviral treatment is recommended for suspected H1N1 cases in the groups listed in Table 5. Oseltamivir 75mg by mouth twice daily or two 5-mg inhalations of zanamivir twice daily should be given to adults. Treatment should start as soon as possible (within 48 hours of illness onset) and continue for 5 days total. Treatment should not be withheld until laboratory confirmation of influenza as this can result in delayed treatment and because a negative rapid test does not rule out influenza.[2]

Table.5 Recommendations for Use of Antiviral Medication

Prophylaxis Groups[2] Likely exposure AND 1 of the following	*Antiviral Treatment* Groups[2] Suspected H1N1 case AND 1 of the following
• < 2 years old • > 65 years old • Persons of any age with the chronic medical or immunosuppressive conditions listed in Table 1 • < 19 years old on chronic aspirin • Health care personnel, public health workers, or first responders.	• Those requiring hospitalization • Those at higher risk of complications (Table 1) • Pregnant women should be considered at elevated risk of complications up to 2 weeks postpartum. • Those with the presence of warning symptoms (dsypnea) or signs (tachypnea, unexplained oxygen desaturation) for lower respiratory tract illness.

Recommendations for Pediatric Antiviral Use

An Emergency Use Authorization (EUA) issued in April 2009 authorizes use of oseltamavir in children less than 1 years old and provides dosing based on age.[9, 2] It is important to note that use of oseltamavir is not recommended in those less than 3 months of age (unless critically ill). It is also worthwhile to keep in mind the 2006 FDA warning on post-marketing reports of neuropsychiatric events, specifically self-injury and delirium with oseltamavir use in pediatric patients so that caregivers can monitor appropriately.[10]

The current supply of oseltamavir pediatric suspension is not enough to cover the projected demand. Oseltamavir is available in several capsule strengths (30, 45, & 75 mg) which can be opened and mixed in sweetened liquids such as regular or sugar-free chocolate syrup.[8] If a different dosage strength is needed, pharmacists have compounding instructions available under an EUA at the manufacturers website.[8] Also, the FDA has authorized use of Tamiflu capsules and pediatric suspension beyond the labeled expiration date according to lot number. Lot numbers for those products is available under "FDA Related Information."[9]

State Resources for Vaccinations and Antiviral Medication

The CDC will obtain the H1N1 vaccine and make it available to the Oregon Immunization Program (OIP) at no ingredient cost. Distribution to locations designated by local health departments, tribes, and state agencies will occur using the federal contractor McKesson Specialty. It is estimated that preliminary batches will be released mid-October, with weekly releases thereafter. Starting in November, biweekly amounts will increase. The majority of vaccine will be in multi-dose vials with remainder comprised of single dose (preservative free for young children and pregnant women) vials or inhaled vaccine. A contact list for prescribers interested in administering the H1N1 vaccine and additional information on how Oregon is handling the H1N1 vaccine (purchase, distribution, etc.) are posted.[6]

Providers will be able to bill Oregon Health Plan (OHP) for an administrative fee. A provider memo containing billing and coding instructions for vaccine administration fees is available.[11] Medicare billing information is also posted.[5] The U.S. Health and Human Services will also provide supplies (needles, syringes, sharps containers, alcohol swabs).[6]

Coverage of antiviral medication is available without a prior authorization for OHP Medicaid FFS clients. If there is a supply shortage of antiviral medication in the community, hospitals, pharmacies, and other providers may submit a request to their local health department. The state will receive and process the order.[7]

Conclusion: Information on this subject changes rapidly and as a result it is recommended that the most current information and recommendations be consulted.
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