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INFLUENZA: RECOMMENDATIONS FOR THE COMING PLAGUE

PESTILENCE, one of the three outriders of the Angel of Death, will soon appear on the microbial horizon in the form of the deadly, predatory influenza viruses. Smallpox, typhoid fever, typhus, malaria, cholera, yellow fever, polio, measles, and diphtheria are no longer recurring threats to denizens of Oregon, although occasional cases of some of these are still reported. Only influenza remains as a reminder of the anguish and agony of past generations in combatting these all but forgotten diseases. This issue discusses the preparations we should make to forestall serious illnesses and premature deaths due to influenza and is largely based upon the Advisory Committee on Immunization Practices recommendations for the 1997-1998 invasion.[1]

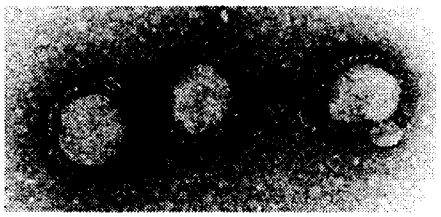
THE COMBATANTS

If the current trends of influenza in the Southern Hemisphere herald events in our part of the planet, we should expect both type A(H3N2) and especially type B viruses to reemerge sometime in mid-to-late November. Type A(H1N1) seems to have been relegated to a cloaking role this past season and may or may not materialize. Influenza A(H5N1), a strain that usually infects only birds, was isolated from a 3-year-old child in Hong Kong who died in May of multiple complications, including Reye syndrome, during an acute respiratory illness. No transmission to close contacts has been documented.

IS ANYTHING NEW THIS YEAR?

As is usually true, the vaccine composition for the imminent season is novel. Leftover vaccine from previous seasons should not be used; if in doubt consult your attorney. The new trivalent influenza vaccine will include A/Bayern/07/95-like(H1N1), A/Wuhan/359/95-like(H3N2), and B/Beijing/184/93-like hemagglutinin antigens. U.S. manufacturers will use the antigenically equivalent strains A/Johannesburg/82/96(H1N1), A/Nanchang/933/95(H3N2), and B/Harbin/07/94 because of their suitability for vaccine production.

Groups at elevated risk of influenza and having priority for vaccination have been expanded to include all women who will be beyond the first trimester (14 weeks) of pregnancy during the influenza season. (As in past advisories, pregnant women who have medical conditions that increase their risk for complications from influenza should be vaccinated before the influenza season—regardless of the stage of pregnancy. Also, note that influenza vaccine does not affect the safety of breastfeeding for mothers or infants. Breastfeeding does not adversely affect immune response and is not a contraindication for vaccination.)



TIMING OF VACCINATIONS

Beginning in September, when vaccine supplies typically become available, no opportunity should be lost during routine health care visits or hospitalizations to vaccinate susceptible persons at high risk for influenzal complications. Given the recent patterns of arrival in Oregon, the optimal time for organized vaccination campaigns to vaccinate persons at elevated risk is from October through mid-November. But regardless of the level of influenza transmission, vaccine should not be withheld from susceptibles.

"HIGH-RISK" GROUPS

Although influenza vaccination is cost effective for healthy working adults, it is recommended that the following persons be given priority for vaccination due to increased morbidity and mortality.

- Persons 65 years of age or older
- Residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions,
- Adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including children with asthma,
- Adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications),
- Children and teenagers (aged 6 months-18 years) who are receiving long-term aspirin therapy and therefore might be at risk for developing Reye syndrome after influenza,
- Women who will be in the second or third trimester of pregnancy during the influenza season.

VIRAL SOURCE REDUCTION

Persons who are infected, clinically or subclinically, can transmit influenza virus to high-risk persons whom they care for or live with. Some persons at high risk (e.g., the elderly, transplant recipients, and persons with AIDS) can have a low antibody response to influenza vaccine. Efforts to protect these members of high-risk groups against influenza can be improved by reducing the likelihood of influenza exposure from their caregivers. Therefore, the following groups should be vaccinated:

- physicians, nurses, and other personnel in both hospital and outpatient-care settings;
- employees of nursing homes and chronic-care facilities who have contact with patients or residents;
- providers of home care to persons at high risk (e.g., visiting nurses and volunteer workers); and
- household members (including children) of persons in high-risk groups.

VACCINE USAGE

Vaccination should also be provided to any individual 6 months of age and older with a desire to escape the mysterious

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physiologic aberrations associated with viral invasion of critical life support organs, extended confinement to bed, recurrent nightmares with a sense of impending doom, hospital internment, or premature burial.

Only split-virus formulations should be given to children less than 13 years of age. Two doses at least one month apart may be necessary in those under 9 years, if not prevously vaccinated. With the sole exception of children under 9 not previously vaccinated, two doses are not otherwise recommended. Whole or split formulations may be employed for those 13 years of age and older. Intramuscular delivery is the way to go. Specific doses are:

- 6-35 months of age: 0.25 ml (split)
- 3-12 years of age: 0.50 ml (split)
- 13 years & older: 0.50 ml (either)

A minimum of two weeks may be necessary following a single dose, or the second dose in children under 9 years, to develop protective levels of antibodies. If influenza is rampant in the community, consideration might be given to coverage with an antiviral drug during this interval. (Of course, antivirals are only effective against type A.)

Vaccine should not be administered to persons known to have genuine *anaphylactic hypersensitivity* to eggs or other components of influenza vaccine without appropriate medical evaluation and possible desensitization. People who "don't like eggs" can be successfully immunized, however. In addition, avoiding vaccination of persons known to have developed Guillain-Barré syndrome (GBS) within 6 weeks of a previous influenza vaccination seems prudent. However, even for most persons with a history of GBS the established benefits of influenza vaccination justify yearly vaccination, if they are in a group putting them at high risk for severe complications from influenza.

Influenza vaccine may be administered at different anatomic sites concurrent with other adult vaccines without increasing side effects. Children at high risk for influenza-related complications can receive influenza vaccine at the same time they receive other routine vaccinations, including pertussis vaccine. Because influenza vaccine can cause fever in young children, concurrent administration of DTaP is preferable to DTP.

ADVERSE REACTIONS

The most frequent side effect of vaccination is soreness at the site of administration, usually lasting 24–48 hours, but rarely leading to disruption of daily activities.

Two other syndromes of systemic reactions have been noted. The first is a pattern of fever, malaise, myalgia, and other systemic symptoms, most often observed in persons with no previous exposure to vaccine antigens (e.g., young children). Symptoms usually begin 6–12 hours after vaccination and last 1–2 days. Elderly persons and healthy young adults experience no higher incidence of such reactions than placebo controls. Immediate—presumably allergic—reactions (e.g., hives, angioedema, allergic asthma, and anaphylaxis) rarely occur following vaccination. Most such reactions are likely due to hypersensitivity to residual egg protein. Persons with a history of such reactions should seek medical consultation regarding revaccination.

ARE OREGONIANS GETTING SHOT?

Oregon ranked third among the 50 states in 1995 influenza vaccination coverage rates for residents 65 years of age or older (67%) and second for pneumococcal vaccination coverage (45%) of this same population.[2] In spite of such vaccination levels, 899 Oregonians died of complications due to pneumonia and influenza in 1995. Concerted efforts by many members of the health-care professions will be necessary to reduce further the impact of influenza and pneumonia.

ADDITIONAL INFO

The complete ACIP recommendations,[1] absent the snide commentary, can be downloaded from CDC's web site (http://www.cdc.gov) or by anonymous ftp (ftp.cdc.gov). For the technologically challenged, photocopies are available by calling (503/731-4020) or faxing (503/731-3095) the OHD's Immunization Program. Additional informational items, including vaccine information sheets, brochures and fact sheets, are also available at the OHD web site (http://www.ohd.hr.state.or.us/cdpe/acd/), along with updated surveillance data.

We anticipate resuming lab surveillance of influenza virus activity through our Public Health Laboratory on or about November 1. Watch this space for details.

And last but not least, let us not forget the valiant efforts of America's roosters and hens in making this vaccine available.

REFERENCES

1. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(No. RR-9):1-25.
2. CDC. State- and sex-specific prevalence of selected characteristics—Behavioral Risk Factor Surveillance System, 1994 and 1995. MMWR 1997;46(No. SS-3):1-25.