

COMPdata Monthly Monitor Influenza Foreword

Because of the influenza vaccine shortage hospitals should be preparing for an influx of patients with the flu. Many of these individuals will be entering the healthcare system through the emergency department. Surveillance of the emergency department can be conducted to ensure that outbreaks of influenza are maintained and controlled within each area/hospital.

1. An average of about 36,000 people per year in the United States die from influenza and 114,000 people per year have to be admitted to the hospital as a result of influenza. In 2002, the 7th leading cause of death in the United States was influenza and pneumonia. The National Center for Health Statistics reported 255 deaths in Montana related to influenza and pneumonia and a mortality rate of 28.0, that is 28.0 deaths per 100,000 population in 2002.

2. Those individuals who are between the ages of 6-23 months and those that are 65 years of age and older are at the greatest risk for contracting influenza which coincides with the targeted age groups for the influenza vaccine. Although the majority of inpatients aged 6-23 months are routinely discharged home, most of these children with influenza were admitted through a physician referral or through the emergency room and were considered to be urgent cases.

3. Individuals who are 65 years and older also have a higher risk of obtaining influenza than any other age group. More than half (51.2%) of individuals with a primary diagnosis of influenza were 65 or older. In contrast to the younger age groups, these inpatients have a lower rate of being routinely discharged home and have an average length of stay and average total charge greater than any other age group.

4. Influenza as a secondary diagnosis cannot be underestimated. These inpatients with secondary diagnoses of influenza are more likely to suffer from pneumonia and worsening chronic medical conditions due to contracting the influenza virus.

Each month COMPdata will focus on the diseases and environmental issues impacting our members. In this issue you will find:

- Readily available information on national and Montana trends on conditions affecting hospitals
- Montana specific information derived from IHA's COMPdata
- References to a variety of background information sources in assembling the reports that hospitals can draw upon for their own community health communication
- Detailed information through COMPdata on how hospitals can prepare the same reports and information for your own community and hospital analysis

Next Month's Topic: Hepatitis C If your hospital has any special services or programs in this area and would like to share information with us about those, please send that by e-mail to Tanya Ternes at tternes@ihastaff.org. If the information is on your web site, you're welcome to point us there. Thank you!

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Introduction

Influenza, commonly known as the flu, is a contagious disease that is caused by the influenza virus. An average of about 36,000 people per year in the United States die from influenza, and 114,000 per year have to be admitted to the hospital as a result of influenza.¹ The most common complications of influenza are secondary bacterial pneumonia and worsening of chronic medical conditions.²

Influenza and Health-Care Settings

According to the Centers for Disease Control and Prevention, the most important means to prevent influenza from spreading in an acute care facility is influenza vaccination of both patients and healthcare personnel. The Advisory Committee on Immunization Practices (ACIP) recommends annual vaccination of all healthcare personnel against influenza. When influenza is introduced into an acute care facility, prompt recognition of influenza infection and initiation of infection control measures to combat the flu can limit the spread of disease.²

An active surveillance program can help acute care facilities identify outbreaks of influenza early and prevent influenza from spreading to patients and healthcare personnel, thereby decreasing influenza-related complications among patients and reducing work absenteeism. When the onset of influenza season in the community is identified, facility leaders should initiate measures to increase awareness and intensify efforts to diagnose and prevent influenza illness in both patients and healthcare personnel.²

The Centers for Disease Control and Prevention conducts surveillance for influenza in the United States each year from October through mid-May. Influenza surveillance on the national level is designed to:

- Determine when influenza viruses are circulating, identify circulating strains, and detect changes in the viruses,
- Monitor influenza-related illness,
- Measure the impact of influenza deaths.

Influenza Hospitalizations

The results of a study conducted by CDC and published in the Journal of the American Medical Association on September 15, 2004 indicated an overall increasing trend in the number of flu-related hospitalizations in the United States each year. The study looked at hospital records from 1979 to 2001. In 1979, there were 120,929 flu-related hospitalizations. The number was lower in some years after that, but there was an overall upward trend. During the 1990s, the average number of people hospitalized was over 200,000 but individual seasons ranged from a low of 157,911 in 1990-91 to a high of 430,960 in 1997-98.³

Because of the current flu vaccine shortage hospitals should be preparing for an influx of patients with the flu. Many of these individuals will be entering the healthcare system through the emergency department. Surveillance can be conducted in many different surroundings to ensure that outbreaks of influenza are maintained and controlled within each hospital. Some of these surroundings include inpatient, emergency department, employee, and laboratory surveillance. For more information regarding surveillance implementation please visit the CDC web site at: www.cdc.gov/flu.

Influenza Mortality Rates

In 2002, the 7th leading cause of death was influenza and pneumonia. In the United States in 2002, there were 65,681 deaths due to influenza and pneumonia. This number translates to a mortality rate of 22.8, that is 22.8 deaths per 100,000 population. The National Center for Health Statistics reported 255 deaths in Montana related to influenza and pneumonia and a mortality rate of 28.0, that is 28.0 deaths per 100,000 population in 2002.⁴

Influenza in Montana Inpatients

During the months of November 2003 through March 2004, which are considered the height of the flu season, Montana hospitals found that 491 or 1.1% of their inpatients were diagnosed with influenza as either a primary or secondary diagnosis (ICD-9 diagnostic codes 487-487.8). For the 491 inpatients who had an influenza diagnosis, it was the primary diagnosis for 348 or 70.9% of them.

The number of total cases with influenza as a primary or secondary diagnosis increased from 101 in November 2000 through March 2001 to 491 in November 2003 through March 2004, a 386.1% change. This dramatic difference is due to the 2003-2004 influenza activity in the United States which began and peaked earlier than usual and was more severe than the previous three seasons.⁵

General Statistics. The following Montana hospital statistics illustrate the depth of inpatient influenza for patients with a primary diagnosis of influenza who were discharged in November 2003 through March 2004.

All Ages

- Influenza was diagnosed as a primary condition in 348 inpatients or 70.9% of all influenza inpatients.
- Of these patients, 41 or 11.8% were 6-23 months old, 42 or 12.1% were between 2 and 17 years of age, 67 or 19.3% were 18-64 years of age, and 178 or 51.2% were 65 or older. Because of the significant difference in the characteristics of young inpatients with influenza versus older inpatients with influenza as well as different age groups having priority for influenza vaccination, the following analyses will focus on these groups separately.

Children 6-23 Months

- Influenza was the primary diagnosis for 41 children aged 6-23 months and 6.8% of discharges for children aged 6-23 months.
- Just under half of children aged 6-23 months (46.3%) were referred for admission by a physician, while another 46.3% were admitted through the emergency department. The majority of these children with influenza were considered to be urgent (48.8%), while 43.9% were considered emergencies and 7.3% were considered elective.
- Nearly all children aged 6-23 months were routine discharges to home (97.6%). All other children were transferred or discharged to another unit or facility.
- The majority of children aged 6-23 months were discharged from rural hospitals (68.3%) and 31.7% were discharged from other urban hospitals.
- The primary payers for most children aged 6-23 months were either Medicaid (56.1%) or commercial insurance (41.5%).
- The average length of stay for children aged 6-23 months with a primary diagnosis of influenza was 2.2 days while the average total charge was \$3,141.

Children 2-17 Years

- Influenza was the primary diagnosis for 42 children aged 2-17 years and 2.4% of all discharges for this age group.
- More than half (52.4%) of children between the ages of 2-17 were admitted through a physician's referral. Another 42.9% were admitted through the emergency department. Under half (42.9%) of influenza cases of children between the ages of 2 and 17 were considered urgent, while 35.7% were emergent and 19.1% were elective.
- All children between the ages of 2-17 were discharged home (100.0%).
- Over 60% of inpatients between the ages of 2-17 with a primary diagnosis of influenza were from rural areas (71.4%), and 28.6% were from other urban areas.
- Nearly half of all influenza inpatients in this age group were covered under a commercial insurer (47.6%). Another one third were covered under Medicaid (28.6%).
- The average length of stay for influenza inpatients between the ages of 2 and 17 was 2.1 days and the average total charge for this age group was \$3,097.

Adults 18-64 Years

- Influenza was the primary diagnosis for 67 adults aged 18-64 years and 0.3% of all discharges for this age group.
- Over 70% of adults 18 to 64 years of age (70.2%) were admitted with a primary diagnosis of influenza through the emergency room, while 25.4% were referred through a physician's referral. Most adult influenza cases were considered to be emergencies (47.8%) while 40.3% were considered urgent and only 11.9% were considered elective.
- Most influenza inpatients between 18 and 64 years of age were routinely discharged home (90.0%) and another 7.5% were transferred or discharged to another unit or facility.
- Similar to other age groups, adult influenza inpatients were mostly from rural areas. Nearly 65% of adult influenza inpatients (64.2%) were from rural areas and 35.8% were from other urban areas.
- Over a quarter of influenza inpatient adults aged 18 to 64 years old were covered under Medicare (26.9%). Another 31.3% were covered under a commercial insurer and 7.5% were covered under Medicaid.
- The average length of stay and average total charges are greater for adults between the ages of 18 and 64 years than for children under 18 years of age. The average length of stay for adults was 4.5 days and the average total charge was \$12,864.

Adults 65 and Older

- Influenza was the primary diagnosis for 178 adults aged 65 and older. Inpatients aged 65 and older with a primary diagnosis of influenza comprised 1.0% of all discharges for this age group.
- Over 70% of inpatients 65 and older (70.2%) were admitted through the emergency room, while 25.8% were admitted through a physician referral. More than half of influenza inpatients 65 and older (53.4%) were considered to be emergencies while 38.2% were urgent and 8.4% were elective.
- In contrast to younger age groups, only 69.7% of influenza inpatients 65 and older were routinely discharged home and another 25.8% were transferred or discharged to another type of unit or facility. The mortality rate for inpatients aged 65 and older was higher than any other age group. Nearly 4% of inpatients 65 and older with a primary diagnosis of influenza died (3.9%).
- Most inpatients 65 and older with influenza as a primary diagnosis were from rural areas (67.4%) and 32.0% were from other urban areas.

- The primary payer for influenza inpatients 65 and older was Medicare (88.2%) while only 7.3% were covered under commercial insurance.
- The average length of stay for this age group was 4.7 days while the average total charge was \$9,537.

Influenza as a Secondary Diagnosis

Influenza as a secondary diagnosis cannot be overlooked. Between November 2003 and March 2004 there were a total of 148 inpatients to Montana hospitals with influenza as a secondary diagnosis. Of these patients, almost half (42.6%) were 65 years of age or older. These inpatients with secondary diagnoses of influenza are more likely to suffer from pneumonia and worsening chronic medical conditions due to contracting the influenza virus.

Promoting Quality Improvement and Influenza Vaccine

The Center for Medicare and Medicaid (CMS) in concert with key healthcare associations have launched the Quality Initiative, a project aimed at the public reporting of quality data with the intent to inform the consumer and create an impetus for improvement. The Hospital Quality Initiative is focused on three vital conditions - Heart Attack, Heart Failure and Pneumonia.

Key measures in the Pneumonia measure set are two indicators, pneumococcal and influenza screening and vaccination. Evidence based medicine has shown that administering these two vaccinations to high-risk populations has resulted in a decrease in mortality and morbidity. Pneumococcal was included in the original measure set. Influenza was added to the measure set effective with 3rd quarter of 2004 hospital discharges. Specifically the influenza measure examines pneumonia patients, age 50 years and older, discharged during October-February who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated.

Reporting the influenza vaccination rate is voluntary and is not part of the current Annual Payment Update (APU). With the current shortage of influenza vaccines nationally, CMS will still collect this data but the public reporting of the measure will be withheld for the current flu season.

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APPENDIX

Influenza, commonly known as the flu, is an infection of the lungs and airways with one of the influenza viruses, causing a fever, running nose, sore throat, cough, headache, muscle aches (myalgias), and a general feeling of illness (malaise).⁶ Influenza is spread through respiratory droplets caused by sneezing and coughing and usually spreads from person to person. Adults can infect other individuals beginning one day before getting symptoms and up to seven days after getting sick.

Influenza Viruses

There are three different types of influenza viruses. Influenza types A and B are the most common types and are responsible for epidemics of respiratory illness that occur almost every winter and are often associated with increased rates of hospitalization and death.⁷

Influenza type A viruses are divided into subtypes based on two proteins on the surface of the virus. These proteins are called hemagglutinin (H) and neuraminidase (N). The current subtypes of influenza A found in people are A(H1N1) and A(H3N2). Influenza B virus is not divided into subtypes. Influenza A(H1N1), A(H3N2), and influenza B strains are included in each year's influenza vaccine.⁸

Changes in Influenza Viruses

Influenza viruses change each year in two ways. One way that influenza viruses change over time is called antigenic drift and is characterized by changes in the virus over time. Antigenic drift produces new virus strains that may not be recognized by the body's immune system. This is one of the reasons why people can get the flu more than one time. In most years, one or two of the three virus strains in the influenza vaccine are updated to keep up with the changes in the circulating flu viruses.

The other way influenza viruses change from year to year is through antigenic shift. Antigenic shift is an abrupt, major change in the influenza A virus, resulting in new hemagglutinin and/or new hemagglutinin and neuraminidase proteins in influenza viruses that infect humans. Shift results in a new influenza A subtype. When shift happens, most people have little or no protections against the new virus. While influenza viruses are changing by antigenic drift all the time, antigenic shift happens only occasionally. Type A viruses undergo both kinds of changes; influenza type B viruses change only by the more gradual process of antigenic drift.⁸

Influenza Vaccine

There are two different influenza vaccines—trivalent inactivated influenza vaccine and live, intranasal influenza vaccine. Inactivated (killed) influenza vaccine, given as a shot, has been used in the United States for many years. A live, weakened vaccine was licensed in 2003. It is sprayed into the nostrils.

The flu shot (inactivated vaccine) is preferred over live, intranasal influenza vaccine for physicians, nurses, family members, or anyone else coming in close contact with anyone with a severely weakened immune system (that is, requiring care in a protected environment). Individuals six months of age and older at risk for getting a serious case of influenza or

influenza complications, as well as people in close contact with them (including all household members) should get the inactivated influenza vaccine.

Live, intranasal influenza vaccine is approved for healthy children and adults from 5 through 49 years of age, including household contacts of most people at high risk for influenza complications. However, live, intranasal influenza vaccine should not be used for the following groups of people: people with some medical conditions, pregnant women, or others at risk of influenza-related complication.⁹

Influenza Vaccine Side Effects

The influenza vaccine can cause side effects. The most common side effect from the influenza vaccine is soreness at the site of the vaccination. Other side effects, especially in children who previously have not been exposed to the flu virus, include fever, tiredness, and sore muscles. These side effects may begin 6 to 12 hours after vaccination and may last for up to 2 days.

Viruses for producing the vaccine are grown in chicken eggs and then killed with a chemical so that they can no longer cause an infection. The flu vaccine may contain some egg protein, which can cause an allergic reaction. Health providers should be sure to screen vaccine candidates for egg and other allergies.¹⁰

Vaccine Shortage

On October 5, 2004, the Centers for Disease Control and Prevention (CDC) was notified by Chiron Corporation that none of its influenza vaccine (Fluvirin) would be available for distribution in the United States for the 2004-05 influenza season. The company indicated that the Medicines and Healthcare Products Regulatory Agency (MHRA) in the United Kingdom, where Chiron's Fluvirin vaccine was produced, has suspended the company's license to manufacture Fluvirin vaccine in its Liverpool facility for 3 months, preventing any release of this vaccine for this influenza season. This action will reduce by approximately one half the expected supply of trivalent inactivated vaccine (flu shot) available in the United States for the 2004-05 influenza season.¹¹

On October 28, 2004 HHS Secretary Tommy G. Thompson announced that significant progress is being made toward expanding the nation's supply of vaccine for the flu season. The U.S. Department of Health and Human Services stated that the Food and Drug Administration (FDA) has identified about 5 million doses of influenza vaccine from foreign manufacturers. HHS has also been able to recoup an additional 300,000 doses of the injectable vaccine originally bought for federal employees and the military and a major pneumonia vaccine manufacturer plans to triple its production. Secretary Thompson said these medicines would add to the nation's growing supply of vaccines and medicines to protect Americans during the coming flu season.¹²

Interim Recommendations for Influenza Vaccination

Because of the urgency of the vaccine shortage, the CDC, in coordination with its Advisory Committee for Immunization Practices (ACIP), is issuing interim recommendations for influenza vaccination during the 2004-05 season. These interim recommendations were formally recommended by ACIP on October 5, 2004, and take precedence over earlier recommendations.¹¹

The following priority groups for vaccination with inactivated influenza vaccine this season are considered to be of equal importance and are:

- All children 6-23 months of age;
- Adults aged 65 years and older;
- Persons aged 2-64 years with underlying chronic medical conditions;
- All women who will be pregnant during the influenza season;
- Residents of nursing homes and long-term care facilities;
- Children aged 6 months-18 years on chronic aspirin therapy;
- Health-care workers involved in direct patient care; and
- Out-of-home caregivers and household contacts of children aged 6 months old or younger.

More information on who should and who should not get a flu shot is available on the CDC Influenza website at:

<http://www.cdc.gov/flu/professionals/flugallery/pdf/vaccinescreeningform.pdf>

Other Vaccination Recommendations

- Persons in priority groups identified above should be encouraged to search locally for vaccine if their regular health-care provider does not have vaccine available.
- Intranasally administered, live, attenuated influenza vaccine, if available, should be encouraged for healthy persons who are aged 5-49 years and are not pregnant, including health-care workers (except those who care for severely immunocompromised patients in special care units) and persons caring for children under 6 months.
- Certain children under 9 years require 2 doses of vaccine if they have not previously been vaccinated. All children at high risk for complications from influenza, including those aged 6-23 months, who present for vaccination, should be vaccinated with a first or second dose, depending on vaccination status. However, doses should not be held in reserve to ensure that 2 doses will be available. Instead, available vaccine should be used to vaccinate persons in priority groups on a first-come, first-serve basis.

Persons who are not included in one of the priority groups described above should be informed about the urgent vaccine supply situation and asked to forego or defer vaccination.

Persons in the following groups should not receive influenza vaccine before talking with their doctor:

- Persons with severe allergy (i.e., anaphylactic allergic reaction) to hens' eggs and
- Persons who previously had onset of Guillain-Barre syndrome during the 6 weeks after receiving influenza vaccine.

A Speak Up Safety Initiative

On October 20, 2004, the Joint Commission on Accreditation of Healthcare Organizations, in collaboration with the American Hospital Association (AHA), Association for Professionals in Infection Control and Epidemiology (APIC), Centers for Disease Control and Prevention (CDC), Infectious Diseases Society of America (IDSA), and Society for Healthcare Epidemiology of America (SHEA), urged Americans to take appropriate steps to reduce the likelihood of becoming ill especially with the national shortage of flu vaccine now a looming reality.¹³

The Joint Commission and others urge Americans to do three easy things to limit the spread of respiratory infections in health care settings and communities.

- Clean your hands – Rub hands vigorously with soap and warm water for at least 15 seconds after using the bathroom, taking out the trash, changing a diaper, or before

- handling food. The use of alcohol-based hand sanitizers is an acceptable alternative.
- Cover your mouth and nose – To stop the spread of infectious diseases through sneezes and coughs, cover your mouth and nose with a tissue, your hands, or the crook of your elbow. Then, remember to wash your hands.
- Avoid close contact – A fever or symptoms of a contagious illness are clear signs to you or your child to stay at home and away from other people, either at work or at school.

For more information on the Speak Up Safety Initiative, please go to the CDC website:
<http://www.cdc.gov/ncidod/hip/speakup.htm>.

Antiviral Drugs

Three antiviral drugs (amantadine, rimantadine, and oseltamivir) are approved and commercially available as prescriptions for use in preventing influenza. When used for prevention, they are about 70% to 90% effective for preventing illness in healthy adults.

Four antiviral drugs (amantadine, rimantadine, zanamavir and oseltamivir) have been approved for treatment of the flu. If taken within 2 days after getting sick, these drugs can reduce the symptoms of the flu and shorten the time an individual is sick by 1 or 2 days. They also make individuals less contagious than others. All of these drugs must be prescribed by a doctor and taken for 5 days. Antiviral drugs are effective only against influenza viruses. They will not help the symptoms associated with the common cold or many other flu-like illnesses caused by viruses that circulate in the winter.¹⁴

Antiviral Medications: 2004-05 Interim Chemoprophylaxis and Treatment Guidelines

On October 18, 2004, the Centers for Disease Control and Prevention issued interim guidelines for the use of antiviral medications during the 2004-05 season. To obtain these interim guidelines please visit the CDC website at:

<http://www.cdc.gov/flu/professionals/treatment/0405antiviralguide.htm>.

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What Some Hospitals Are Doing Today

Several hospitals have given or sold their doses of the flu vaccine to their respective state health departments in order to focus on getting the flu vaccine to those in the high risk groups.

Many hospitals offer information regarding the flu and the flu vaccine on their websites. These websites are updated often to reflect the timeliest information that has been published regarding the flu and the flu vaccine.

Resources for Additional Information

FOR HOSPITALS

The CDC web site (<http://www.cdc.gov/flu/>) offers the latest information on the flu and the flu vaccine. This website contains 2004-05 flu vaccine information as well as infection control guidelines, information on antiviral drugs, patient and provider education materials, and references and resources and a weekly report regarding flu activity in the United States. The CDC also has an influenza vaccine list serve that e-mails a copy of the Influenza Vaccine Bulletin to the user. To subscribe to this list serve, go to

<http://www.cdc.gov/flu/professionals/flubulletin.htm>.

The American Lung Association web site features an extensive section of material for professionals including its “Guidelines for Prevention and Treatment of Influenza and the Common Cold”. For more information go to the American Lung Association web site at: <http://www.lungusa.org>

The IntelliHealth Inc. web site offers a Flu-O-Meter that is based on data released each week by the Centers for Disease Control and Prevention. This Flu-O-Meter allows the user to move their cursor on a state, which allows the panel lights to indicate current flu levels in that state. There are three different flu levels illustrated on the Flu-O-Meter—low or sporadic, medium or regional, and high or widespread. Low or sporadic levels indicate that influenza infections noted but these infections are not affecting schools, nursing homes, or other institutional settings. Medium or regional outbreaks occur in areas of the state holding less than 50 percent of the population infected. High or widespread outbreaks occur in areas with more than 50 percent of the population infected. The Flu-O-Meter can be found at: <http://www.intelihealth.com> and searching for “Flu-O-Meter”.

FOR PATIENTS AND THE COMMUNITY

Like it does for health professionals, the CDC provides information for patients and the public, including 2004-05 flu vaccine information as well as key facts about the flu, information regarding preventing the flu, a question and answer section and a weekly report regarding flu activity in the United States.

The American Lung Association web site (<http://www.lungusa.org>) offers information about the flu and provides information about “Good Flu Health Habits” as well as breaking news regarding the flu.