

**INFLUENZA UPDATE
2018-2019 SEASON**

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PRESENTATION OBJECTIVES

- Will increase knowledge of ACIP recommendations and influenza vaccine.
- Will increase knowledge about influenza surveillance and weekly reporting of influenza activity.
- Will gain knowledge about target populations that need improved influenza vaccination coverage.

WHAT WE KNOW ABOUT FLU

According to the CDC, Influenza and Influenza-Associated Pneumonia was the **8th leading cause of death in 2016.**

Flu is unpredictable.

- Not possible to say when it will begin, peak, or end.
- Not possible to say what viruses will predominate.

- It takes about 2 weeks after vaccination for protection to set in so get vaccinated as early as possible.
- You can not get the flu from the flu shot.
- As long as flu is circulating in the community, you can still get your flu vaccine.

- While vaccine can vary how it works, it can reduce:
 - flu illnesses
 - doctor's visits
 - missed work
 - missed school
 - prevent flu-related hospitalizations

HOW DOES FLU SPREAD?

- Respiratory transmission of virus
- Viral shedding
- Fomite transmission



GOOD HYGIENE MAKES A DIFFERENCE

- Cover your nose and mouth with a tissue or the bend of your elbow when you cough or sneeze.
- Wash your hands often for at least 20 seconds with soap and water – especially after coughing or sneezing.
- If soap and water are not available, use an alcohol-based hand rub.
- Avoid touching your eyes, nose, or mouth to prevent the spread of germs.
- If your doctor prescribes antiviral medications, take them.

ACTIVITY RECOMMENDATIONS

- If you are sick with flu-like illness, CDC recommends you stay home for at least 24 hours after your fever is gone, except to get medical care or for other necessities.
- **NOTE:** Your fever should be gone without the use of a fever-reducing medicine.
- While sick, limit contact with others as much as possible.

INFLUENZA TREATMENT

- Antiviral drugs can lessen symptoms and shorten illness by 1-2 days if started within 2 days of symptom onset. Can be started as late as 5 days after symptom onset.
 - Oseltamivir (brand name TAMIFLU®) - pill or liquid
 - Zanamivir (brand name RELENZA®) - inhaled powder
 - Peramivir (brand name RAPIVAB®) - IV only
- Usually taken for 5 days; however, may need to take longer if hospitalized.
- **NOTE:** These medications can be expensive if not covered by health insurance plans.
- Safe for children and pregnant women.

2017-2018 SEASON RECAP

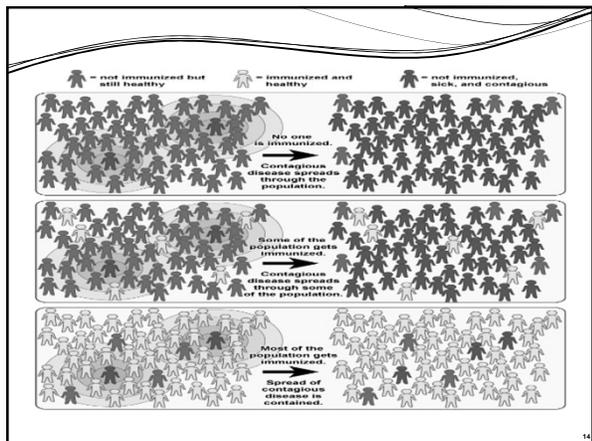
FLU SEASON	TOTAL # OF CASES	TOTAL # OF LTCF OUTBREAKS	# OF PEDIATRIC DEATHS	# ADULT DEATHS	TOTAL # OF DEATHS
2013-2014	1,700	12	1	57	58
2014-2015	1,046	92	3	143	146
2015-2016	3,087	12	3	36	39
2016-2017	3,025	82	0	76	76
2017-2018	10,489	124	5	328	333

- ### HUMAN INFLUENZA VIRUS TYPES
- **Type A**
 - Moderate to Severe Illness
 - All age groups
 - Humans and Animals, (e.g., avian or swine flu)
 - **Type B**
 - Milder disease
 - Primarily affects Children
 - Humans only
 - **Type C**
 - Very mild or no respiratory symptoms
 - Rarely reported in humans
 - No epidemics and no severe public health impact

- ### 2017-2018 INFLUENZA VACCINE EFFECTIVENESS
- Overall effectiveness against all flu viruses:
40%
 - Influenza A (H1N1): **65%**
 - Influenza B viruses: **49%**
 - Influenza A (H3N2): **25%**

COMPARISON OF VACCINE EFFECTIVENESS 2008-2018

INFLUENZA SEASON	VACCINE EFFECTIVENESS
2008-2009	41%
2009-2010	56%
2010-2011	60%
2011-2012	47%
2012-2013	49%
2013-2014	52%
2014-2015	19%
2015-2016	48%
2016-2017	40%
2017-2018	40%



- ### 2018-2019 CDC RECOMMENDATIONS
- FluMist is once again a vaccine option.
 - CDC does not have a preference between FluMist (LAIV4) and injectable vaccine (IIV).
 - AAP issued statement in September, 2018 recommending injectable vaccine over FluMist.
 - Influenza A H1N1 strain changed in the FluMist formulation.
 - No vaccine efficacy data on changed strain.

2018-2019 CHANGES TO FLU VACCINE

- Two vaccine strains in the injectable Trivalent vaccine were changed:
 - Influenza A H3N2; and
 - Influenza B (Victoria lineage).
- Influenza A H1N1 was not changed.
- The Quadrivalent vaccine contains the three strains above, plus
- Influenza B (Yamagata lineage)

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902 KAR 2:020 REPORTABLE DISEASE SURVEILLANCE

- Novel Influenza A virus is considered urgent and shall be reported within 24 hours.
- The following is considered priority and shall be reported within 1 business day:
 - ANY Influenza-associated mortality;
 - ANY positive molecular-level influenza tests, regardless of the healthcare setting in which the testing was performed.

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INFLUENZA DIAGNOSIS

- Preferred clinical specimen, depends on method of testing (e.g., nasopharynx swab, throat swab, or sputum)
- Methods of Testing
 - Viral Culture
 - PCR (*PCR is preferred by CDC)
 - Rapid Molecular Influenza Diagnostic Testing (*accepted as PCR equivalent by CDC)
 - Rapid Antigen Influenza Diagnostic Testing (RIDTs)

www.cdc.gov/flu/professionals/diagnosis/labrolesprocedures.htm

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DETERMINING WEEKLY FLU ACTIVITY

- Deaths – Regional Epidemiologists and Death Certificate Review
- Outbreaks – Regional Epidemiologists and Local Health Departments
- ILI Surveillance Sites – CDC ILINet
- Lab-confirmed results – Regional Epidemiologists, KHIE, Providers, Laboratories

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DEFINITION OF INFLUENZA-LIKE ILLNESS (ILI)

What is considered ILI? There are 3 scenarios:

ALL CASES must have a **FEVER defined as 100°F [37.8°C] or greater (oral or equivalent) AND** cough and/or sore throat (without a known cause other than influenza):

- FEVER + COUGH; *or*
- FEVER + SORE THROAT; *or*
- FEVER + COUGH + SORE THROAT

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INFLUENZA SURVEILLANCE

- Hospitals, doctor’s offices, urgent treatment centers, and university healthcare clinics voluntarily report influenza-like illness (ILI) activity weekly to the CDC via ILINet system.
- CDC calculates the weekly data from all states and territories to determine national, regional, and state activity to compare to national baselines.

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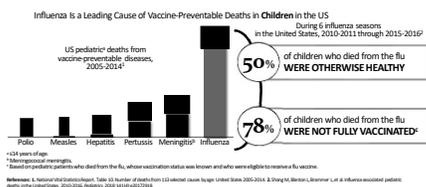
PNEUMONIA AND INFLUENZA-ASSOCIATED MORTALITY

- Exact number of flu-related deaths unable to be determined but estimated as greater than 80,000 nationally for the 2017-2018 season.
- The CDC does not require states to report flu deaths of people older than 18 years old.
- Kentucky law stipulates that ALL flu-related deaths be reported, regardless of age.
- Influenza infrequently listed on death certificates of people who die from flu-related complications. **Influenza does not have to be the leading cause of death to be considered a flu-related death.**
- Many flu-related deaths occur one or two weeks after a person's initial infection. Most people who die from flu-related complications are not tested for flu, or they seek medical care later in their illness when seasonal influenza can no longer be detected from respiratory samples.

CDC "Estimating Seasonal Influenza-Associated Deaths in the United States" www.cdc.gov/flu/about/disease/us_flu-related_deaths.htm
 Kentucky Administrative Regulation, 902 KAR 2:020. Reportable disease surveillance. www.lrc.ky.gov/kar/902/002/020.htm

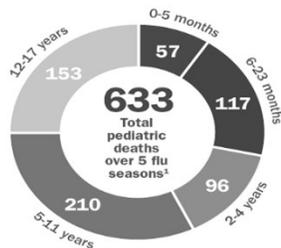
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Where We Fall Short: Children



DATA FROM THE CDC SHOWS THAT INFLUENZA DEATHS AFFECT ALL PEDIATRIC AGE GROUPS

Pediatric Deaths From Influenza by Age Group Over 5 Flu Seasons (2013-2014 through 2017-2018)



2017-2018 FLU VACCINATION RATES IN CHILDREN 6 MONTHS THROUGH 17 YEARS

- Flu vaccine coverage among children varies by age and decreases with increasing age:
 - 6 months through 4 years = 67.8%
 - 5 years through 12 years = 59.5%
 - 13 years through 17 years = 47.4%
- Coverage rates among children 6 months through 4 years decreased 2.2%
- One third of the pediatric deaths reported to the CDC last season occurred among children in that age group.

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PEDIATRIC FLU VACCINE RECOMMENDATIONS

- Children aged 6 months through 8 years who have previously received ≥ 2 doses of trivalent or quadrivalent vaccine before July 1, 2018, require only 1 dose for 2018-2019.
- Children aged 6 months through 8 years who have not previously received a total of ≥ 2 doses of trivalent or quadrivalent vaccine before July 1, 2018 require 2 doses for 2018-2019.

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WHERE WE FALL SHORT: PREGNANT WOMEN



FLU VACCINE AND PREGNANT WOMEN

- Vaccination can protect the pregnant woman & unborn child, who are at high risk of flu-related severe illness, hospitalization, and death.
- Vaccination of pregnant women can protect newborn babies younger than 6 months of age who are too young to be vaccinated themselves (i.e., cocooning immunity).
- Flu vaccine can be administered in any trimester.

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PROVIDER'S RECOMMENDATION AND OFFER OF VACCINE TO PREGNANT WOMEN

- The provider's approach is key:
 - Clinician recommended & offered to administer = **66.6%**
 - Clinician recommended but did not offer to administer = **14.4%**
 - Clinician did not recommend = **19.0%**

OVERALL VACCINATION OF PREGNANT WOMEN FOR 2017-2018 SEASON = 49.1%

Katherine E. Kahn, MPH; Carla L. Black, PhD; Helen Ding, MD; Walter W. Williams, MD; Peng-Jun Lu, MD, PhD; Amy Parker Fiebelkorn, MSN, MPH; Fiona Havers, MD; Denise V. D'Angelo, MPH; Sarah Ball, ScD; Rebecca V. Fink, MPH; Rebecca Devlin, MA. Influenza and Tetap Vaccination Coverage Among Pregnant Women—United States, April 2018. MMWR September 28, 2018/67(18)1055-1059

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WHERE WE FALL SHORT: HEALTHCARE WORKERS



MMWR | ALL HEALTHCARE WORKERS NEED FLU SHOTS

VACCINATING HEALTHCARE WORKERS

- REDUCES FLU AMONG WORKERS
- REDUCES WORK ABSENCES
- PROTECTS PATIENTS

3 OF 4 HEALTHCARE WORKERS GET FLU SHOTS

HIGHEST WHEN EMPLOYER REQUIRED SHOT OR GAVE ONSITE

LOWEST FOR LONG-TERM CARE WORKERS

WORKPLACE STRATEGIES CAN HELP!

- PROMOTE ON-SITE VACCINATION
- OFFER LOW OR NO COST SHOTS
- REMEMBER NON-CLINICAL STAFF

Op-Ed: Internal journal of health care personnel during 2015-16 season as published in Black et al. MMWR 2018. <http://dx.doi.org/10.15585/mmwr.mm6738a2>

WWW.CDC.GOV

FLU VACCINE AND HEALTHCARE PERSONNEL

- Healthcare personnel should be vaccinated every flu season to protect themselves, their patients, and their families from seasonal flu.
- 2017-2018 vaccine coverage rates by:

OCCUPATION	HEALTHCARE SETTING
Physicians: 96.1%	Hospitals: 91.9%
Pharmacists: 92.2%	Ambulatory Care: 75.1%
Nurses: 90.5%	Other Clinical Settings: 74.9%
APRNs and PAs: 87.8%	LTCF: 67.4%
Other Clinical Personnel: 80.9%	
Non-clinical: 72.8%	
Assistants and aides: 71.1% * considerably lower in LTCF settings	

OVERALL: 78.4% (Healthy People 2020 Goal is 90%)

Black CL, Yue X, Ball SW, et al. Influenza Vaccination Coverage Among Health Care Personnel — United States, 2017–18 Influenza Season. MMWR Morb Mortal Wkly Rep 2018;67:1050–1054. DOI: <http://dx.doi.org/10.15585/mmwr.mm6738a2>

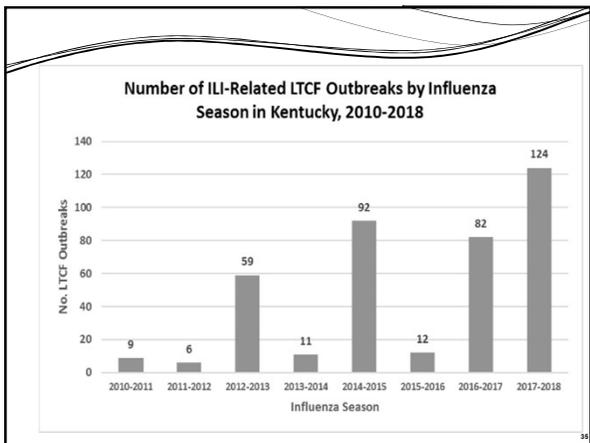
STATE REQUIREMENTS FOR LONG-TERM CARE FACILITIES (LTCFs)

Kentucky Regulation 902 KAR 2:065.
<http://www.lrc.ky.gov/kar/902/002/065.htm>

- LTCF shall request that all residents and employees, both full and part-time, receive influenza annually and pneumococcal vaccine, unless contraindicated.
- LTCF shall keep an immunization record for all residents and employees, full-time, part-time, and contract, reflecting:
 - Vaccination education given; and
 - Whether they received the vaccine or declined.

LTCF OUTBREAK DEFINITION

- When there is a confirmed or suspected influenza outbreak (Defined as two or more ill residents and/or staff within 72 hours of each other).
- If there are two confirmed influenza positive cases along with other cases of respiratory infection in a unit of a long-term care facility, an influenza outbreak might be occurring.
- While unusual, an influenza outbreak can occur outside of the normal influenza season; therefore, testing for influenza should be added to testing for other respiratory pathogens during non-influenza season periods.
- Even if it's not influenza season, influenza testing should occur when any resident has signs and symptoms that could be due to influenza, and especially when two residents or more develop respiratory illness within 72 hours of each other.



FLU AND THOSE PERSONS ≥65 YEARS OF AGE

- Immunity wanes as a person ages.
- **HIGH DOSE FLU VACCINE** is recommended for those people 65 years of age and older, unless contraindicated.
- High dose flu vaccine contains 4 times the virus antigens to protect the person from getting the flu.

FLU VACCINE CAN HELP IMPROVE OUTCOMES FOR PEOPLE WITH CHRONIC HEALTH CONDITIONS

- The risk of having a heart attack is significantly greater within 1-3 days of consulting for an acute respiratory infection.
- Estimates of the efficacy of flu vaccine in preventing acute myocardial infarction range from 15 to 45%.
- In comparison:
 - Smoking cessation decreased the risk 32-43%;
 - Statins decreased the risk 19-30%;
 - Blood pressure drugs decreased the risk 17-25%.

MacIntyre CR, Mahimbo A, Mwa AM, Barnes M. Influenza vaccine as a coronary intervention for prevention of myocardial infarction. *Heart*. 2015;102:1953-1956.

INFLUENZA VACCINATION CAN HELP PREVENT COMPLICATIONS FOR PEOPLE WITH TYPE 2 DIABETES

- Flu vaccination was associated with significant reductions in hospital admissions for Type 2 Diabetics due to:
 - Stroke (30%);
 - Heart Failure (22%);
 - Pneumonia or Influenza (15%); and
 - All-Cause Death (24%).

*Vamos EP, Pape LJ, Curcin V, et al. Effectiveness of the influenza vaccine in preventing admission to hospital and death in people with type 2 diabetes [published online July 25, 2016]. *CMAJ*. 2016. doi:10.1503/cmaj.251059.

INFLUENZA AND MORTALITY

- Flu vaccination has demonstrated a significant reduction in mortality from:
 - Stroke (65%); and
 - Type 1 Diabetes (55%).
- Influenza epidemics were associated with increases in cardiac mortality. The odds of death increased for:
 - Acute Myocardial Infarction; and
 - Chronic Ischemic Heart Disease.

Wang C-S, Wang S-T, Lai C-T, Lin L-S, Chou P. Impact of influenza vaccination on major cause-specific mortality. *Vaccine*. 2007;25:1196-1203.
Maulik M, Miller CC, Zarubava VV, et al. Influenza epidemics and acute respiratory disease activity are associated with a surge in autopsy-confirmed coronary heart disease death: results from 8 years of autopsies in 34,892 subjects. *Eur Heart J*. 2007;28:1205-1210

