COMPLIMENTARY WEBINAR

# INFLUENZA 2022 – 2023: RAPID ASSESSMENT AND TREATMENT STRATEGIES

Thursday, November 17, 2022
1:00 PM – 2:00 PM ET


**MICHAEL GREEN, MD**

Associate Medical Director
Assistant Professor - Family Medicine
Zucker School of Medicine at
Hofstra/Northwell
Northwell Health/GoHealth Urgent Care



**BRUCE LOBAUGH, PHD, HCLD(ABB)**

Director
Point of Care Testing Program & Laboratory
Duke University Health System


The speakers are presenting on behalf of Abbott.
The information presented is consistent with applicable FDA guidelines.
This program does not provide continuing medical education (CME) credits.


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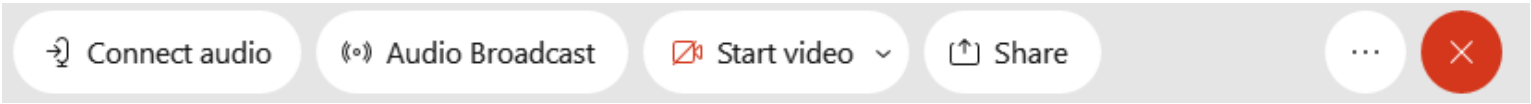
# Joining the Teleconference

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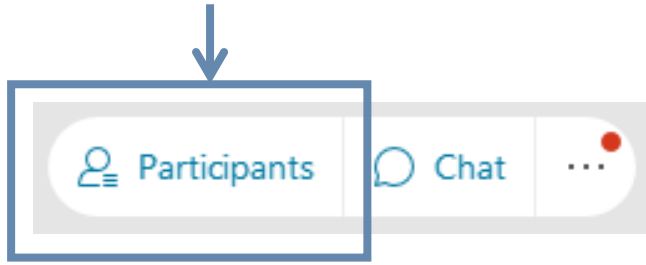

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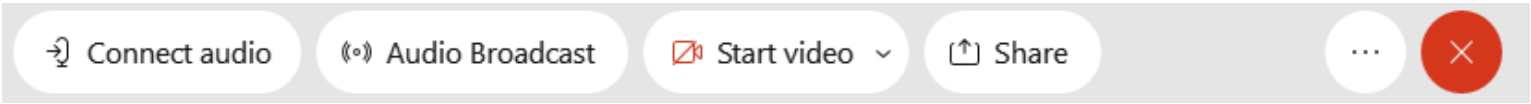


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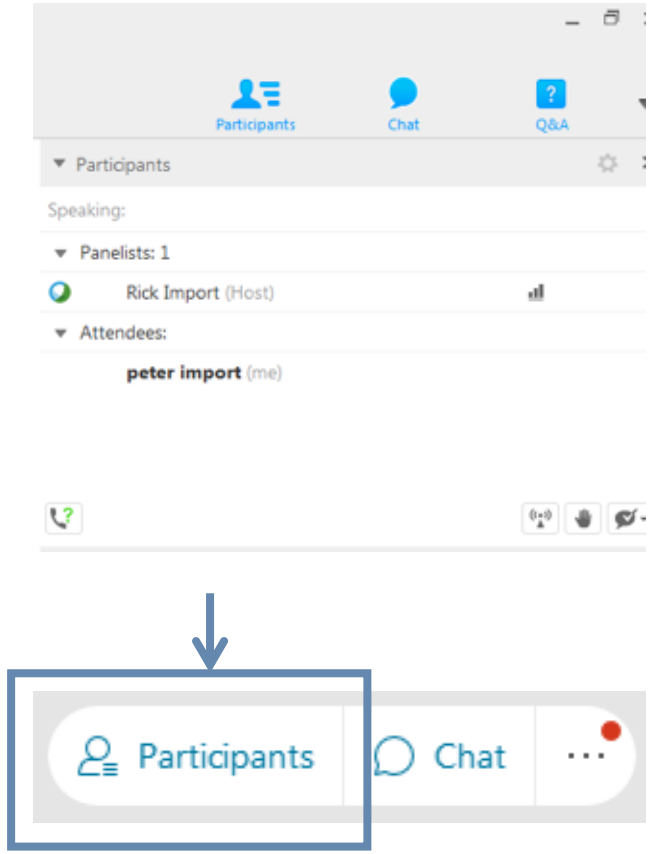

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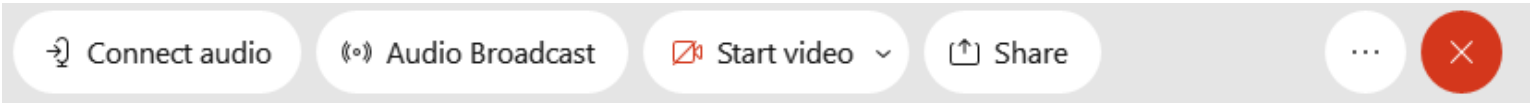


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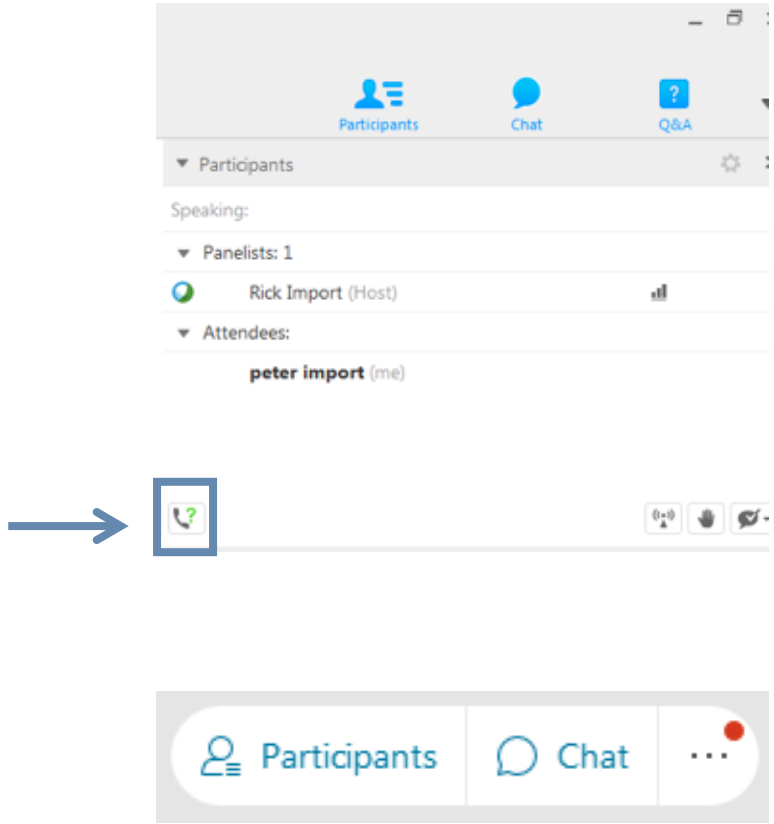
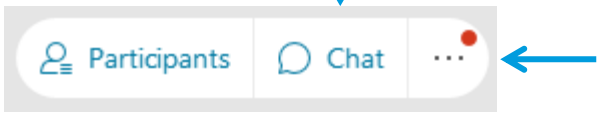


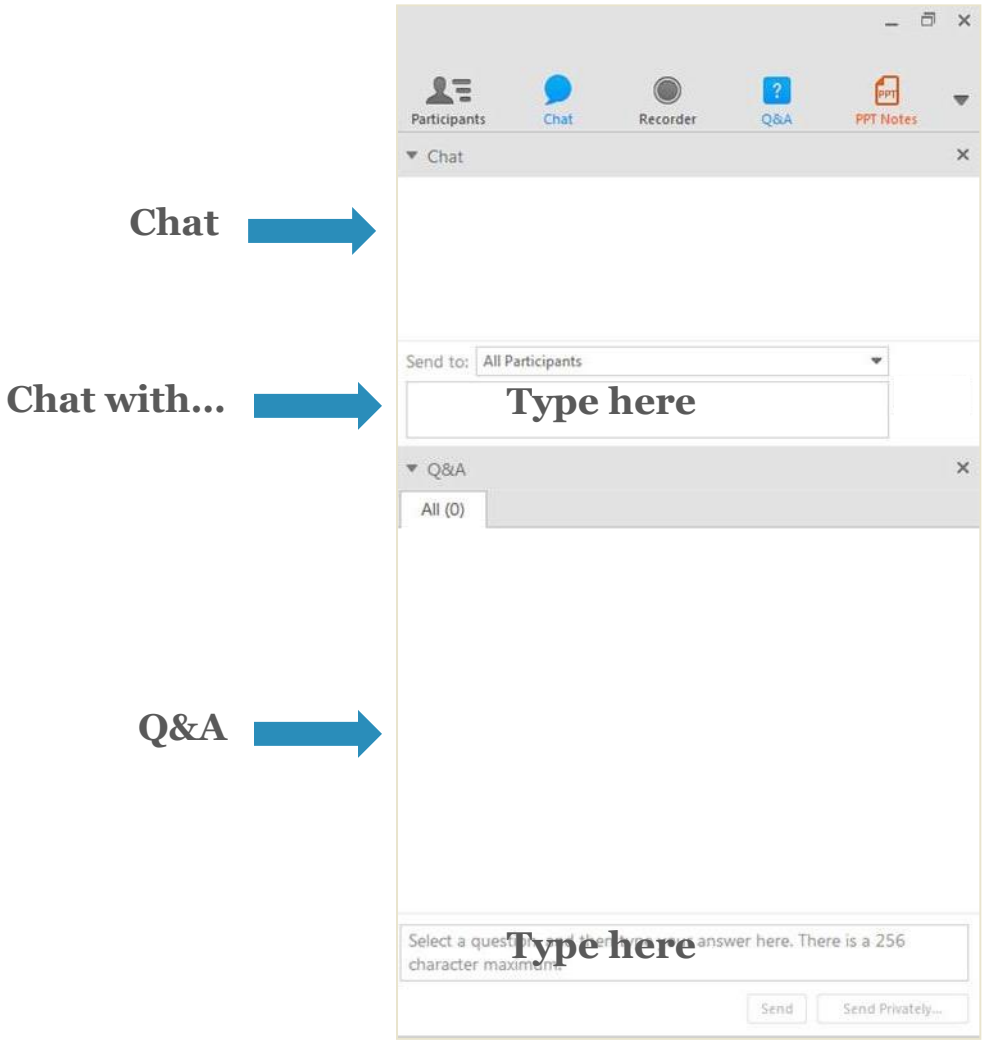
# Chat and Q&A

Show chat panel




Other panels like Q&A and polling

# Webinar Communication Tools



# Available CE Credit

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Certificate of Attendance

# To Receive Certificate of Attendance

**After today's webinar:**

- A certificate of attendance available for all attendees
- Evaluation form will appear automatically
- Must complete Eval to receive Certificate link via email
- **For groups: Those logged in will receive Email from messenger@webex.com with link to evaluation. Forward email to colleagues who attended with you!!!**
- Double-check email address

# Joined Using a Mobile Device?

- Evaluation won't appear automatically, but…
- Watch for email with link to evaluation!

# Recording

Within a few days following today's event, visit

**https://www.whitehatcom.com/fisher**

## Influenza 2022-2023: Rapid Assessment and Treatment Strategies

**Live Event: Thursday, November 17, 2022 | 1:00 - 2:00 PM ET**
**P.A.C.E.® credit available until May 17, 2023 | Florida Laboratory Credit available**

Recording | Slides

Join this session for the latest insights on global influenza activity and predictions for the upcoming respiratory season in the Northern Hemisphere. Influenza diagnostic guidelines and quality initiatives associated with antimicrobial stewardship and care efficiencies will be presented. Leaders and members of antibiotic stewardship committees and healthcare professionals involved in time sensitive and other acute care areas are encouraged to attend.

**This webinar will:**
- Discuss influenza risks and the importance of an early diagnosis in time-sensitive areas
- Review IDSA guidelines for diagnosing influenza
- Examine accuracy and technology differences between antigen and molecular tests
- Explore the impact of an early and accurate influenza diagnosis on quality of care, infection control, and stewardship for antibiotics and antivirals

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Presenters:

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Director, Point-of-Care Testing Program
Administrative Director, Duke University Health System
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Duke University Health System

**Michael Green MD, MS**
Associate Medical Director
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# PRESENTERS

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# Influenza 2022-2023:
## Rapid Assessment and Treatment Strategies

Presented by

**Michael Green MD**
Associate Medical Director
Assistant Professor - Family Medicine
Zucker School of Medicine at Hofstra/Northwell
Northwell Health/GoHealth Urgent Care

# Disclosures

Speaker honorarium from Abbott for this talk

The opinions expressed in this session are those of the speaker and not of Northwell Health/GoHealth Urgent Care

# Learning Objectives

- Discuss influenza risks and the importance of an early diagnosis in time-sensitive areas
- Review Infectious Diseases Society of America (IDSA) guidelines for diagnosing influenza
- Examine accuracy and technology differences between antigen and molecular tests
- Investigate the impact of early and accurate influenza diagnoses on care, infection control, and antibiotic and antiviral stewardship

# Patient Presentation

57-year-old male with PMH Diabetes presents with cough, runny nose, body aches and sore throat x 2 days. It is January and there is high flu community activity.

- Normal vitals and Physical exam
- What is the diagnosis?

A) Cold
B) Flu
C) COVID-19
D) RSV
E) I don’t have enough information

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D) RSV

**E) I don’t have enough information**

# Let’s Talk About Influenza

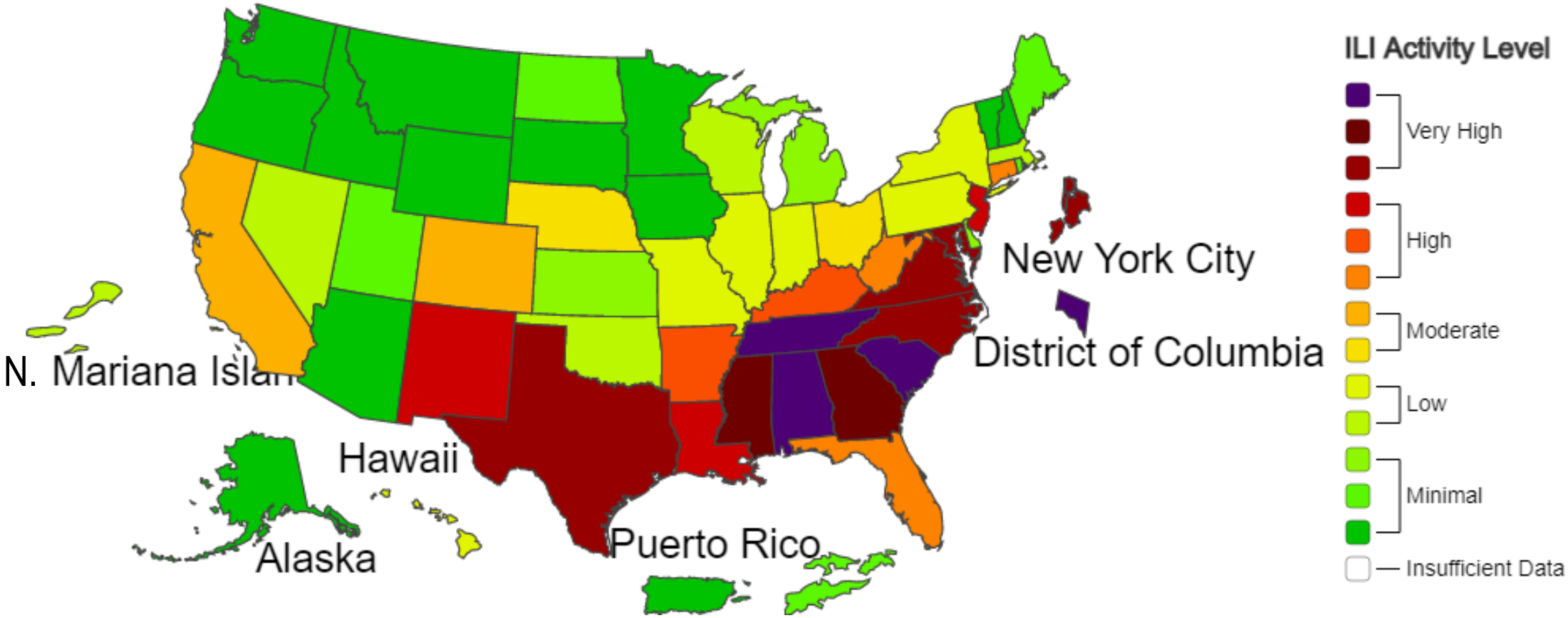
- Activity with winter prediction
- Symptoms
- Risk
- Testing
- Treatment window
- “Its Just the Flu” – Clinically what’s being seen in the office

# A Weekly Influenza Surveillance Report Prepared by the Influenza Division

## Outpatient Respiratory Illness Activity Map Determined by Data Reported to ILINet

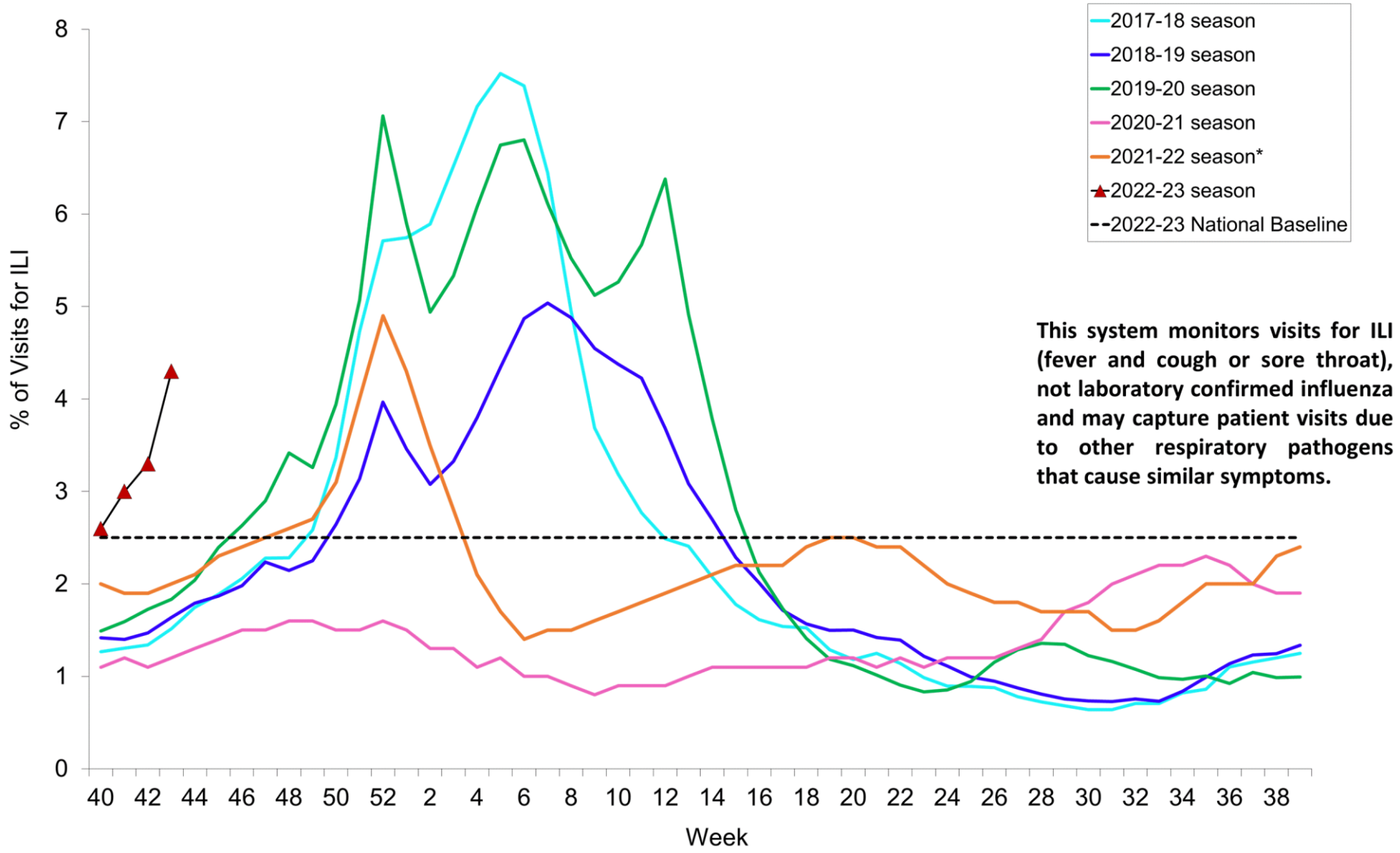
**This system monitors visits for respiratory illness that includes fever plus a cough or sore throat, also referred to as ILI, not laboratory confirmed influenza and may capture patient visits due to other respiratory pathogens that cause similar symptoms.**

## 2022-23 Influenza Season Week 43 ending Oct 29, 2022




CDC. FluView. https://www.cdc.gov/flu/weekly/index.htm, data through Oct 21, 2022, updated Nov 4, 2022.

# Percentage of Outpatient Visits for Respiratory Illness Reported By The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, 2022-2023* and Selected Previous Seasons

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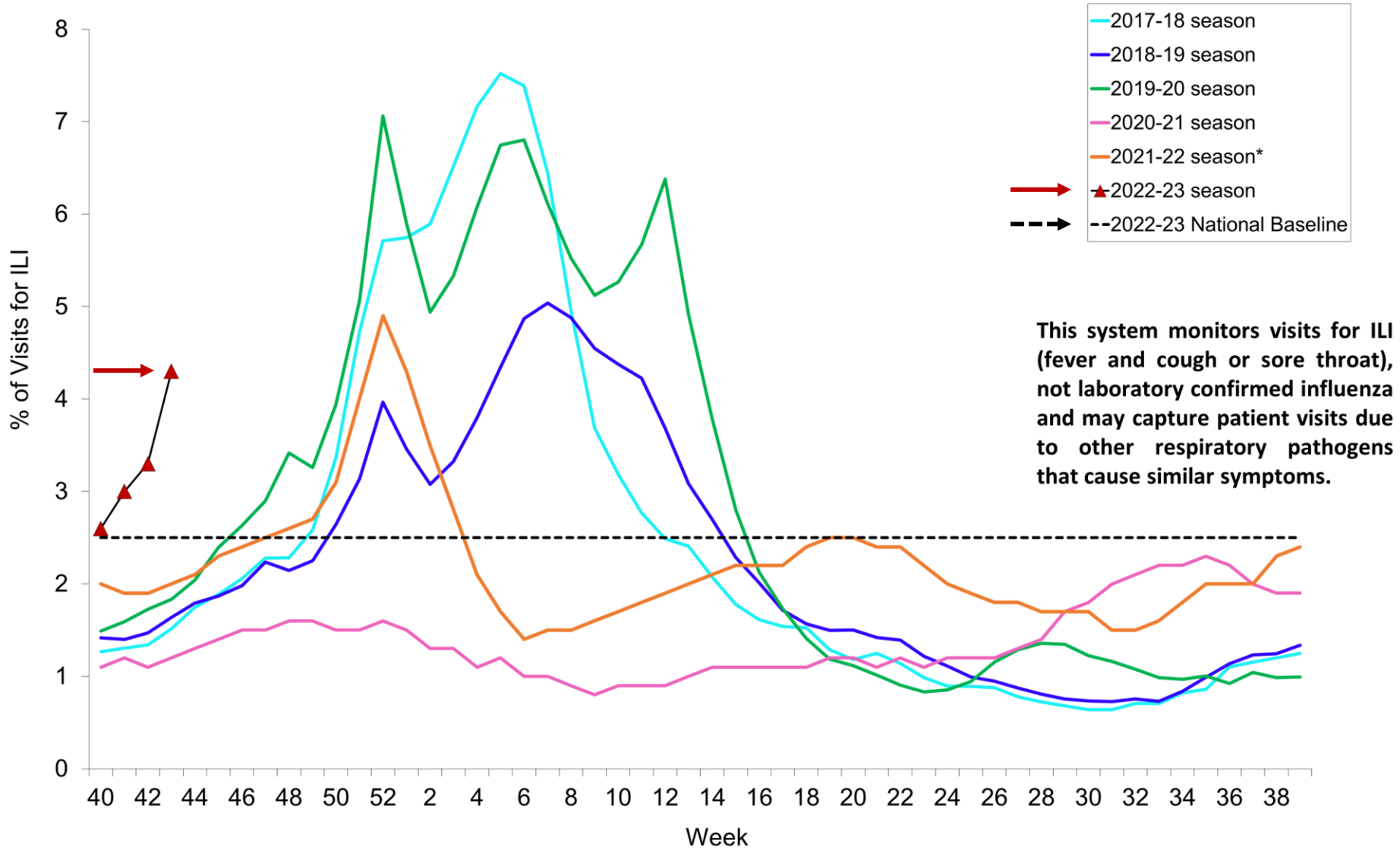



CDC. FluView. https://www.cdc.gov/flu/weekly/index.htm, data through Oct 21, 2022, updated Nov 4, 2022.

# Flu Like Symptoms?

- Fever (Not all patients will have fever)
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue
- Vomit and diarrhea (more common in children)

# But It's JUST the Flu

- Most people will recover from the flu in a 7-14 days
  - **Flu Complications**
    - **MILD**, social isolation
    - **MODERATE**, i.e., sinus infections and ear infections
    - **SEVERE**, i.e., pneumonia, myocarditis, encephalitis, myositis, multiorgan failure which can lead to hospitalization and death
  - **Risk Factors for Severe Complications**
    - Aged ≥ 65 years old
    - Chronic medical conditions (asthma, heart disease, diabetes)
    - Pregnancy
    - Children < 5 years old (worse when under 2 years old)
  - **Other Risk Factors, i.e., Co-infection with Bacteria or Another Virus**
    - COVID
    - RSV

# In **JUST** 3 Weeks (Oct 1 – Oct 22, 2022)

**CDC ESTIMATES:**

880,000 – 2,200,000
flu illnesses

420,000 – 1,100,000
flu medical visits

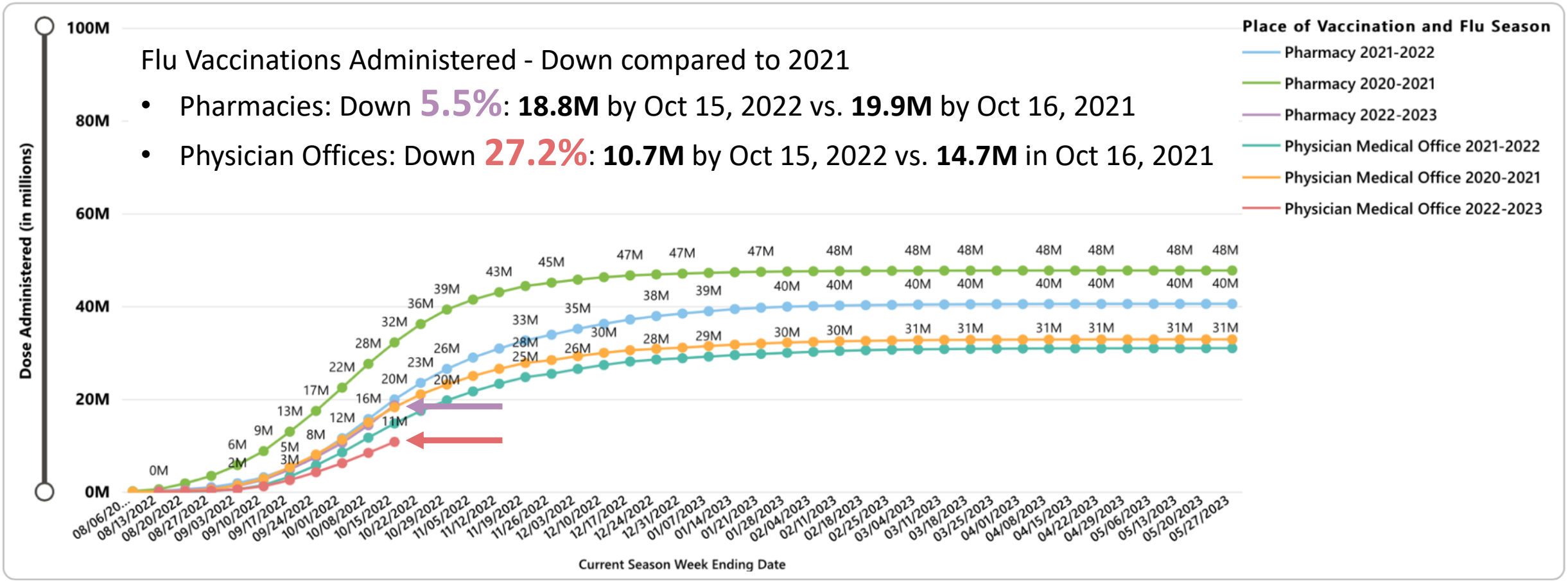
6,900 – 15,000
flu hospitalizations

360 – 1,000
flu deaths

CDC. 2022-2023 U.S. Flu Season: Preliminary In-Season Burden Estimates. https://www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm, updated Nov 3, 2022.

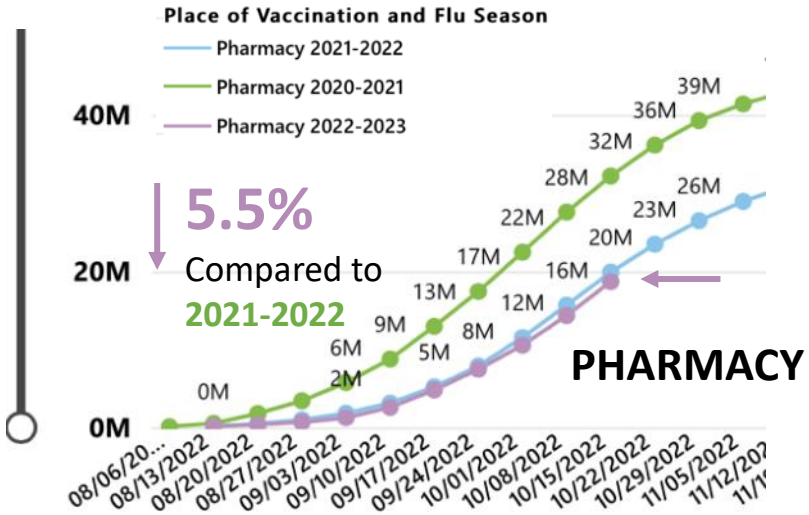
# How Do We Prevent Complications?

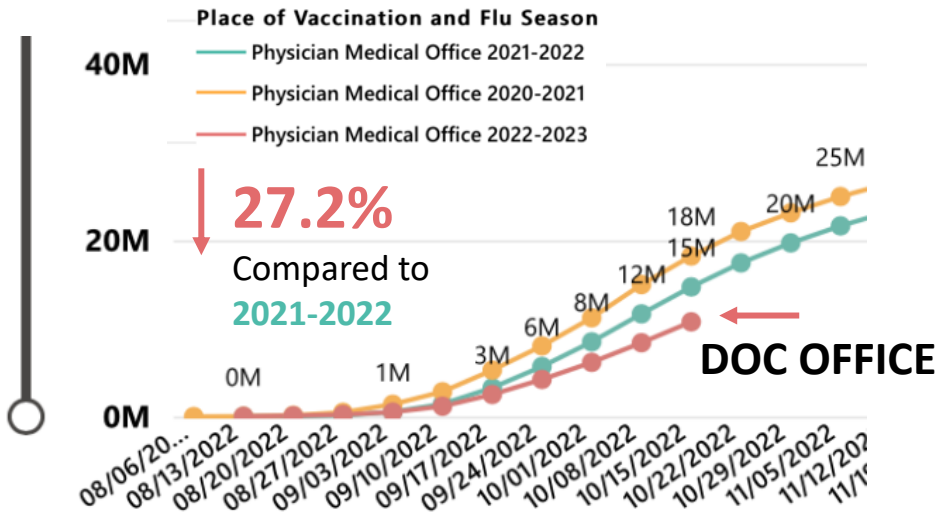
## 1. Vaccination

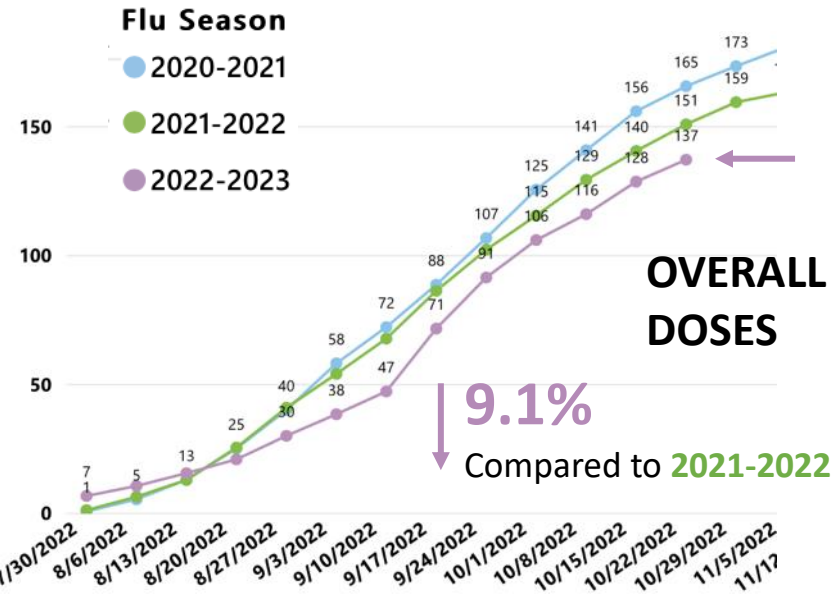


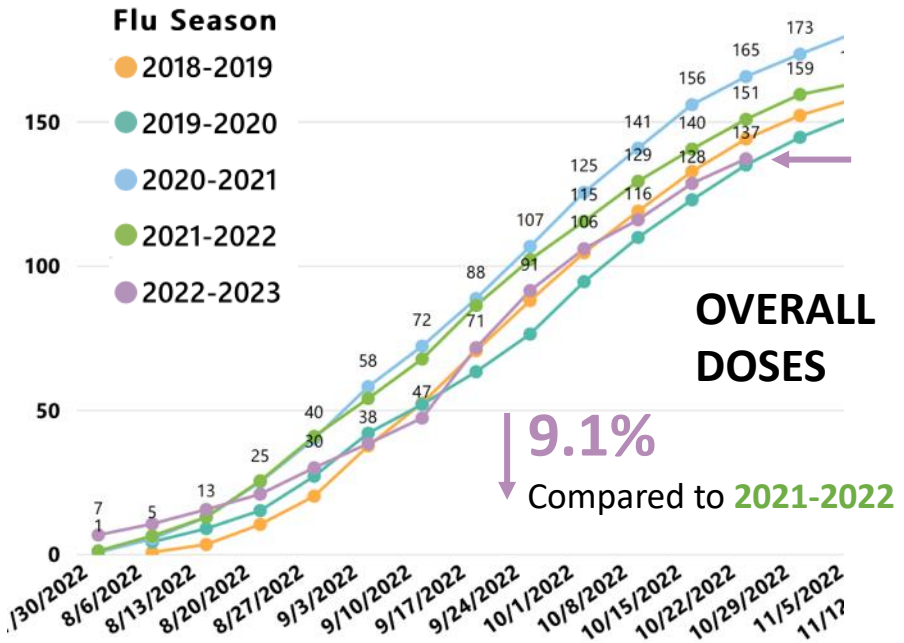

CDC. Influenza Vaccine Doses Distributed, United States. https://www.cdc.gov/flu/fluvaxview/dashboard/vaccination-dashboard.html, updated Oct 28, 2022.

# Influenza Vaccinations: Comparison 2022-2023 vs 2021-2022

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# How Do We Prevent Complications?

## 2. Treatment

- Requires proper diagnosis with testing today[1] as cannot clinically differential COVID-19 or RSV from influenza. All may be circulating at the same time.

1. CDC. Testing Guidance for Clinicians When SARS-CoV-2 and Influenza Viruses are Co-circulating. https://www.cdc.gov/flu/professionals/diagnosis/testing-guidance-for-clinicians.htm. Updated Feb 9, 2022.

# IDSA Guidelines for Diagnosis – Outpatient

*Who should be tested for influenza?*

## DURING FLU SEASON

**High risk patients**
with flu like symptoms ***if results will influence decision on antivirals*** (Evidence A)

**Patients with acute onset respiratory symptoms** with exacerbation of ***chronic condition*** (asthma, COPD, CHF) or with ***known complications*** (pneumonia) (Evidence A)

**All patients where flu testing will**
***decrease antibiotic use, time in the ED, further diagnostic testing, or chemoprophylaxis decisions for high-risk household contacts.*** (Evidence C)

## OUTSIDE FLU SEASON

Consider Flu testing with acute onset of respiratory symptoms with or without fever (Evidence B)

Uyeki TM, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza. Clin Infect Dis. 2019 Mar 5;68(6):e1-e47.

# Which Test to Use? Outpatient

- Collect nasopharyngeal samples when possible for better detection (Evidence A)
  - If unable to obtain, then nasal and throat swab should be obtained and combined to increase detection (Evidence A)
  - Flocked swab is better than non-flocked swab (Evidence A)
- Rapid molecular assays (nucleic acid rapid amplification tests, ***NAATs***) better than rapid influenza diagnostic tests (***RIDTs***) (Evidence A)
- Viral culture should not be used in the outpatient setting as results will not influence management
  - Except in group home/ institutionalized patients where rapid influenza diagnostic test confirmation is needed to confirm negative (Evidence C)

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# Influenza Tests

- **Rapid Influenza Diagnostic Tests (RIDTs)**
  - Qualitative, pos or neg result
  - 15 mins
  - CLIA Waived
  - Sub-optimal sensitivity (50-70%), high false negative rate; now ≥80% (?)
  - Specificity (90-95%)
  - Best used at high levels of community spread AND within 4 days of symptom onset
    - Does not tell you if person is contagious
  - Clinical Note - a negative result means the test did not detect the flu antigen, it cannot be used to exclude the flu


1. Merckx J, et al. Diagnostic Accuracy of Novel and Traditional Rapid Tests for Influenza Infection Compared With Reverse Transcriptase Polymerase Chain Reaction: A Systematic Review and Meta-analysis. Ann Intern Med. 2017 Sep 19;167(6):394-409.
2. Benirschke RC, et al. 2019. Clinical impact of rapid point-of-care PCR influenza testing in an urgent care setting: a single-center study. J Clin Microbiol 57:e01281-18.

# Influenza Tests, Continued

- **Rapid Molecular Testing/Nucleic Acid Amplification Test (NAAT)**
  - 6 - 30+ minutes
  - CLIA Waived (demonstrated ease of use)
  - Specificity >95% [1]
  - Sensitivity >95% [1]
  - Clinically able to provide more confidence in decision [2]
    - Decrease antiviral use when test NEGATIVE
      - 2.3% decrease (*p<0.005*) compared to RIDT
    - Increase antiviral use when test POSITIVE
      - 15.1% increase (*p<0.05*) compared to RIDT


1. Merckx J, et al. Diagnostic Accuracy of Novel and Traditional Rapid Tests for Influenza Infection Compared With Reverse Transcriptase Polymerase Chain Reaction: A Systematic Review and Meta-analysis. Ann Intern Med. 2017 Sep 19;167(6):394-409.
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# So, Why Not Send for NAAT in the Lab?

- Treatment window for Flu is short (≤ 48 hours)
  - Most patients do not come on day 1 of illness
- Lab NAATs in the urgent care are picked up once a day – usually at the end of day
- Lab NAATs are commonly performed as a batched test
- Factoring in transport, can be 24 hours before receiving lab results

# Impact of Early Diagnosis

**QUALITY OF CARE**

- Antivirals, in most patients, must be started **≤ 48 hours; 1-day symptom reduction** [1]
  - May not sound like much, but allows kids to go back to school/adults to return to work 1 day sooner
- Treatment started **≤ 24 hours, 32-hour** symptom reduction [1]
- Treatment started **≤ 6 hours, 4-day** symptom reduction [1]


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## INFECTION CONTROL

- Can initiate prophylaxis to decrease transmission [1]
  - Includes group homes and those living with high-risk individuals


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## ANTIBIOTIC/ANTIVIRAL STEWARDSHIP

- Definitive diagnosis decreases unnecessary antibiotic use
- Improves antiviral use [2]


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## PATIENT AND PROVIDER SATISFACTION

- Today's patients want more information beyond – it's a viral infection
- Providers are more empowered to advise proper antiviral or antibacterial treatment when test results avail at the time of the visit
- NAAT increases confidence [2]


1. Uyeki TM, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza. Clin Infect Dis. 2019 Mar 5;68(6):e1-e47.
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# Who Should Be Treated?

- Irrespective of flu vaccine or duration of symptoms:
  - Patients of any age that are hospitalized (Evidence A)
  - Outpatient any age with severe or progressive illness (Evidence A)
  - Outpatient who are high risk of complication ie chronic medical condition or immunocompromised (Evidence A)
  - Children < 2, Adults > 65 years old (Evidence A)
  - Pregnant women or postpartum within 2 weeks (Evidence A)
- **Consider** if not at high risk irrespective to vaccination when suspected or confirmed who are either:
  - Outpatient with illness < 2 days (Evidence C)
  - Symptomatic outpatient with household members at high risk (Evidence C)
  - Symptomatic healthcare providers who treats those at high risk (Evidence C)

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# Treatment

- Oseltamivir (Tamiflu) – Oral treatment, most commonly used
  - 5-day treatment, 7-day prophylaxis
  - Mortality benefit in hospitalized patients
- Baloxavir marboxil (Xofluza) – Oral, newer to the market (2018)
  - Single dose, now approved for post exposure
- Zanamivir – Inhaled
- Permivir – IV
  - Hospitalized patients with resistance to other treatments

Must start ≤ 48 hours of symptom onset, ideally ≤ 24 hours (Evidence A) [1]

Gaitonde DY, Moore FC, Morgan MK. Influenza: Diagnosis and Treatment. Am Fam Physician. 2019 Dec 15;100(12):751-758.

# When to Refer for Higher Level of Care?

- Signs of respiratory distress
- Vitals consistent with flu sepsis
- Moderate to Severe Acute on chronic exacerbation of chronic medical condition
  - COPD exacerbation, CHF, Asthma exacerbation
- Concurrent acute illness
  - Pneumonia


## BRUCE LOBAUGH, PHD, HCLD(ABB)

Director
Point of Care Testing Program & Laboratory
Duke University Health System

# Influenza 2022-2023:
## Preparedness and Practical Strategies for Rapid Assessment and Quality Care

Bruce Lobaugh, Ph.D., HCLD(ABB)

Director, Duke University Health System (DUHS)
Point-of-Care Testing Program

bruce.lobaugh@duke.edu

DukeHealth

# Disclosures

- No conflicts of interest
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# Three Years of Managing COVID-19 Reminds Us A Lot About Influenza

**COVID-19**

**Seasonal Influenza**

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**COVID-19**

- Viral Source of Infection

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- Viral Source of Infection
- Transmitted via Respiratory Droplets (~6 ft)

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- Infection Risk Reduced with Personal Protective Measures (Handwashing, Masking, Distance)

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- Viral Source of Infection
- Transmitted via Respiratory Droplets (~6 ft)
- Infection Risk Reduced with Personal Protective Measures (Handwashing, Masking, Distance)
- EUA Molecular, EUA Immunoassay and Culture-Based Diagnostics
- EUA Antiviral Therapies  Available and Effective if Diagnosed Early

**Seasonal Influenza**

- Viral Source of Infection
- Transmitted via Respiratory Droplets (~6 ft)
- Infection Risk Reduced with Personal Protective Measures (Handwashing, Masking, Distance)
- Molecular, Immunoassay and Culture-Based Diagnostics
- Antiviral Therapies  Available and Effective if Diagnosed Early

# Three Years of Managing COVID-19 Reminds Us A Lot About Influenza

**COVID-19**

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- EUA Vaccines Available

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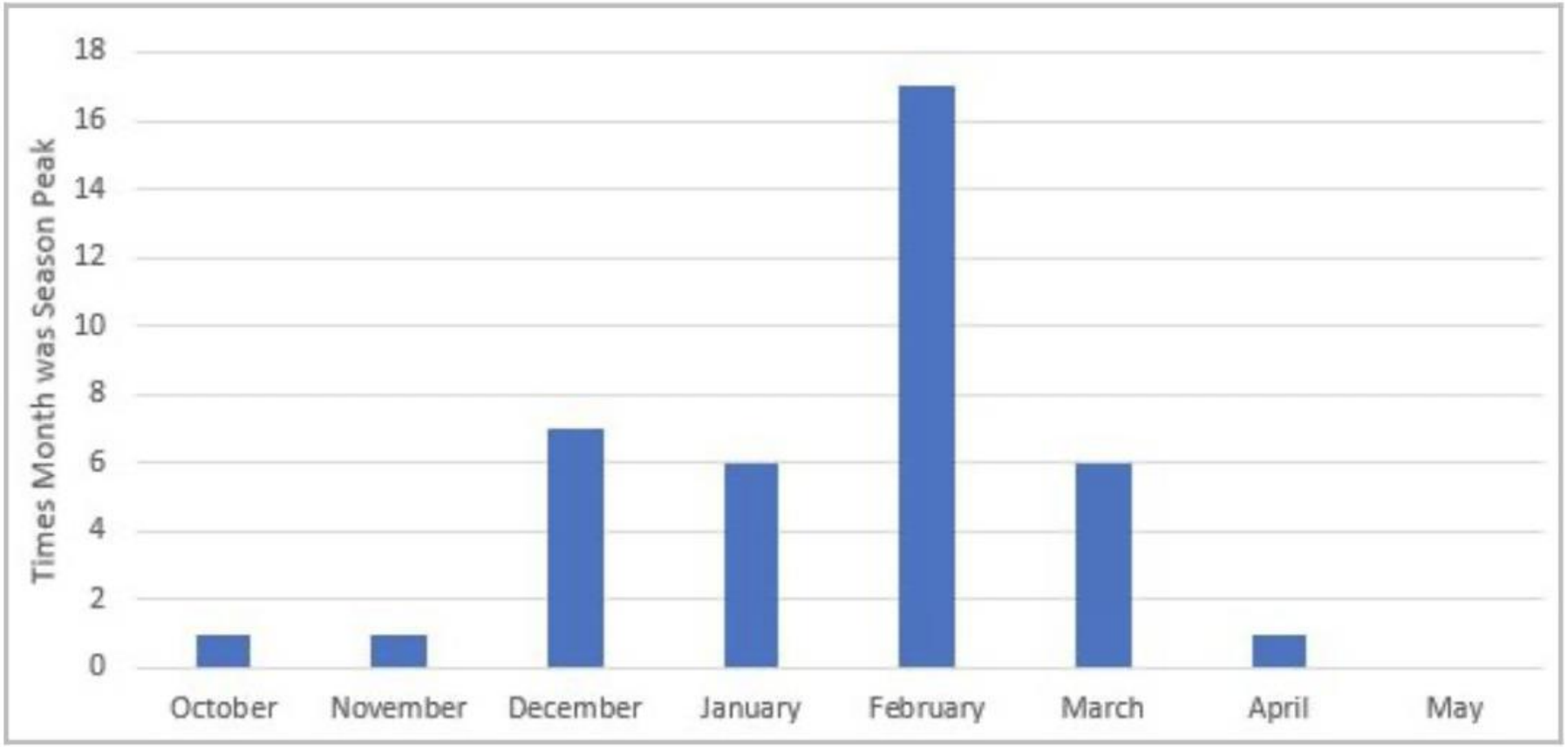
# Influenza Season Impact in Hospital Setting

- Higher ED volumes and hospital with respiratory symptoms / illness
- Increased risk of healthcare associated infections (HAIs) associated with influenza (crowded EDs, congregate care settings)

# Flu Activity peak Months in the U.S.

1982 – 1983 through 2021-2022 Flu Seasons *

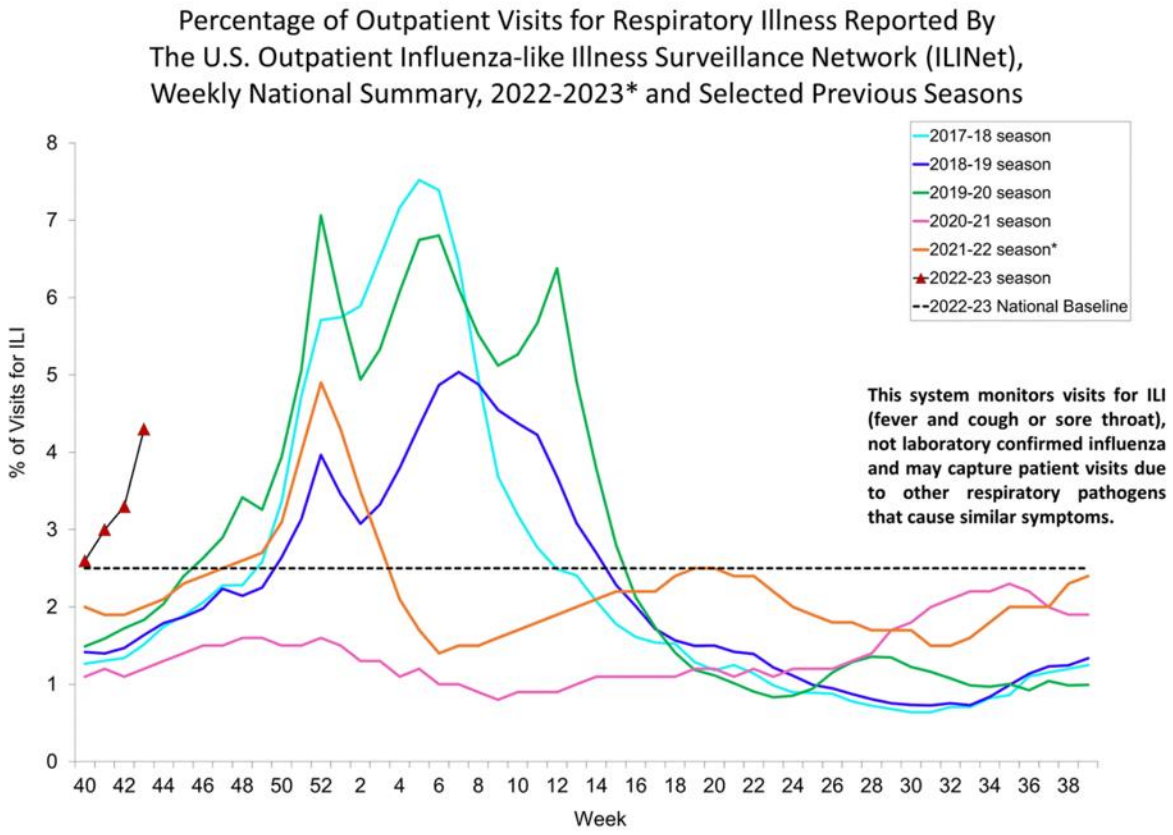



* There was no discernible peak in activity during the 2020-2021 season due to the uncharacteristically low level of influenza virus circulation that season

CDC. Flu Season. https://www.cdc.gov/flu/about/season/flu-season.htm, Updated September 20, 2022.

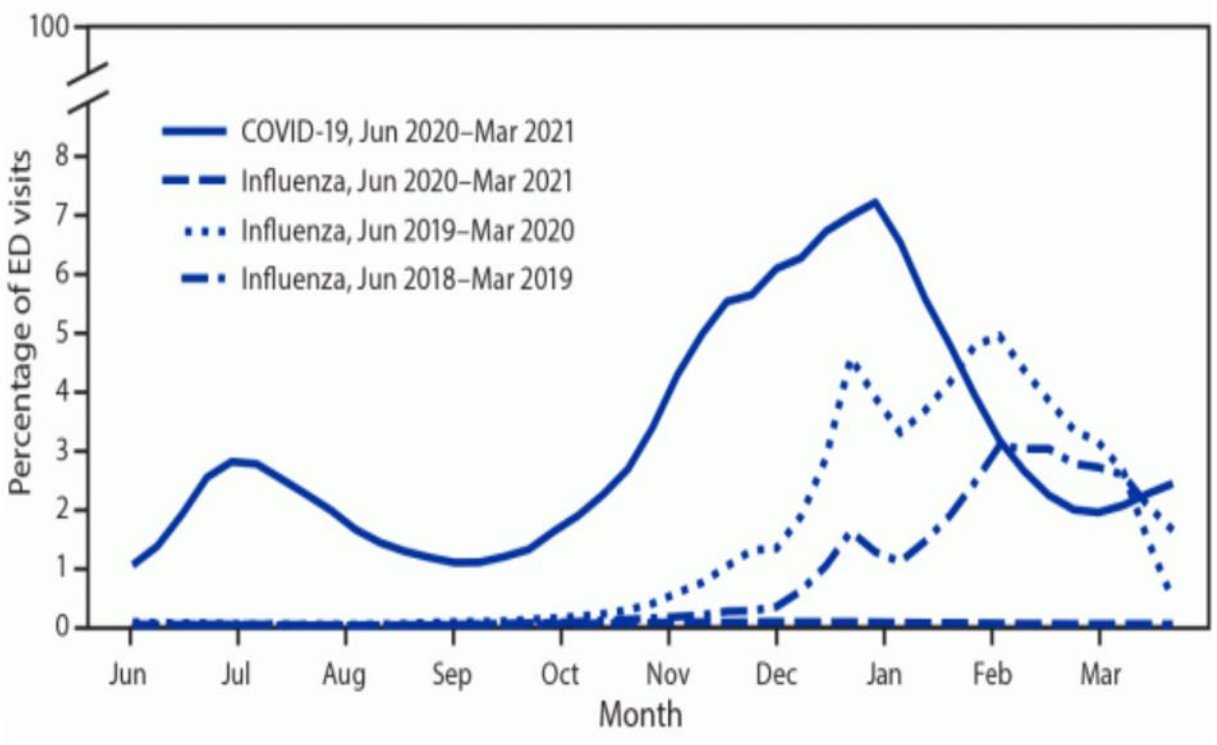
# Respiratory Diseases

## Influenza epidemics/seasons create 4-23 million health care visits (U.S.)




CDC. FluView. 2022-2023 Influenza Season for Week 43, ending October 29, 2022. https://www.cdc.gov/flu/weekly/index.htm, updated Nov 4, 2022

## COVID-19 and Influenza: Discharge Dx as of % ED Visits




CDC. COVID-19 Stats: COVID-19 and Influenza Discharge Diagnoses as a Percentage of Emergency Department (ED) Visits, by Year — United States, June 2018–March 2021. MMWR Morb Mortal Wkly Rep 2021;70:573.

# Annual Estimated Flu Burden in the U.S.

**2010 – 2020**


CDC. Disease Burden of Flu. https://www.cdc.gov/flu/about/burden/index.html, Updated October 4, 2022.

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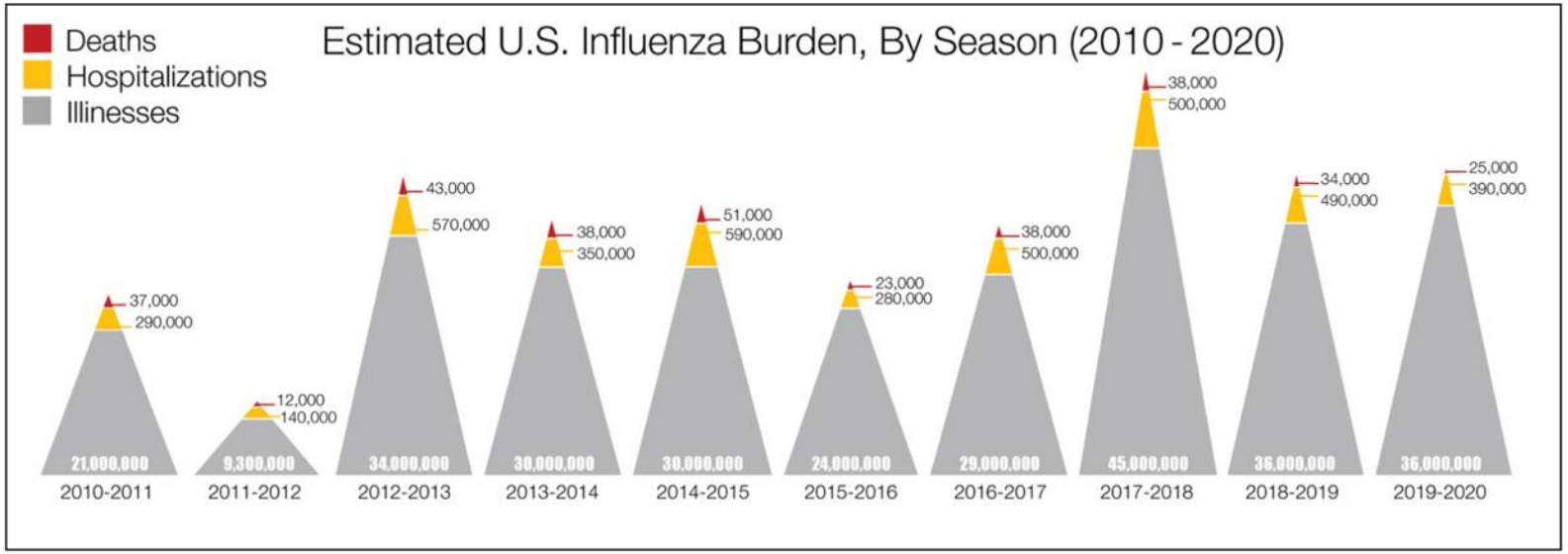


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# Flu Season 2022-23


Duke Center for Antimicrobial Stewardship and Infection Prevention

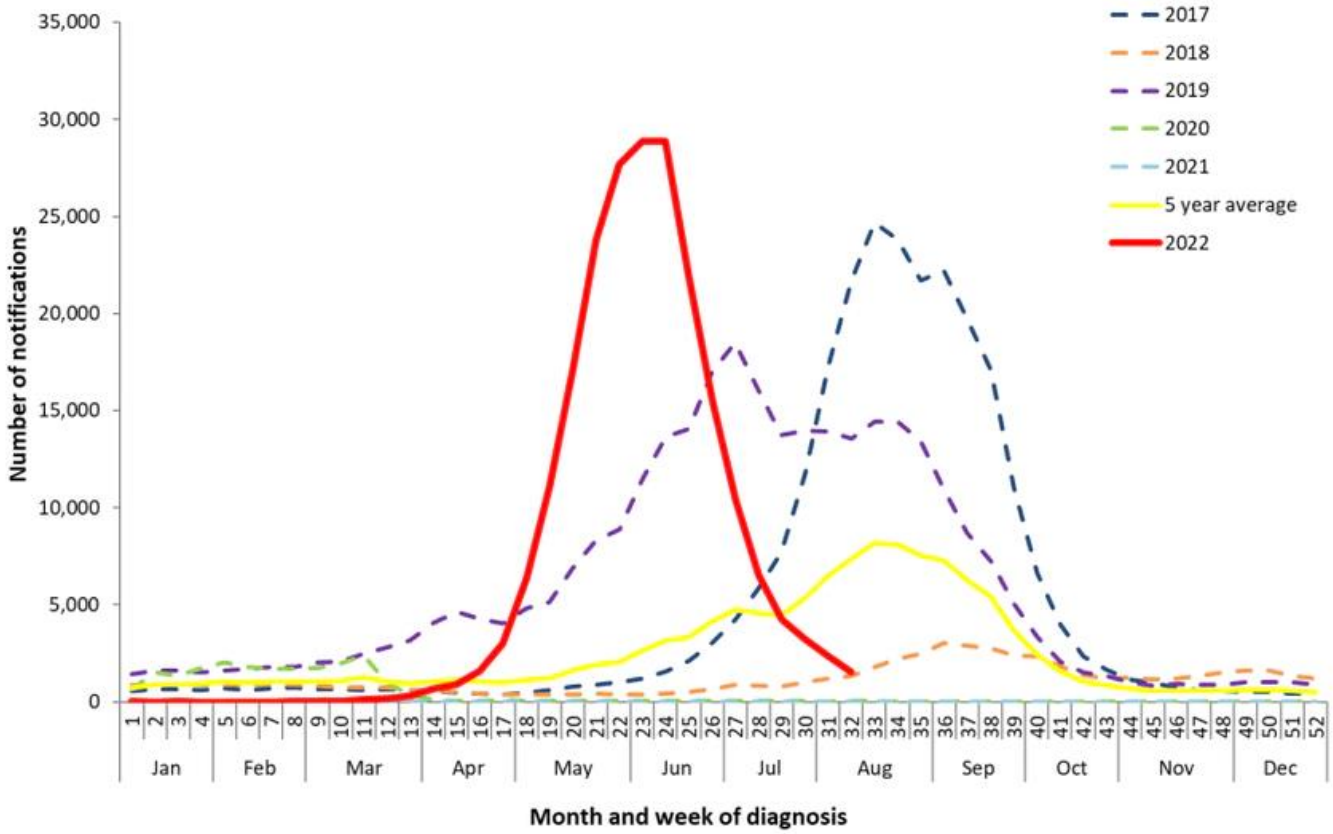
CDC, FluView. Weekly U.S. Influenza Surveillance Report. https://www.cdc.gov/flu/weekly/index.htm, Updated Oct 28, data through Oct 22, 2022.

# Flu Season 2022-23

## Early and severe flu season anticipated

- Australia had worst season in the last 5 years
- Number of Flu A cases doubled in the last 3 weeks
- 25% increase in cases among children 4 and younger

Duke Center for Antimicrobial Stewardship and Infection Prevention




Source: NNDSS

Australian Government, Dept of Health and Aged Care. Australian Influenza Surveillance Report. No. 14, 2022. 26 Sep to 09 Oct 2022.

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Updated November 4, 2022

**FLUVIEW**

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

**Note:** CDC is tracking the COVID-19 pandemic in a weekly publication called COVID Data Tracker Weekly Review.

**Key Updates for Week 43, ending October 29, 2022**

**Early increases in seasonal influenza activity continue nationwide. The southeastern and south-central areas of the country are reporting the highest levels of activity followed by the Mid-Atlantic and the south-central West Coast regions.**

Viruses

| Clinical Lab | Public Health Lab | Virus Characterization |
|---|---|---|
| **9.0%** positive for influenza this week | The most frequently reported viruses this week were influenza A(H3N2). | Genetic and antigenic characterization are summarized in this report. |

Illness

**Outpatient Respiratory Illness**

**4.3%**
of visits to a health care provider are for respiratory illness this week
***(above baseline)***

**Outpatient Respiratory Illness: Activity Map**

This week, 4 jurisdictions experienced moderate activity and 19 jurisdictions experienced high or very high activity.

**Long-term Care Facilities**

**0.8%**
of facilities reported
≥ 1 influenza-positive test
among residents this week.

CDC, FluView. Weekly U.S. Influenza Surveillance Report. https://www.cdc.gov/flu/weekly/index.htm, Updated Nov 4, data through Oct 29, 2022.

# Flu Season 2022-23

## Flu cases surge to highest number in 13 years | Fri, Oct 28

The CDC says the number of positive flu tests so far this season is the high-est it's been in 13 years, leading to growing concerns about a triple threat this year with cases of Covid and

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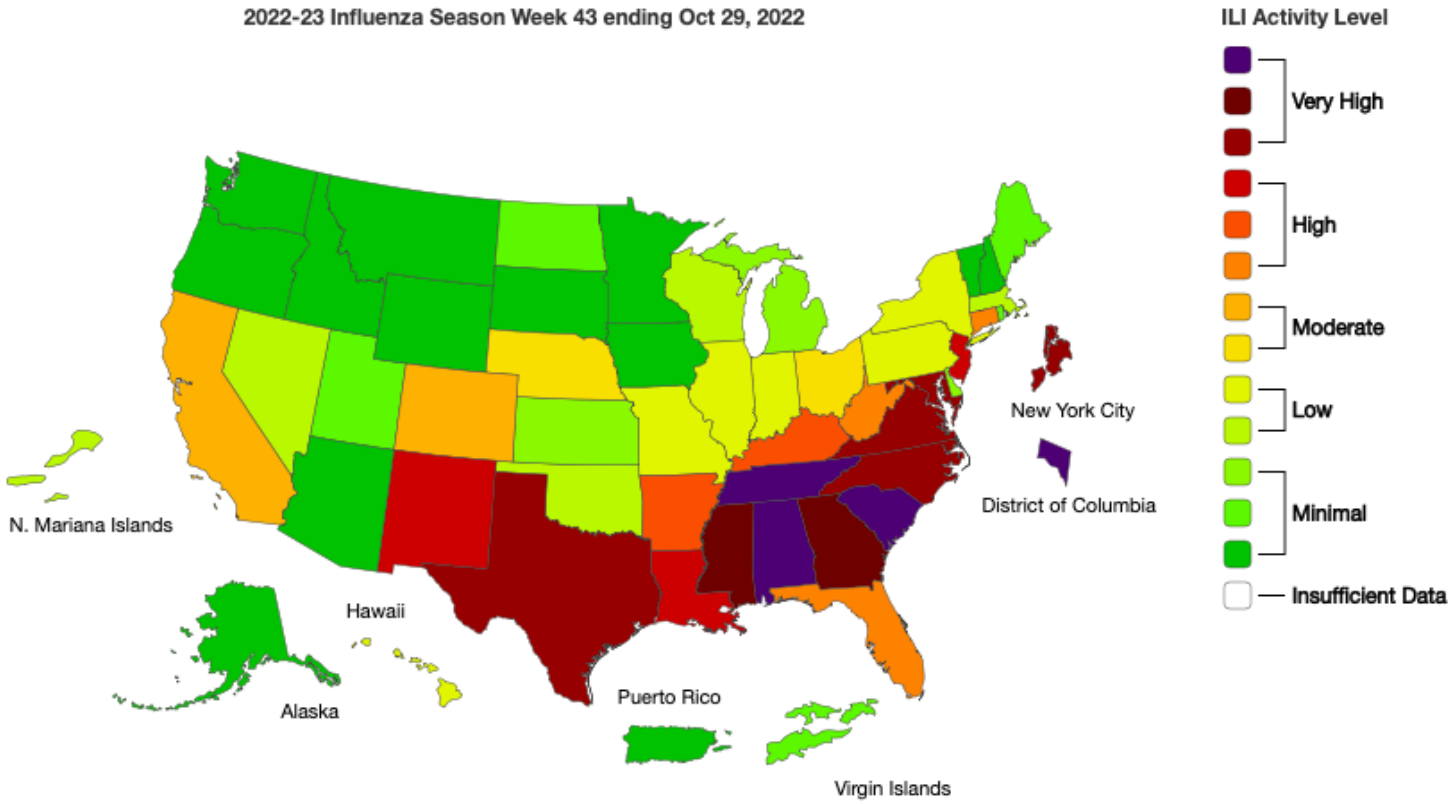


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# Diagnosing Influenza

## Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza

**Published CID, 12/19/2018**

*Clinical Infectious Diseases*, Volume 68, Issue 6, 15 March 2019, Pages e1–e47,
https://doi.org/10.1093/cid/ciy866
**Published**: 19 December 2018

IDSA
Infectious Diseases Society of America

# Diagnosing Influenza – Who to Test

- **Outpatients (including ED patients)**
  - During periods of seasonal influenza virus circulation in the local community
    - High risk (including immunocompromised) persons presenting with flu or other respiratory symptoms if the result will influence clinical management
    - Persons who present with acute onset respiratory symptoms and either exacerbation of chronic medical conditions (e.g. asthma, COPD, heart failure) or known complications of influenza (e.g. pneumonia) if the result will influence clinical management
    - Consider patients not at high risk for complications who present with flu or other respiratory symptoms who are likely to be discharged home if the results might influence antiviral treatment decisions, reduce unnecessary antibiotics, additional testing, ED LOS, or if the results might influence antiviral treatment or chemoprophylaxis decisions for high risk household contacts
  - During low influenza activity without any link to an outbreak
    - Consider patients who present with acute onset respiratory symptoms especially for immunocompromised and high risk individuals if the results might influence antiviral treatment or chemoprophylaxis decisions for high risk household contacts

# Diagnosing Influenza – Who to Test

- **Hospitalized Patients**
  - During periods of seasonal influenza virus circulation in the local community
    - On admission in all patients with acute respiratory illness including pneumonia
    - On admission in all patients with worsening of chronic cardiopulmonary disease
    - On admission in all immunocompromised or at high risk of complications who present with acute onset respiratory symptoms
    - All inpatients who develop acute onset respiratory symptoms or respiratory distress without a clear alternative diagnosis
  - During low influenza activity without any link to an outbreak
    - All patients with acute respiratory illness wo have an epidemiologic link to a person diagnosed with influenza, an influenza outbreak or outbreak of respiratory illness of uncertain cause outbreak, or who recently traveled from an area with known flu activity
    - Consider in patients with acute, febrile respiratory tract illness especially for immunocompromised and high risk individuals

IDSA
Infectious Diseases Society of America

# Diagnosing Influenza – How to Test

## Traditional Laboratory Methods

- Culture-Based Testing
  - Viral tissue cell culture
    - High Complexity; Yields live virus
    - TAT 3-10 days
  - Rapid cell culture
    - High complexity; Yields live virus
    - TAT 1-3 days
- Antigen-Based Testing
  - Immunofluorescence direct (DFA) or indirect (IFA) fluorescent antibody staining
    - High complexity
    - TAT 1-4 hrs
- Molecular-Based Testing
  - Reverse Transcription Polymerase Chain Reaction (PCR)
    - Influenza viral RNA or nucleic acid detection
    - 1-8 hrs

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## Rapid / POC CLIA Waived Test Methods

- Molecular-Based Testing
  Influenza viral RNA or nucleic acid detection
  - Thermal Cycling / PCR
    - 20 mins to 1+ hours
  - Isothermal (Various: NEAR, LAMP, HDA…)
    - ~6 – 30+ minutes

# Influenza Treatment – Why to Test (Rapidly?)

- For more **severe** cases and/or infections in **vulnerable populations** (elderly, young children):
  - Antiviral drugs can lessen symptoms and shorten duration ***if prescribed and administered early (within 48 hours of onset of symptoms)***
    - ≥ 1 day reduced hospital LOS if administered early
    - Lower mortality and complications/secondary infections

# Influenza Treatment – Why to Test (Rapidly?)

- Cohorting and infection control for hospital acquired infections (HAIs)
  - Improvement in overall patient flow [1]
  - Isolation/Cohorting crowded patient waiting areas [1]
  - Conservation of infection control resources [1,2,3]
  - Fewer unnecessary isolations trab [4]
  - **65.5%** reduction in uninfected patient exposure time and infection risk [3]
  - **42 – 51%** reduction in HAI [1]


1. Teoh TK, et al. Outcomes of point-of-care testing for influenza in the emergency department of a tertiary referral hospital in Ireland. J Hosp Infect. 2021 Apr;110:45-51.
2. Trabattoni E, et al. Implementation of Alere i Influenza A & B point of care test for the diagnosis of influenza in an ED. Am J Emerg Med. 2018;36(6):916-21.
3. Garvey MI, et al. Impact of a PCR point of care test for influenza A/B on an acute medical unit in a large UK teaching hospital: results of an observational, pre and post intervention study. Antimicrob Resist Infect Control 8, 1
4. Karolyi M, et al. Is there a clinical difference between influenza A and B virus infections in hospitalized patients? Results after routine polymerase chain reaction point-of-care testing in the emergency room from 2017/2018. Wien Kli
5. Martinot M, et al. Positive impact of a point-of-care molecular influenza test in the emergency department during the 2017-2018 seasonal influenza epidemic. Open Forum Infect Dis. 2019;6(7).

# Influenza Infection Prevention Strategies in Healthcare Settings

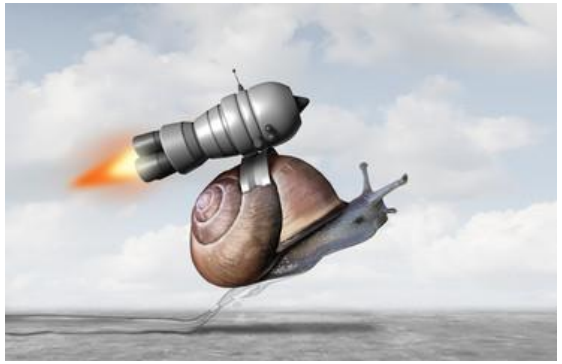
Hand hygiene, PPE and other prevention guidance, including:

*"During periods of increased community influenza activity, facilities should consider setting up* ***triage stations that facilitate rapid screening of patients for symptoms of influenza and separation from other patients****."*

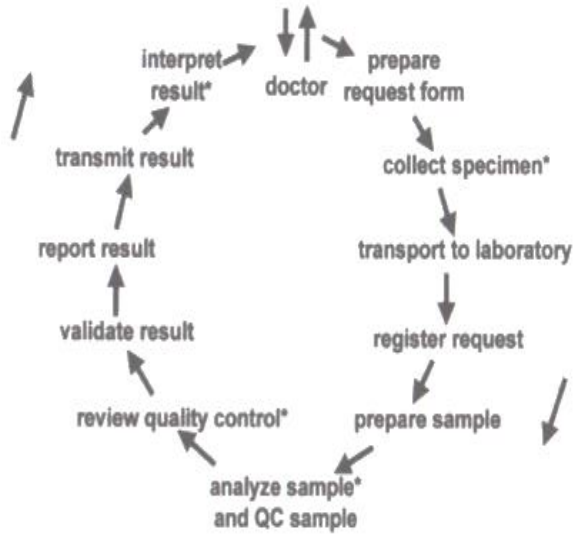
CDC, Prevention Strategies for Seasonal Influenza in Healthcare Settings. https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm, updated May 13, 2021.

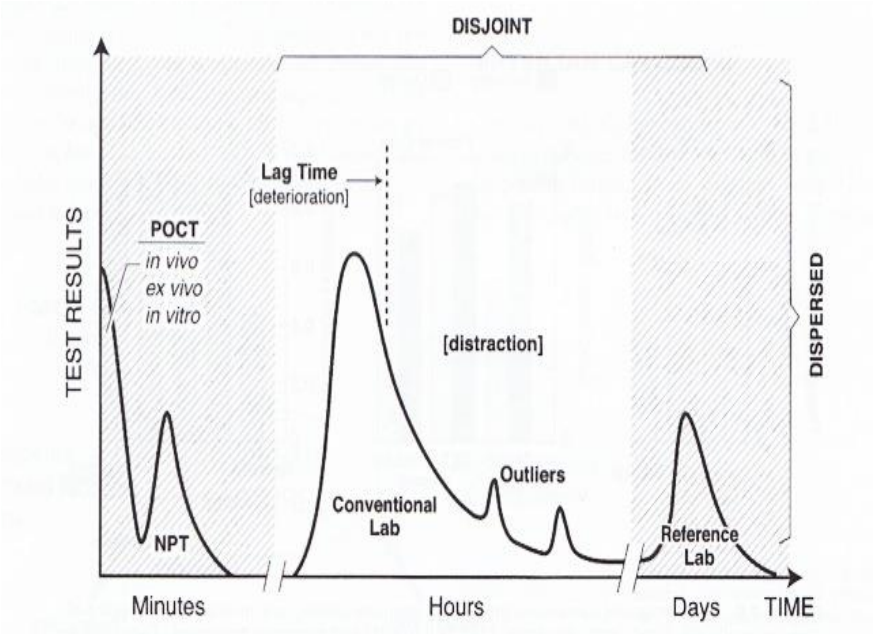
# Why We Love POCT

S – L – O – W – with more steps



Speed that streamlines process



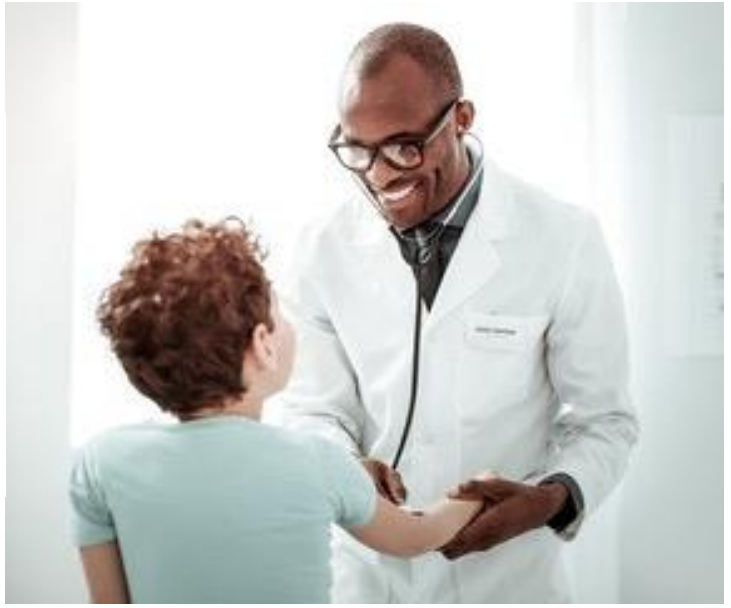



# Why We Love POCT

**Lab data unavailable during encounter**

**Actionable results in real time during visit**

**PARTNERS IN SATISFACTION**



# Point-of-Care Best Practices

## Where possible embrace automated over manual testing devices

- Automated devices control test timing, eliminate subjectivity in interpretation
- Automated devices leverage operator lockout, QC lockout, reagent lot integrity checks (when available and deployed)
- When interfaced POC automated devices transmit data directly and avoid potential transcription and/or patient ID errors

# Diagnosing Influenza – How to Test

## Rapid Test Methods

- Immunoassay-based (Rapid Antigen Diagnostic Tests [RADT's])
  - Lateral flow technology

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    - Can be qualitative and read visually or semi-quantitative when combined with a reader device

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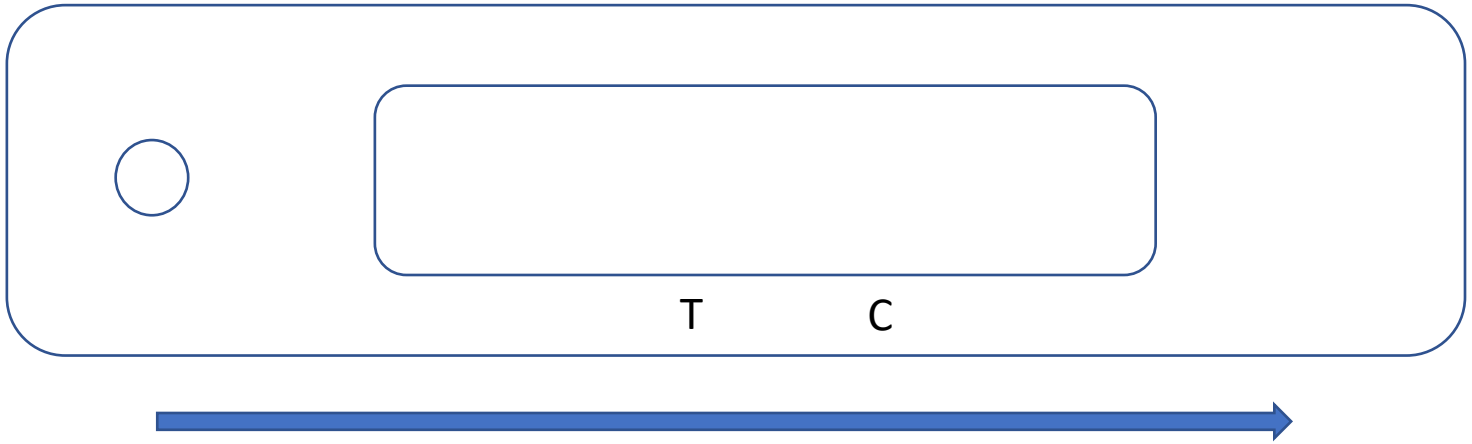

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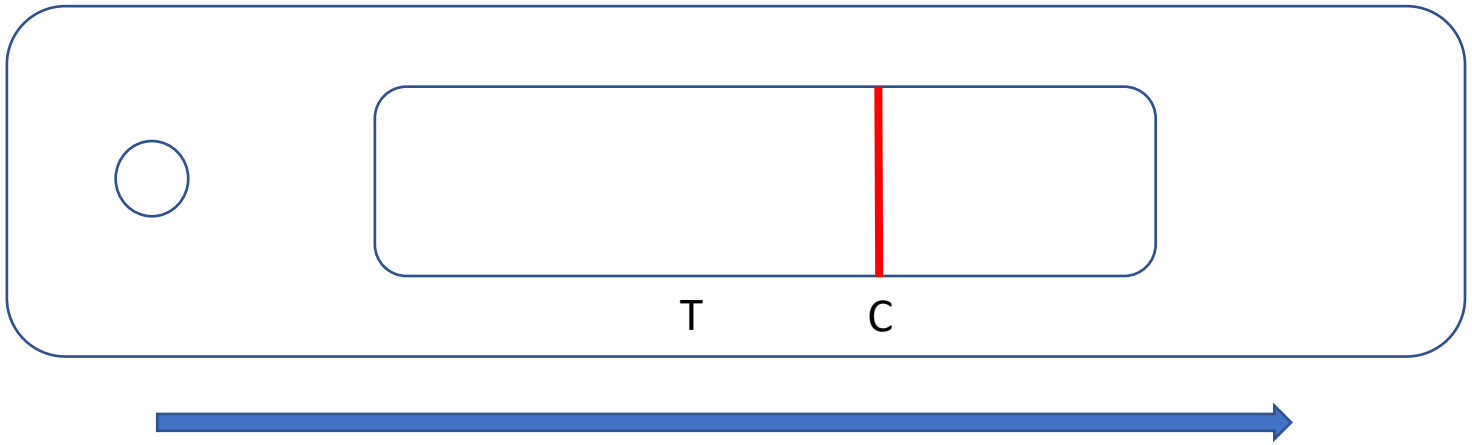

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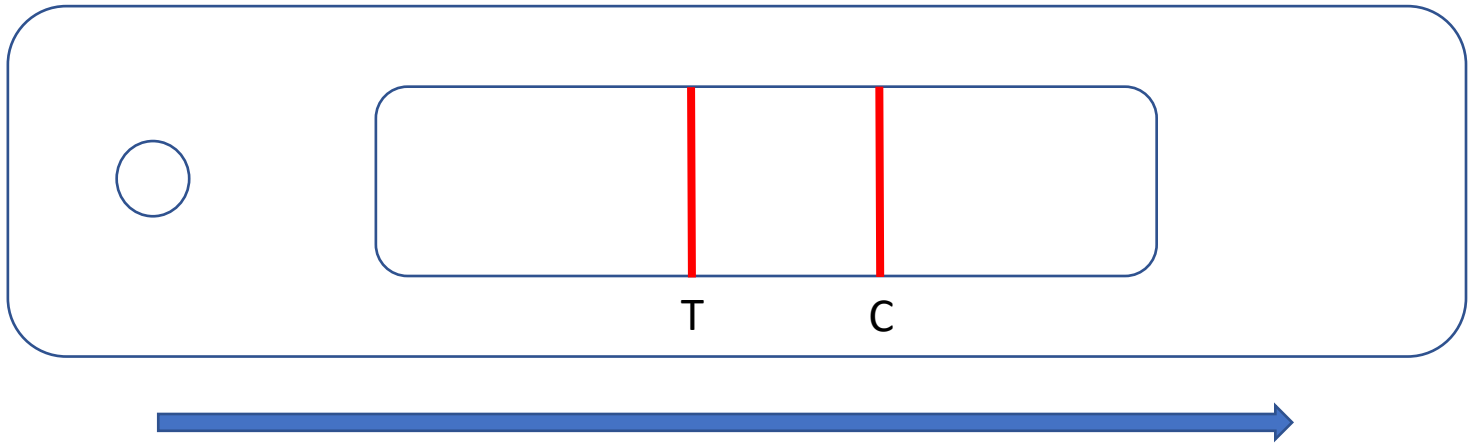

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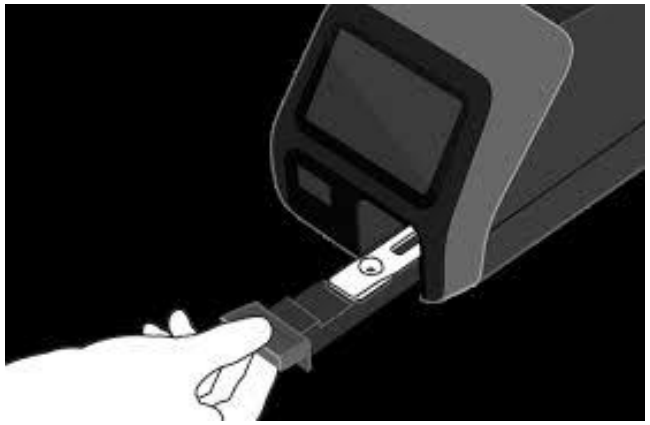

# Diagnosing Influenza – How to Test

## Rapid Test Methods

- Immunoassay-based (Rapid Antigen Diagnostic Tests [RADT's])
  - Lateral flow technology
    - Benefits
      - CLIA-waived
      - Rapid
      - Relatively low cost
      - Can perform virtually anywhere
    - Disadvantages
      - More reliant on operator technique (Manual steps)
      - Less sensitive (≥80%) than rapid molecular tests (False negatives) [1,2]
      - Lower reimbursement than molecular tests


1. FDA, HHS. 21 CFR 866. Fed Register, 82;8, 2017.
2. Merckx J, et al. Ann Intern Med. 2017 Sep 19;167(6):394-409.

# Diagnosing Influenza – How to Test

## Rapid Test Methods

- Molecular-based
  - Nucleic Acid Amplification Technology (NAAT)
    - Works by amplifying the influenza virus genetic material if any is present in a patient's specimen
    - Enables very small amounts of influenza virus RNA or nucleic acids to be detected
    - NAAT's can use many methods to amplify genetic material and detect the virus including:
      - Reverse transcription polymerase chain reaction (RT-PCR)
      - Isothermal Amplification
        - Nicking enzyme **amplification** reaction (NEAR)
        - Transcription-mediated **amplification** (TMA)
        - Loop-mediated isothermal **amplification** (LAMP)

# Diagnosing Influenza – How to Test

## Rapid Test Methods

- Molecular-based, Nucleic Acid Amplification Technology (NAAT)

# Diagnosing Influenza – How to Test

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- Molecular-based, Nucleic Acid Amplification Technology (NAAT)
  - Examples:


Abbott ID NOW


Cepheid Xpert Xpress

cobas LIAT

# Diagnosing Influenza – How to Test

## Rapid Test Methods

- Molecular-based
  - Nucleic Acid Amplification Technology (NAAT)
    - Benefits
      - CLIA-Waived
      - Rapid
      - Superior sensitivity (90-95%) vs Immunoassay antigen-based RADT's (≥80%) [1,2]
      - Some allow test cartridge to be reused after initial invalid test
    - Disadvantages
      - Relatively higher cost (but balanced by higher reimbursement)


1. FDA, HHS. 21 CFR 866. Fed Register, 82;8, 2017.
2. Merckx J, et al. Ann Intern Med. 2017 Sep 19;167(6):394-409.

# Diagnosing Influenza – How to Test

- Clinicians should use rapid molecular assays (ie, nucleic acid amplification tests) over rapid influenza diagnostic tests (RIDTs) in **outpatients** to improve detection of influenza virus infection
- Clinicians should use reverse-transcription polymerase chain reaction (RT-PCR) or other molecular assays over other influenza tests in **hospitalized patients** to improve detection of influenza virus infection

Uyeki TM, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management of Seasonal Influenza. Clin Infect Dis. 2019 Mar 5;68(6):e1-e47.

IDSA
Infectious Diseases Society of America

# Rapid Molecular-Based Influenza Diagnostic Tests

- While performance of rapid molecular influenza tests is similar among platforms, there are feature differences to consider:
  - Time to result (can vary from ~6 - >30 minutes)
  - Incidence of invalid tests (can vary from 0.5 - >5%)
  - Availability of combination test options (e.g., RSV, COVID-19)
  - Storage conditions for reagents (room temperature vs refrigerated)

# Influenza Treatment

- Availability of timely and accurate influenza diagnosis aids targeted antiviral therapy and supports antiviral/antibiotic stewardship

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- Identifying infected individuals ASAP and promptly initiating antiviral therapy can facilitate infection control efforts in institutional and community settings and protect high risk individuals
- Expedite care/reduce time in the ED, reduce unnecessary testing and preserve bed availability

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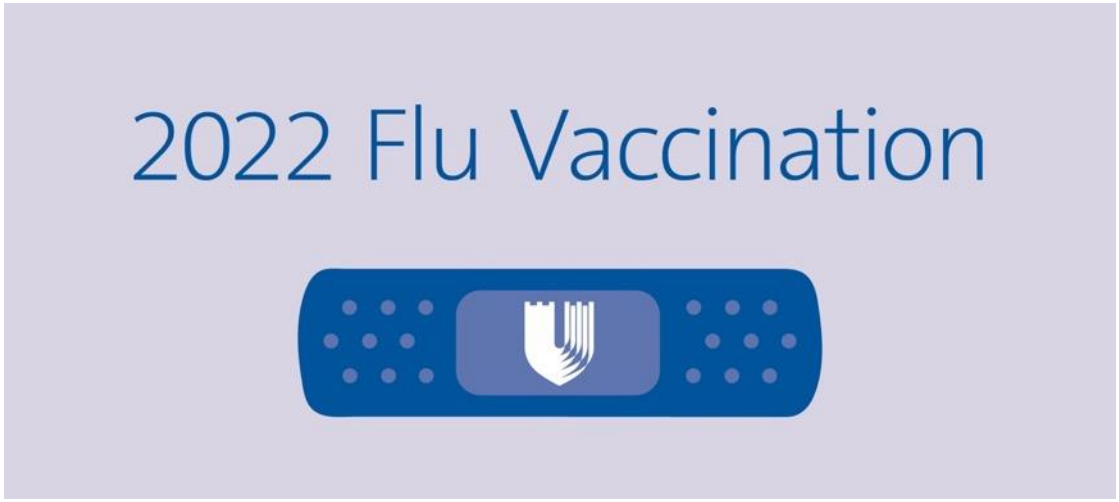
# Influenza Vaccines

1. Prevent illness
2. Lessen severity of symptoms if infected
3. Reduce risk of hospitalization
4. Protect people with chronic health conditions
5. Protect pregnant women from infection and infants during the the first few months of life
6. Lifesaving in children
7. Protect others around you from infection




CDC. Vaccine Effectiveness: How Well Do Flu Vaccines Work? https://www.cdc.gov/flu/vaccines-work/vaccineeffect.htm, Updated Aug 25, 2022.

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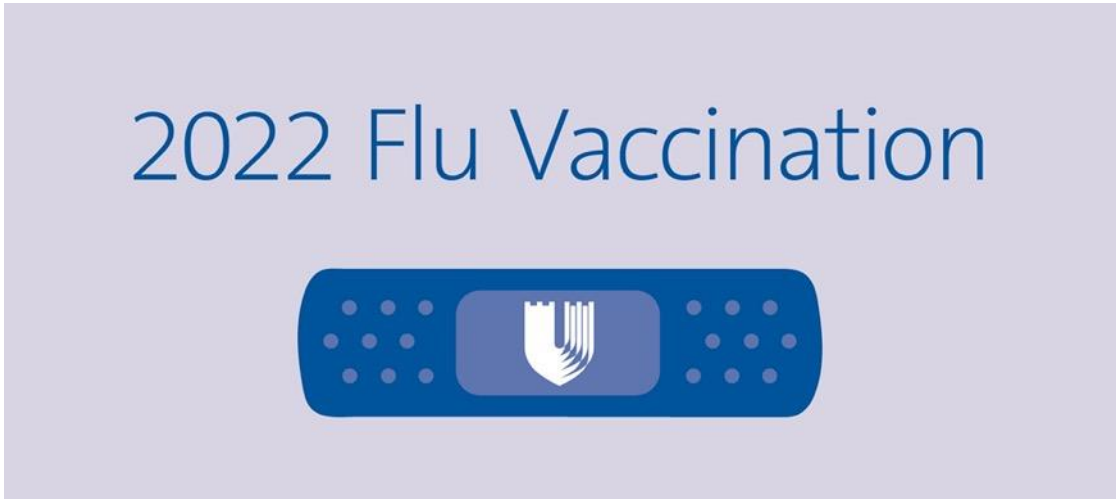


**Despite these benefits only about half of Americans get an annual flu vaccine**

CDC. Vaccine Effectiveness: How Well Do Flu Vaccines Work? https://www.cdc.gov/flu/vaccines-work/vaccineeffect.htm, Updated Aug 25, 2022.

# Summary

- Data from the Southern Hemisphere suggests that seasonal influenza may be more impactful in the US this year than recent previous ones
- Many of our learnings on how to effectively manage COVID-19 apply equally to seasonal influenza
- Influenza testing guidelines recommend NAATs over rapid antigen tests, when available
- Rapid NAATs for influenza expedite more sensitive test results in time sensitive areas with demonstrated higher confidence in test results
- Availability of rapid and accurate NAATs for influenza helps improve quality of care, guide appropriate use of antiviral and antibiotic therapies, and assist in infection control efforts to help reduce transmissions

# Thanks for Your Attention!

# Questions

# Available CE Credit

- P.A.C.E.®
- Florida laboratory CE
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- A certificate of attendance available for all attendees
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# Recording

Within a few days following today's event, visit

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## Influenza 2022-2023: Rapid Assessment and Treatment Strategies

**Live Event: Thursday, November 17, 2022 | 1:00 - 2:00 PM ET**
**P.A.C.E.® credit available until May 17, 2023 | Florida Laboratory Credit available**

Recording | Slides

Join this session for the latest insights on global influenza activity and predictions for the upcoming respiratory season in the Northern Hemisphere. Influenza diagnostic guidelines and quality initiatives associated with antimicrobial stewardship and care efficiencies will be presented. Leaders and members of antibiotic stewardship committees and healthcare professionals involved in time sensitive and other acute care areas are encouraged to attend.

**This webinar will:**
- Discuss influenza risks and the importance of an early diagnosis in time-sensitive areas
- Review IDSA guidelines for diagnosing influenza
- Examine accuracy and technology differences between antigen and molecular tests
- Explore the impact of an early and accurate influenza diagnosis on quality of care, infection control, and stewardship for antibiotics and antivirals

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Presenters:

**Bruce Lobaugh, Ph.D., HCLD(ABB)**
Director, Central Automated Laboratory
Director, Point-of-Care Testing Program
Administrative Director, Duke University Health System
Clinical Laboratories
Duke University Health System

**Michael Green MD, MS**
Associate Medical Director
Assistant Professor - Family Medicine
Zucker School of Medicine at Hofstra/Northwell

For additional information,
please contact your local
Fisher Healthcare or Abbott representative

# INFLUENZA 2022 – 2023:
# RAPID ASSESSMENT AND TREATMENT STRATEGIES

NOTE: If you have just viewed the archived recording of this webinar, you should be automatically redirected to the evaluation when you close the recording window. If you are not redirected, you will be able to access the evaluation for **12 months** after the live event at:

https://www.whitehatcom.com/FisherHealthcare_Evals/Influenza_111722/Treatment_111722_eval.html

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