I-VAC Learning Collaborative for COVID-19 Vaccination

Please use your first name and health center name when you join the session

Use the “chat” feature to let us know if you have a question

Please remember to mute your microphone unless speaking

If you can’t connect audio via computer or lose computer audio at anytime, you can call in to session at (669) 900-6833, Meeting ID 822 0588 8102##
Disclosures

• No one in a position to control the education content of the activity has any relevant financial disclosures with ineligible companies to disclose

• What gets said here today may change based on new data and recommendations
  – Knowledge is shared more rapidly through ECHO
Track Covid-19 in the U.S.

Daily Covid hospital admissions
Avg. on Nov. 18 14-day change
4,254 +14%

Updated Dec. 6, 2023
Wastewater Surveillance

Region with the highest wastewater viral activity level for COVID-19: Midwest

https://www.cdc.gov/nwss/rv/COVID19-nationaltrend.html
Wastewater Surveillance

Source: Wastewater data from Biobot Analytics
Wastewater Surveillance

https://www.cdc.gov/nwss/rv/COVID19-nationaltrend.html

Current SARS-CoV-2 Wastewater Viral Activity Level
Select a level to add or remove it from the visualization.

- Very High
- High
- Moderate
- Low
- Minimal
- Insufficient Data

https://www.cdc.gov/nwss/rv/COVID19-nationaltrend.html
Wastewater Surveillance

Predominant Variant

EG.5

Select a variant to add or remove it from the visualization:

- BA.2
- BA.5
- BF.7
- BQ.1
- BQ.1.1
- EG.5
- FL.1.5.1
- HV.1
- XBB
- XBB.1.1
- XBB.1.16
- XBB.1.16.1
- XBB.1.5
- XBB.1.5.1
- XBB.1.9.1
- XBB.1.9.2
- XBB.2.3
- Other

https://www.cdc.gov/nwss/rv/COVID19-variants.html
What about the New Variant – BA.2.86?

• BA.2.86, nicknamed Pirola, is a highly mutated new omicron variant that was first detected in Denmark in July 2023. The World Health Organization announced that, as of Sept. 6, 2023, BA.2.86 has been detected in 11 countries. It’s an offshoot of earlier BA 2 strain, not XBB.

• A preliminary study reported that BA.2.86 features 33 distinct spike mutations when compared to its precursor, BA.2, 14 of which are in the RBD (receptor binding domain) suggesting possible increased infectivity.

• Researchers do not fully understand all these mutations yet:
  • A preliminary study found that BA.2.86 can escape the protective defenses of antibodies against the recent XBB sublineages. However, in contrast, another new study that has not yet been published found that neutralizing antibody responses against BA.2.86 were comparable to or slightly higher against the recent XBB sublineages.

• Has been discovered in 9 states as of September 8

• Moderna trial data confirmed updated vaccine generates a strong immune response against BA.2.86
  • generates an 8.7-fold increase in neutralizing antibodies in humans against BA.2.86 (Pirola)
  • previously communicated results showing a similarly effective response against EG.5 and FL.1.5.1 variants


doi: https://doi.org/10.1101/2023.09.01.555815

doi: https://doi.org/10.1101/2023.09.04.556272

What’s to come?

- **All eyes are still on JN.1**—a highly mutated variant. Some European countries are coming close to reaching 50% threshold of JN.1 cases. This is important because we will start seeing the epidemiological implications soon (i.e., its impact on cases and hospitalizations). Given current spread patterns, we expect JN.1 to become the next dominant variant worldwide.

- The U.S. is weeks behind European countries, but models show we should expect a Covid-19 peak in late December driven by JN.1. It’s hard to know how high the peak will be given the complex immune landscape. We expect 22,000-45,000 daily Covid-19 hospitalizations at the peak this winter.
(Source: JPWeiland)
Chicago’s COVID-19 Risk Level is LOW

**CHICAGO COVID-19 Summary**

**HOSPITALIZATIONS**
- Current daily avg: 21
- Prior week: 20 (+6%)
- Cumulative: 54,921
- Daily rate per 100,000: 0.70

**HOSPITAL BEDS IN USE**
- Current daily avg: 1.9%
- Prior week: 1.5%

**EMERGENCY ROOM VISITS**
- Current daily avg: 2.4%
- Prior week: 1.7%

**LABORATORY-CONFIRMED CASES**
- Current daily avg: 151
- Prior week: 168 (-10%)
- Cumulative: 795,999
- Daily rate per 100,000: 5.49

**DEATHS**
- Current daily avg: 0.00
- Prior week: 0.88 (-100%)
- Cumulative: 8,218
- Daily rate per 100,000: 0.00

**VACCINATIONS**
- Weekly people vaccinated: 14,553
- Cumulative people up to date: 275,839
- % of people up to date: 10.0%

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**I-VAC ILLINOIS VACCINATES AGAINST COVID-19**
Influenza Like Illness

(Source: CDC; Annotated by YLE/Katelyn Jetelina)
Influenza Increasing

Flu hospitalizations per 100,000 in, United States. (Source: CDC; Annotations by KKJ)
Is It Too Late to Get a Flu Shot?

• Influenza season goes until spring, so getting the vaccine late can still give you some protection

• Experts, including those at the C.D.C., say it’s better to get the vaccine late than to skip it entirely. Flu season runs from October to May, with a peak usually occurring in February

• Young, healthy persons may be at comparatively low risk for severe influenza but have greater exposure to influenza through school, work, or other activities. In these persons, vaccination reduces the risk for missing school or work and the inconvenience and costs associated with medical visits. Indirect benefits include protecting loved ones, such as older relatives or young children in the household

Flu Vaccines
Flu burden and Disease Prevention with Flu vaccine

Estimated Range of Annual Burden of Flu in the U.S. from 2010 – 2020 (CDC)

CDC estimates* that, from October 1, 2022 through January 7, 2023, there have been:

- 24 – 47 million flu illnesses
- 11 – 23 million flu medical visits
- 260,000 – 560,000 flu hospitalizations
- 16,000 – 48,000 flu deaths
Influenza-Associated Hospitalizations

Source: CDC Fluvew—FluSurv-NET, week ending February 11, 2023
Importance of Influenza, COVID-19 & Routine Vaccines

During October 2022, there were only 6% of PICU beds available across the state.

Since we do not have vaccines to protect against every disease, it is even more important to use the vaccines that we do have to keep children out of the hospital.

Preliminary interim estimates—NVSN

- Through January 25, 2023, influenza vaccination significantly reduced laboratory confirmed medically attended influenza
  - 68% (95% CI: 46, 81) against pediatric hospitalizations
  - 42% (95% CI: 25, 56) against pediatric ED visits

- Important protection against both A/H3N2 and A/H1N1 associated illness

Three networks to evaluate vaccine effectiveness against laboratory-confirmed influenza-associated outpatient visits, emergency department visits, and hospitalization.

Vaccine effectiveness against laboratory confirmed influenza A* in hospital and ED settings, September 13, 2022–January 25, 2023**

<table>
<thead>
<tr>
<th></th>
<th>Influenza positive</th>
<th>Influenza negative¹</th>
<th>Unadjusted</th>
<th>Adjusted²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N vaccinated /Total</td>
<td>(%)</td>
<td>N vaccinated /Total</td>
<td>(%)</td>
</tr>
<tr>
<td>Influenza A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All 6 mos – 17 years</td>
<td>123/640</td>
<td>19</td>
<td>750/2256</td>
<td>33</td>
</tr>
<tr>
<td>Inpatient</td>
<td>19/131</td>
<td>15</td>
<td>288/913</td>
<td>32</td>
</tr>
<tr>
<td>ED</td>
<td>104/507</td>
<td>21</td>
<td>461/1330</td>
<td>35</td>
</tr>
<tr>
<td>A/H3N2</td>
<td>98/478</td>
<td>21</td>
<td>750/2256</td>
<td>33</td>
</tr>
<tr>
<td>A/H1N1</td>
<td>23/139</td>
<td>17</td>
<td>750/2256</td>
<td>33</td>
</tr>
</tbody>
</table>
Pediatric flu deaths increased over the ‘22–’23 season (168 deaths). Vaccinated children 70% less likely to be hospitalized due to flu.

Data are limited to hospitals where COVID-19 is a likely primary reason for admission. Unvaccinated: No recorded doses of COVID-19 vaccine. Vaccinated, but no bivalent booster: Received a primary series with or without ≥1 booster dose but not a bivalent or updated booster dose. Updated bivalent booster: Received an updated bivalent booster dose. Partially vaccinated: Received at least one dose of COVID-19 but was not considered fully vaccinated at the time of a positive SARS-CoV-2 test. Persons with unknown vaccination status are excluded.

Pediatric vaccine preventable diseases: Deaths per year in the United States prior to recommended vaccines compared to COVID-19

- **Hepatitis A**: Average deaths per year: 3
- **Meningococcal (ACWY)**: Average deaths per year: 8
- **Varicella**: Average deaths per year: 8
- **Rubella**: Average deaths per year: 16
- **Rotavirus**: Average deaths per year: 17
- **COVID-19**: Average deaths per year: 20

**Time period**


**References**
### Vaccine effectiveness against laboratory confirmed influenza A* in inpatient settings, October 1, 2022–January 31, 2023

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Influenza positive</th>
<th>Influenza negative¹</th>
<th>Vaccine Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N vaccinated/Total</td>
<td>(%)</td>
<td>N vaccinated/Total</td>
</tr>
<tr>
<td>≥18 years</td>
<td>219/701</td>
<td>31</td>
<td>921/2130</td>
</tr>
<tr>
<td>18–64 years</td>
<td>84/378</td>
<td>22</td>
<td>365/1021</td>
</tr>
<tr>
<td>≥65 years</td>
<td>135/323</td>
<td>42</td>
<td>556/1109</td>
</tr>
<tr>
<td>Immunocompromised³</td>
<td>45/122</td>
<td>37</td>
<td>238/474</td>
</tr>
</tbody>
</table>

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¹ Includes all age groups.
² Adjusted for age, comorbidity, geographic location, and vaccination status.
³ Includes all age groups with immunocompromising conditions.
Influenza vaccine effectiveness (VE) against influenza-associated hospitalization and emergency department / urgent care visits among adults aged ≥18 years

Vaccine effectiveness against laboratory confirmed influenza A in ED/UC settings, October 15, 2022–January 24, 2023*

<table>
<thead>
<tr>
<th></th>
<th>Influenza positive</th>
<th>Influenza negative</th>
<th>Vaccine Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N vaccinated /Total</td>
<td>(%)</td>
<td>N vaccinated /Total</td>
</tr>
<tr>
<td>All adults ≥18 years</td>
<td>3278/14011</td>
<td>(23)</td>
<td>15752/43196</td>
</tr>
<tr>
<td>18-64 years</td>
<td>1600/10590</td>
<td>(15)</td>
<td>6695/27545</td>
</tr>
<tr>
<td>≥65 years</td>
<td>1678/3421</td>
<td>(49)</td>
<td>9057/15651</td>
</tr>
<tr>
<td>Immunocompromised</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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1 Adjusted

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* Includes laboratory confirmed influenza A cases in the Influenza Monitoring Laboratory Network (IMLN) from October 15, 2022 to January 24, 2023. VE calculations are based on the proportion of vaccinees among influenza-positive cases compared to influenza-negative cases. The adjusted VE calculations account for potential confounders and are based on the proportion of vaccinees among influenza-positive cases compared to influenza-negative cases.
Vaccine Safety Update: 2022-2023 Influenza Season

- ~173 million doses of influenza vaccine distributed in United States*
- **Vaccine Adverse Event Reporting System (VAERS)** (co-managed by CDC and FDA)
  - No new safety concerns identified for influenza vaccines
- **Vaccine Safety Datalink (VSD)** (collaboration between CDC and 9 integrated healthcare organizations)
  - ~5.5 million doses of influenza vaccine administered in VSD
  - No new safety concerns identified in influenza vaccine monitoring**
  - Statistical signal for ischemic stroke after Pfizer-BioNTech bivalent mRNA COVID-19 vaccine in persons aged ≥65 years detected in VSD analysis for COVID-19 vaccine safety monitoring, previously presented to ACIP***
    - Post-signal analysis in VSD found an elevated rate ratio for ischemic stroke after simultaneous vaccination with Pfizer-BioNTech bivalent mRNA COVID-19 vaccine and high-dose or adjuvanted influenza vaccine, which has attenuated over time
    - Separate analyses did not detect an elevated rate ratio for ischemic stroke after influenza vaccine administered without bivalent mRNA COVID-19 vaccine

* [Weekly Flu Vaccination Dashboard | FluVaxView | Seasonal Influenza (Flu) | CDC](https://www.cdc.gov/flu/vactrack/vacma.html)

** Outcomes monitored in VSD: acute disseminated encephalomyelitis, anaphylaxis, Bell’s Palsy, encephalitis, Guillain-Barré syndrome, seizures, transverse myelitis

*** Shimabukuro T. ACIP presentation on April 19, 2023 mRNA COVID-19 bivalent booster vaccine safety update (cdc.gov)
2022-2023 Flu Vaccine Coverage
Children 6 Months – 17 Years
Summary as of the Week Ending February 11, 2023

- U.S. influenza activity rose early, peaking nationally during late November/early December
  - Percent of tests positive peaked at ~26%; currently ~1.7%
- Influenza A(H3N2) viruses have predominated, with co-circulation of influenza A(H1N1)pdm09 viruses.
- The cumulative influenza-associated hospitalization rate has leveled in recent weeks to ~59/100,000
- 111 influenza-associated pediatric deaths reported this far this season.
- Overall influenza activity is increased compared with the previous two seasons.
- U.S. influenza activity is currently low.
U.S. Influenza Vaccine Composition for 2023-24

• All vaccines available in the U.S. are quadrivalent.
• The 2023-24 composition includes updated influenza A(H1N1)pdm09 components.
• All U.S.-licensed influenza vaccines will include hemagglutinin derived from:
  – An influenza A/Victoria/4897/2022 (H1N1)pdm09-like virus (egg-based vaccines)
    An influenza A/Wisconsin/67/2022 (H1N1)pdm09-like virus (cell and recombinant vaccines)
  – An influenza A/Darwin/9/2021 (H3N2)-like virus (egg-based vaccines)
    An influenza A/Darwin/6/2021 (H3N2)-like virus (cell and recombinant vaccines)
  – An influenza B/Austria/1359417/2021-like virus (B/Victoria lineage)
  – An influenza B/Phuket/3073/2013-like virus (B/Yamagata lineage)
Influenza Vaccine

- Recommended for everyone 6 months+.
- Any licensed influenza vaccine appropriate by age and health status can be used.
- The AAP does not prefer any product over another for children and adolescents with no contraindications.
- LAIV should not be given to individuals in close contact to immunocompromised people needing a protective environment.
- CAN be given to those with an egg allergy in medical setting where severe allergic reactions can be managed.
# Influenza Vaccine Products for the 2023–2024 Influenza Season

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Trade Name (vaccine abbreviation)</th>
<th>How Supplied</th>
<th>Mercury Content (mcg Hg/0.5 ml)</th>
<th>Age Range</th>
<th>CVX Code</th>
<th>Vaccine Product Billing Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AstraZeneca</td>
<td>FluMist (LAIV4)</td>
<td>0.2 mL (single-use nasal spray)</td>
<td>0</td>
<td>2 through 49 years</td>
<td>149</td>
<td>90672</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>GSK</td>
<td>Fluark (IV4)</td>
<td>0.5 mL (single-dose syringe)</td>
<td>0</td>
<td>6 months &amp; older²</td>
<td>150</td>
<td>90686</td>
</tr>
<tr>
<td></td>
<td>FluLaval (IV4)</td>
<td>0.5 mL (single-dose syringe)</td>
<td>0</td>
<td>6 months &amp; older²</td>
<td>150</td>
<td>90686</td>
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<tr>
<td>Sanofi</td>
<td>Flublok (IV4)</td>
<td>0.5 mL (single-dose syringe)</td>
<td>0</td>
<td>18 years &amp; older</td>
<td>185</td>
<td>90682</td>
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<tr>
<td></td>
<td>Fluzone (IV4)</td>
<td>0.5 mL (single-dose syringe)</td>
<td>0</td>
<td>6 months &amp; older²</td>
<td>150</td>
<td>90686</td>
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<tr>
<td></td>
<td></td>
<td>0.5 mL (single-dose vial)</td>
<td>0</td>
<td>6 months &amp; older²</td>
<td>150</td>
<td>90686</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0 mL multi-dose vial (0.25 mL dose)</td>
<td>25</td>
<td>6 through 35 months²</td>
<td>158</td>
<td>90687</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0 mL multi-dose vial (0.5 mL dose)</td>
<td>25</td>
<td>6 months &amp; older²</td>
<td>158</td>
<td>90688</td>
</tr>
<tr>
<td></td>
<td>Fluzone High-Dose (IV4-HD)</td>
<td>0.7 mL (single-dose syringe)</td>
<td>0</td>
<td>65 years &amp; older</td>
<td>197</td>
<td>90662</td>
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<td></td>
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</tr>
<tr>
<td>Seqirus</td>
<td>Afluria (IV4)</td>
<td>5.0 mL multi-dose vial (0.25 mL dose)</td>
<td>24.5</td>
<td>6 through 35 months²</td>
<td>158</td>
<td>90687</td>
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<td>5.0 mL multi-dose vial (0.5 mL dose)</td>
<td>24.5</td>
<td>3 years &amp; older</td>
<td>158</td>
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<tr>
<td></td>
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<td>0.5 mL (single-dose syringe)</td>
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<td>3 years &amp; older²</td>
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<td>90686</td>
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<tr>
<td></td>
<td>Fluid (adITIV)</td>
<td>0.5 mL (single-dose syringe)</td>
<td>0</td>
<td>65 years &amp; older</td>
<td>205</td>
<td>90694</td>
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<td></td>
<td>Flucelvax (cITIV4)</td>
<td>0.5 mL (single-dose syringe)</td>
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<td>6 months &amp; older²</td>
<td>171</td>
<td>90674</td>
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<tr>
<td></td>
<td></td>
<td>5.0 mL multi-dose vial (0.5 mL dose)</td>
<td>25</td>
<td>6 months &amp; older²</td>
<td>186</td>
<td>90756</td>
</tr>
</tbody>
</table>

### Notes
1. LAIV = egg-based quadrivalent inactivated influenza vaccine (injectable), where necessary to refer to cell culture based vaccine, the prefix "LA" is used (e.g., LAIV4; LAIV = quadrivalent recombinant hemagglutinin influenza vaccine (injectable); adITIV = adjuvanted quadrivalent inactivated influenza vaccine.
2. An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require providing additional information on their claim forms.
3. Dosing for infants and children age 6 through 23 months:
   - Afluria 0.25 mL
   - Fluarix 0.5 mL
   - Flucevax 0.5 mL
   - FluLaval 0.5 mL
   - Fluzone 0.25 mL or 0.5 mL
4. Afluria is approved by the Food and Drug Administration for intramuscular administration with the Flucelvax Adjuvanted Inactivated Influenza Vaccine System for persons age 18 through 64 years.

Pediatric Flu Recommendations

• Recommended for: Anyone over the age of 6 months.
  • Vaccination generally recommended to begin in September.
    • Children that need two doses and pregnant people in the third trimester can consider vaccination during July or August.
  • Certain children may require two doses:

Guideline change: People with egg allergies are no longer recommended to be vaccinated in a medical setting.
Proposed Recommendations for Vaccination of Persons with Egg Allergy

• All persons aged ≥6 months with egg allergy should receive influenza vaccine unless a contraindication exists. Any influenza vaccine that is otherwise appropriate for the recipient’s age and health status can be used (egg based or non-egg based).

• Egg allergy in and of itself necessitates no additional safety measures for influenza vaccination beyond those recommended for any recipient of any vaccine, regardless of severity of previous reaction to egg.

• Severe and life-threatening reactions to vaccines can rarely occur with any vaccine and in any vaccine recipient, regardless of allergy history. Providers are reminded that all vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available. All vaccination providers should be familiar with their office emergency plan and be certified in cardiopulmonary resuscitation.
Timing of Influenza Vaccination—Pregnant Persons in Third Trimester

- Vaccination during July and August can be considered because vaccination might reduce risk for influenza illness in their infants during the first months after birth, when they are too young to receive influenza vaccine.
Co-administration with other vaccines

• COVID-19 vaccines and other vaccines may now be administered without regard to timing. This includes simultaneous administration of COVID-19 vaccines and other vaccines on the same day, as well as coadministration within 14 days.

• If multiple vaccines are administered at a single visit, administer each injection in a different injection site. For adolescents and adults, the deltoid muscle can be used for more than one intramuscular injection.

• Best practices for multiple injections include:
  • Label each syringe with the name and the dosage (amount) of the vaccine, lot number, the initials of the preparer, and the exact beyond-use time, if applicable.
  • Separate injection sites by 1 inch or more, if possible.
  • Administer the COVID-19 vaccines and vaccines that may be more likely to cause a local reaction (e.g., tetanus-toxoid-containing and adjuvanted vaccines) in different limbs, if possible.
Flu Season 2022–2023
How did we do?

Estimated Flu Burden*
From October 1, 2022 to April 30, 2023, there were an estimated:

- 27 - 54 Million Flu Illnesses
- 300,000 - 650,000 Flu Hospitalizations
- 19,000 - 58,000 Flu Deaths

*CDC preliminary flu estimates for the United States

Flu Vaccine Effectiveness in Children
As of January 2023

Flu vaccination reduced hospitalizations by 68%
emergency department visits by 42%
Flu Vaccine Effectiveness in Adults
As of January 2023

Flu vaccination reduced hospitalizations by 39–43%
Emergency department visits by 44%

Flu Vaccine Coverage by Age Group in ND - Three Year Comparison

Looking Back, Looking Ahead

Flu viruses constantly change, so our flu vaccines must also change from one season to the next. Experts do their best to match the vaccine formula to the flu virus we expect to see, but they don’t always get it right, and no vaccine is perfect.

In 2022-2023, the flu shot did quite well at protecting people – especially kids and people with weakened immune systems – from getting really sick from the flu.

Come this fall, make sure everyone in your family gets a flu shot. Flu season will be here before you know it.
Vaccinate for Community Immunity!
Questions?
Final Session in Cohort: 
Tuesday, December 19th

For any questions, email us at pgower@peds.bsd.uchicago.edu

Funding for this project was made possible by the Office of Disease Control, through the Illinois Department of Public Health.