



**WISCONSIN DEPARTMENT OF HEALTH SERVICES**  
 Division of Public Health  
 Bureau of Communicable Diseases



**Respiratory virus surveillance report for the week ending February 20, 2016 week 07-16**

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**AT-A-GLANCE**

- Respiratory viruses identified this week :  
 Influenza A, and RSV and human Metapneumovirus are the predominant viruses this week.
- Influenza-like illness (ILI) activity for this week

|                       |          |
|-----------------------|----------|
| Wisconsin             | Moderate |
| Wisconsin (CDC level) | Minimal  |
| Northwestern Region   | Moderate |
| Northeastern Region   | Moderate |
| Southeastern Region   | Moderate |
| Southern Region       | Low      |

- ILI activity in Region V of the U.S. (WI, MN, IL, MI, OH, IN) is above baseline levels
- ILI activity in the U.S. is above baseline levels
- The Predictive Value Positive (PVP) for rapid influenza and RSV tests is: Moderate (PVP is the probability of disease in a patient with a positive test result)
- The Predictive Value Negative (PVN) for rapid influenza and RSV tests is: High (PVN is the probability of not having disease when the test result is negative)
- Influenza-associated pediatric deaths reported (October 10, 2015-present)

|            | <u>Week 07-16</u> | <u>Total to Date</u> |
|------------|-------------------|----------------------|
| Wisconsin  | 0                 | 0                    |
| Nationwide | 1                 | 14                   |

***Influenza Vaccine Composition 2015-2016***

The trivalent vaccines for use in the 2015-2016 influenza season) contain the following:

- A/California/7/2009 (H1N1)pdm09-like virus;
- A/Switzerland/9715293/2013 (H3N2)-like virus;
- B/Phuket/3073/2013-like virus (Yamagata lineage).

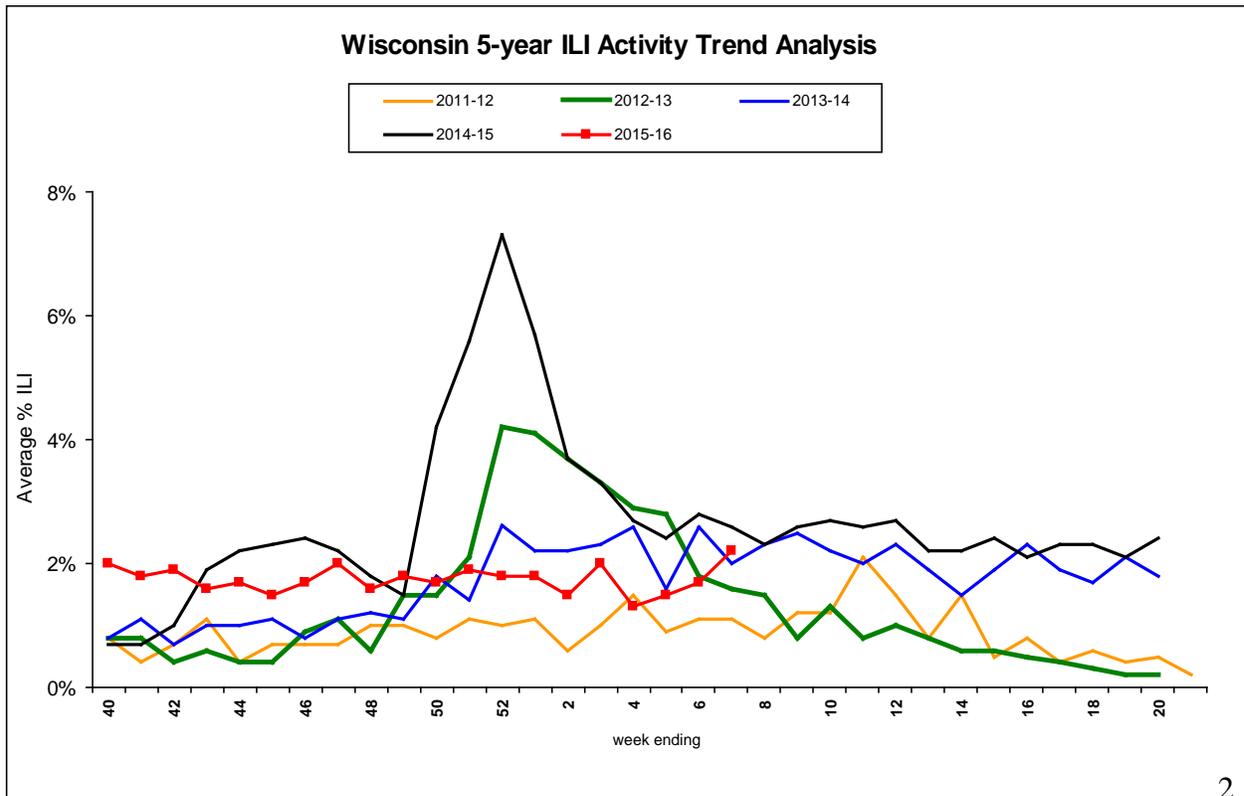
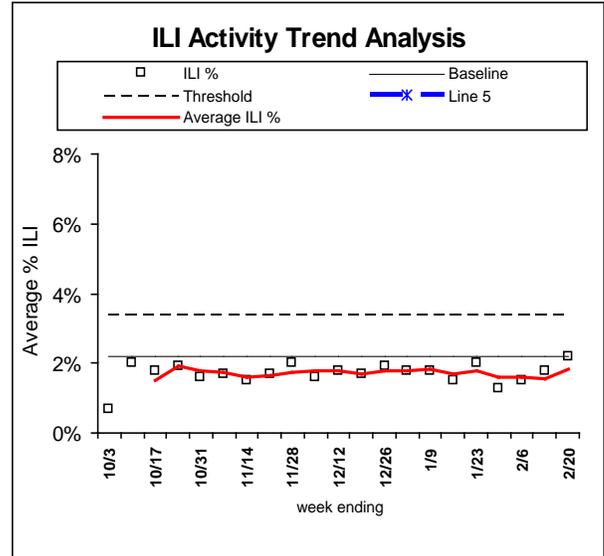
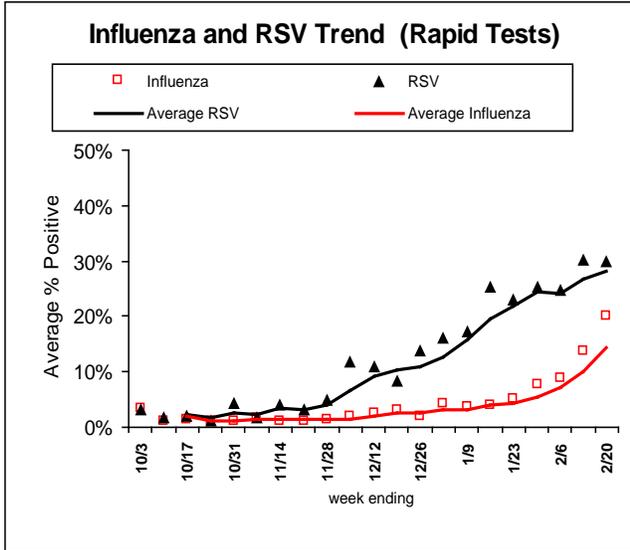
It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and;

- B/Brisbane/60/2008-like virus (Victoria Lineage)

**WISCONSIN and REGIONAL SUMMARIES**  
(Trend analysis based on 3-week moving averages)

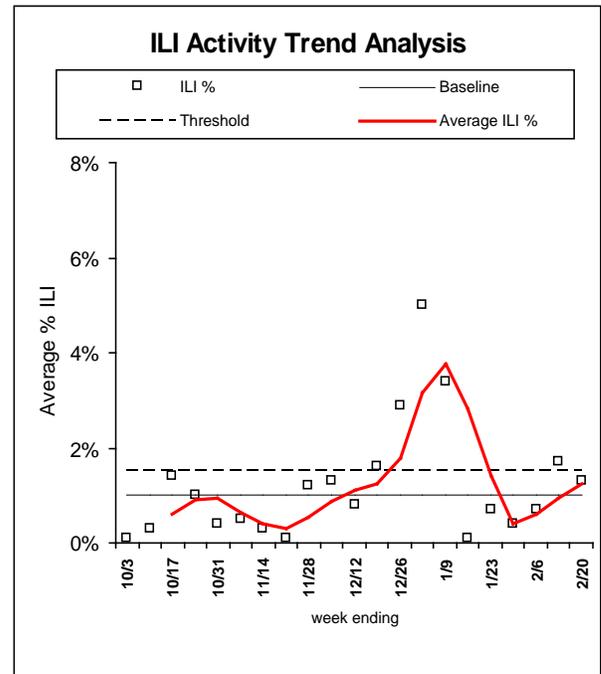
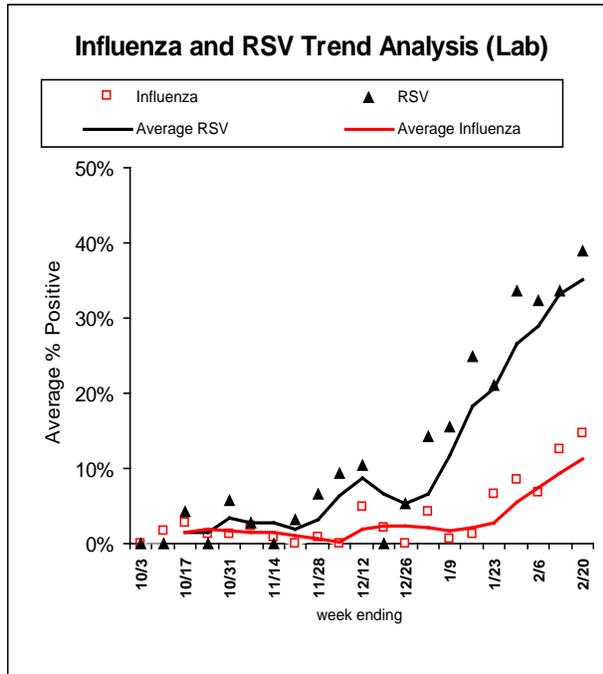
**Wisconsin (ILI activity is Moderate)**

| INFLUENZA RAPID ANTIGEN TESTS |          |       |       | RSV RAPID ANTIGEN TESTS |        |          | INFLUENZA-LIKE ILLNESS |       |          |           |
|-------------------------------|----------|-------|-------|-------------------------|--------|----------|------------------------|-------|----------|-----------|
| Tested                        | Positive |       |       | % Positive              | Tested | Positive | % Positive             | ILI % | Baseline | Threshold |
|                               | Flu A    | Flu B | Total |                         |        |          |                        |       |          |           |
| 1363                          | 264      | 12    | 276   | 20.2%                   | 348    | 104      | 29.9%                  | 2.2%  | 2.2%     | 3.4%      |



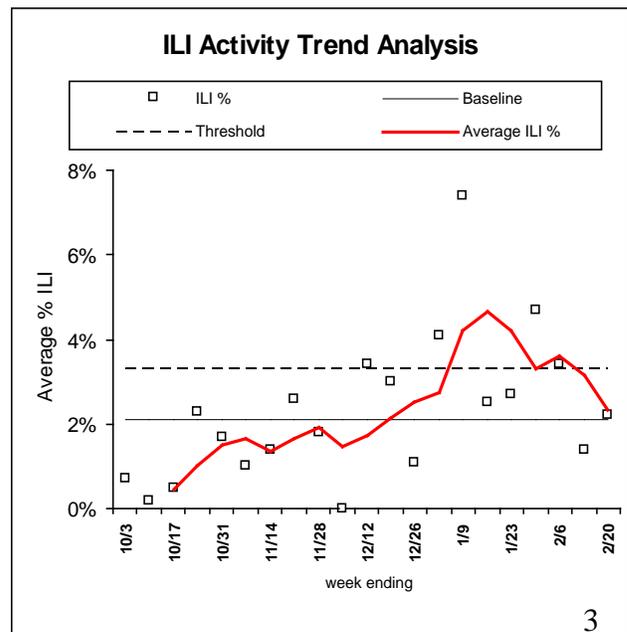
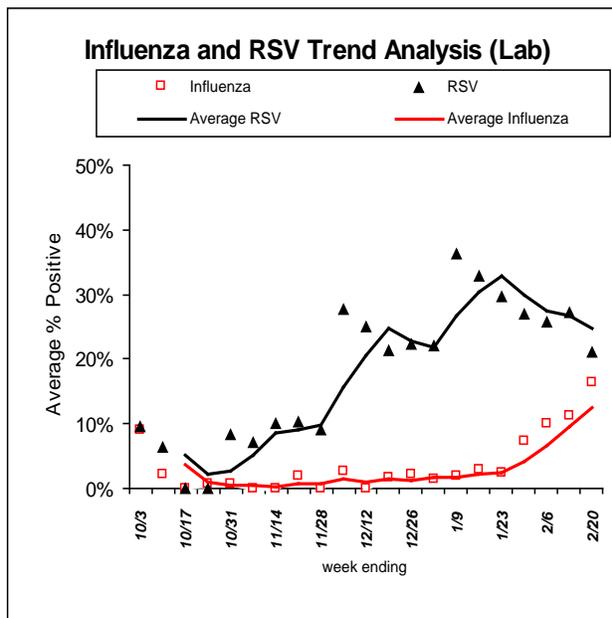
**Northwestern Region (ILI activity is Moderate)**

| INFLUENZA RAPID ANTIGEN TESTS |          |       |       |            | RSV RAPID ANTIGEN TESTS |          |            | INFLUENZA-LIKE ILLNESS |          |           |
|-------------------------------|----------|-------|-------|------------|-------------------------|----------|------------|------------------------|----------|-----------|
| Tested                        | Positive |       |       | % Positive | Tested                  | Positive | % Positive | ILI %                  | Baseline | Threshold |
|                               | Flu A    | Flu B | Total |            |                         |          |            |                        |          |           |
| 364                           | 51       | 2     | 53    | 14.6%      | 141                     | 55       | 39.0%      | 1.3%                   | 1.0%     | 1.5%      |



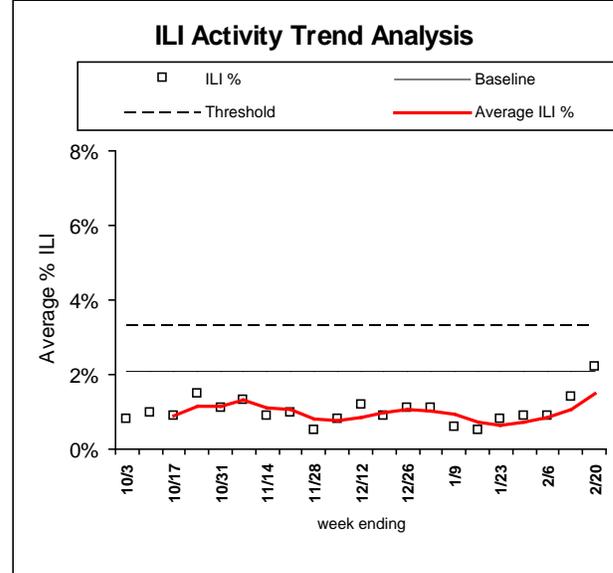
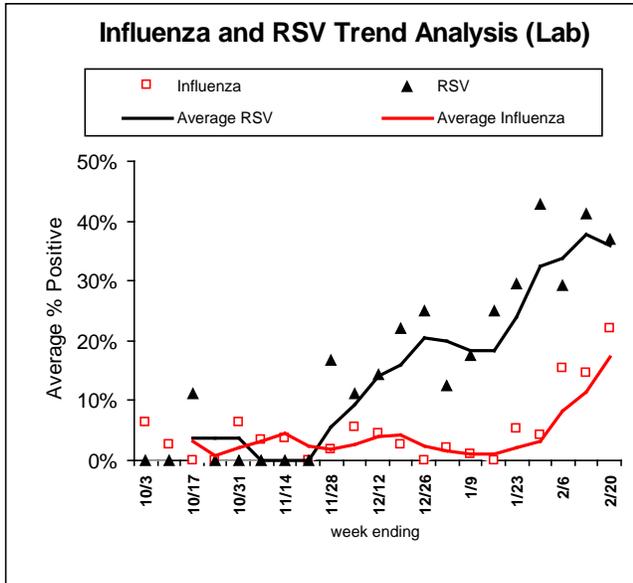
**Northeastern Region (ILI activity is Moderate)**

| INFLUENZA RAPID ANTIGEN TESTS |          |       |       |            | RSV RAPID ANTIGEN TESTS |          |            | INFLUENZA-LIKE ILLNESS |          |           |
|-------------------------------|----------|-------|-------|------------|-------------------------|----------|------------|------------------------|----------|-----------|
| Tested                        | Positive |       |       | % Positive | Tested                  | Positive | % Positive | ILI %                  | Baseline | Threshold |
|                               | Flu A    | Flu B | Total |            |                         |          |            |                        |          |           |
| 254                           | 41       | 1     | 42    | 16.5%      | 76                      | 16       | 21.1%      | 2.2%                   | 2.1%     | 3.3%      |



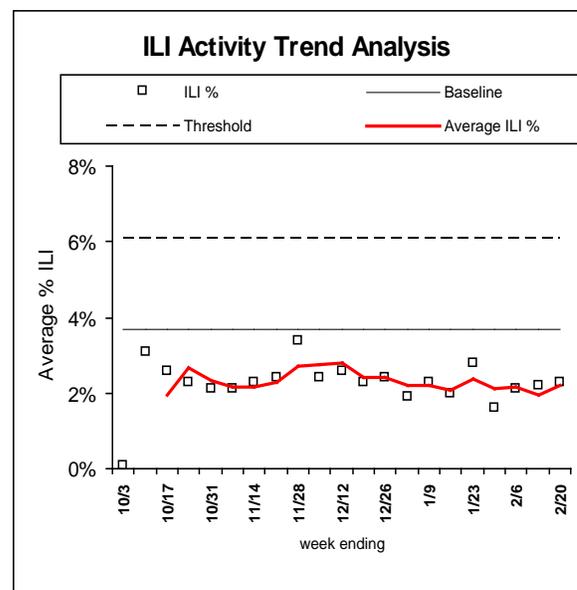
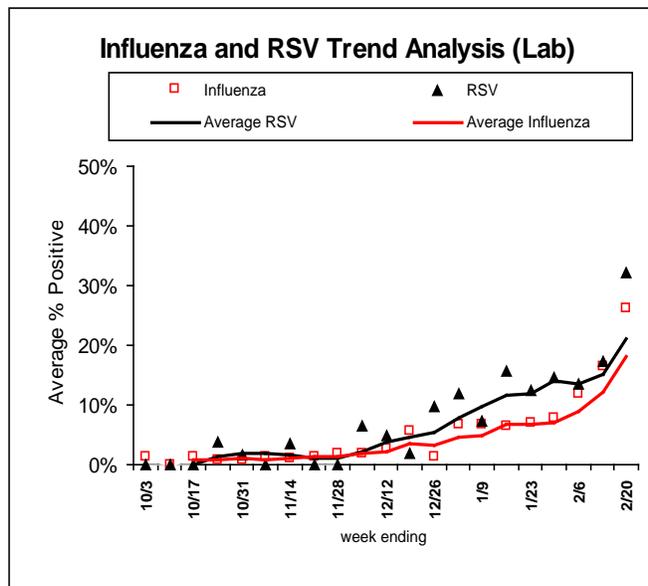
**Southern Region (ILI activity is Moderate)**

| INFLUENZA RAPID ANTIGEN TESTS |          |       |       |            | RSV RAPID ANTIGEN TESTS |          |            | INFLUENZA-LIKE ILLNESS |          |           |
|-------------------------------|----------|-------|-------|------------|-------------------------|----------|------------|------------------------|----------|-----------|
| Tested                        | Positive |       |       | % Positive | Tested                  | Positive | % Positive | ILI %                  | Baseline | Threshold |
|                               | Flu A    | Flu B | Total |            |                         |          |            |                        |          |           |
| 145                           | 31       | 1     | 32    | 22.1%      | 35                      | 15       | 37.1%      | 2.2%                   | 2.1%     | 3.5%      |



**Southeastern Region (ILI activity is Low)**

| INFLUENZA RAPID ANTIGEN TESTS |          |       |       |            | RSV RAPID ANTIGEN TESTS |          |            | INFLUENZA-LIKE ILLNESS |          |           |
|-------------------------------|----------|-------|-------|------------|-------------------------|----------|------------|------------------------|----------|-----------|
| Tested                        | Positive |       |       | % Positive | Tested                  | Positive | % Positive | ILI %                  | Baseline | Threshold |
|                               | Flu A    | Flu B | Total |            |                         |          |            |                        |          |           |
| 540                           | 134      | 8     | 142   | 26.3%      | 56                      | 18       | 32.1%      | 2.3%                   | 3.7%     | 6.1%      |



**For the 2015-16 influenza season, data from the Western Region and the Northern Region will be combined and referred to as the Northwestern Region. This change was made in response to the small number of providers who participate in our weekly surveillance in the Northern Region.**

**LABORATORY SURVEILLANCE FOR RESPIRATORY VIRUSES (PCR)**

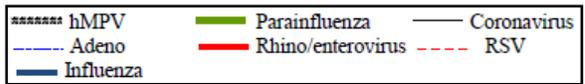
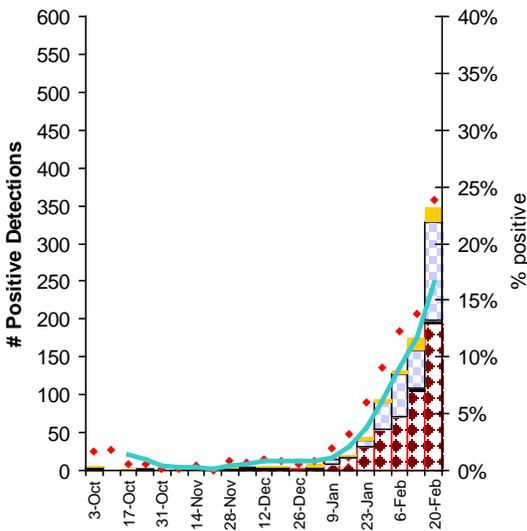
| Respiratory Virus | Tested | Positive | % Positive | Flu A |           |     | Flu B    |          |     |
|-------------------|--------|----------|------------|-------|-----------|-----|----------|----------|-----|
|                   |        |          |            | H3    | pd2009 H1 | Unk | Yamagata | Victoria | Unk |
| Influenza         | 1463   | 348      | 23.8%      | 5     | 194       | 129 | 2        | 1        | 17  |

| Respiratory Virus | Tested | Positive | % Positive | PI-1 | PI-2 | PI-3 | PI-4 |
|-------------------|--------|----------|------------|------|------|------|------|
| Parainfluenza     | 510    | 1        | 0.2%       | 1    | 0    | 0    | 0    |

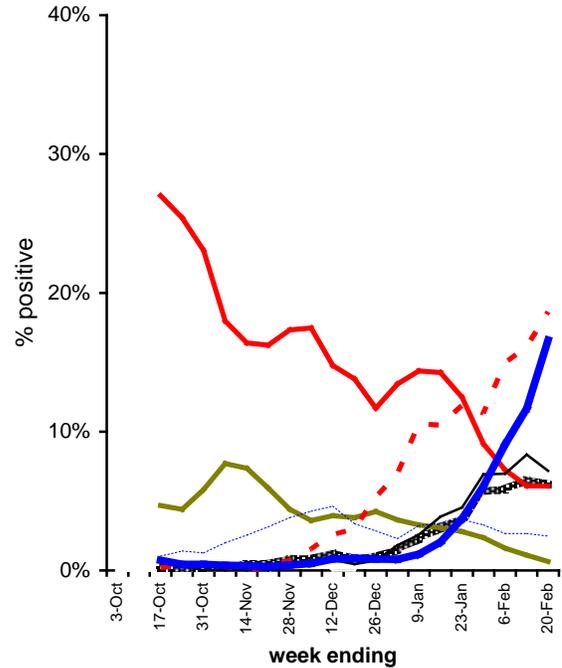
| Respiratory Virus | Tested | Positive | % Positive | CoV-229E | CoV-OC43 | CoV-NL63 | CoV-HKU1 |
|-------------------|--------|----------|------------|----------|----------|----------|----------|
| Coronavirus       | 249    | 15       | 6.0%       | 0        | 2        | 7        | 6        |

| Respiratory Virus     | Tested | Positive | % Positive |
|-----------------------|--------|----------|------------|
| RSV                   | 658    | 127      | 19.3%      |
| Human Metapneumovirus | 476    | 35       | 7.4%       |
| Rhino-entero          | 511    | 29       | 5.7%       |
| Adenovirus            | 325    | 8        | 2.5%       |

**Wisconsin Positive Influenza Results PCR**



**Trends in Respiratory Virus Activity PCR**  
using a 3-week moving average



**Cumulative number of positive influenza tests**  
By subtype, September 1, 2015 to present

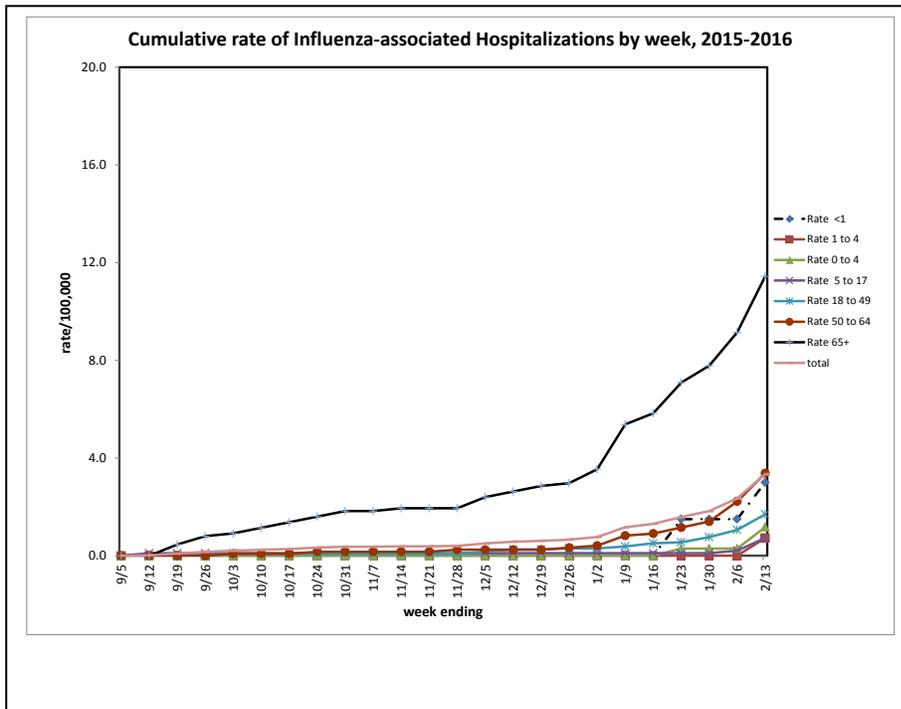
|                            | Influenza A (92%) |    |         | Influenza B (8%) |          |         | Total |
|----------------------------|-------------------|----|---------|------------------|----------|---------|-------|
|                            | pd2009 H1         | H3 | Unknown | Yamagata         | Victoria | Unknown |       |
| Total Number positive      | 495               | 29 | 303     | 20               | 4        | 48      | 899   |
| % of Total number positive | 55%               | 3% | 34%     | 2%               | <1%      | 5%      | 100%  |

### Influenza-associated Hospitalizations, September 1, 2015 to present

| Age group    | Total Number Reported (2015-16) | Influenza Subtypes |          |            |           | Not reported | Admitted to ICU | Required Mechanical Ventilation | Pregnant |
|--------------|---------------------------------|--------------------|----------|------------|-----------|--------------|-----------------|---------------------------------|----------|
|              |                                 | 2009 H1N1          | H3N2     | A/Unknown  | B         |              |                 |                                 |          |
| < 1 year     | 5                               | 2                  | 0        | 2          | 0         | 1            | 1               | 0                               |          |
| 1 to 4       | 7                               | 2                  | 0        | 4          | 1         | 0            | 1               | 0                               |          |
| 5 to 17      | 11                              | 4                  | 0        | 4          | 0         | 3            | 1               | 0                               |          |
| 18 to 49     | 77                              | 11                 | 1        | 56         | 3         | 6            | 15              | 6                               | 6        |
| 50 to 64     | 101                             | 11                 | 0        | 79         | 5         | 6            | 21              | 10                              |          |
| 65 and over  | 166                             | 14                 | 5        | 122        | 19        | 6            | 37              | 5                               |          |
| <b>Total</b> | <b>367</b>                      | <b>44</b>          | <b>6</b> | <b>267</b> | <b>28</b> | <b>22</b>    | <b>76</b>       | <b>21</b>                       | <b>6</b> |

### Influenza-associated Hospitalizations by Public Health Region, September 1, 2015 to present

| Region           | Last 7 days | Season Total |
|------------------|-------------|--------------|
| Southeastern     | 57          | 180          |
| Southern         | 33          | 82           |
| Northeastern     | 24          | 61           |
| Western          | 12          | 31           |
| Northern         | 6           | 13           |
| <b>Wisconsin</b> | <b>132</b>  | <b>367</b>   |



#### Incidence/100,000

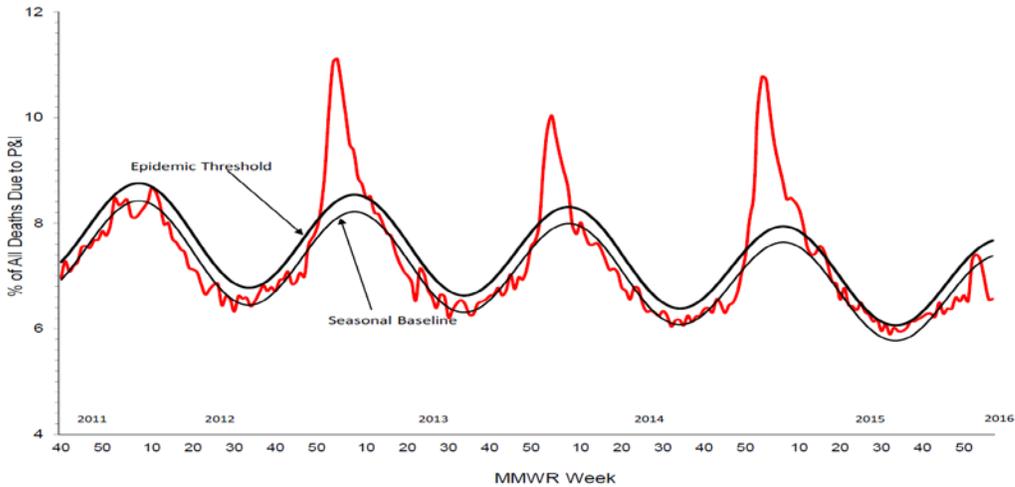
| Age group    | Wisconsin  | National   |
|--------------|------------|------------|
| <1           | 4.5        | NA         |
| 1 to 4       | 2.2        | NA         |
| 5 to 17      | 0.7        | 1.3        |
| 18 to 49     | 2.5        | 2.1        |
| 50 to 64     | 5.3        | 5.2        |
| 65+          | 14.5       | 12.7       |
| <b>total</b> | <b>4.6</b> | <b>4.1</b> |

## NATIONAL INFLUENZA SURVEILLANCE

### NCHS Mortality Surveillance Data:

Based on NCHS mortality surveillance data available on February 25, 2016, 6.6% of the deaths occurring during the week ending February 6, 2016 (week 5) were due to P&I. This percentage is below the epidemic threshold of 7.7% for week 5.

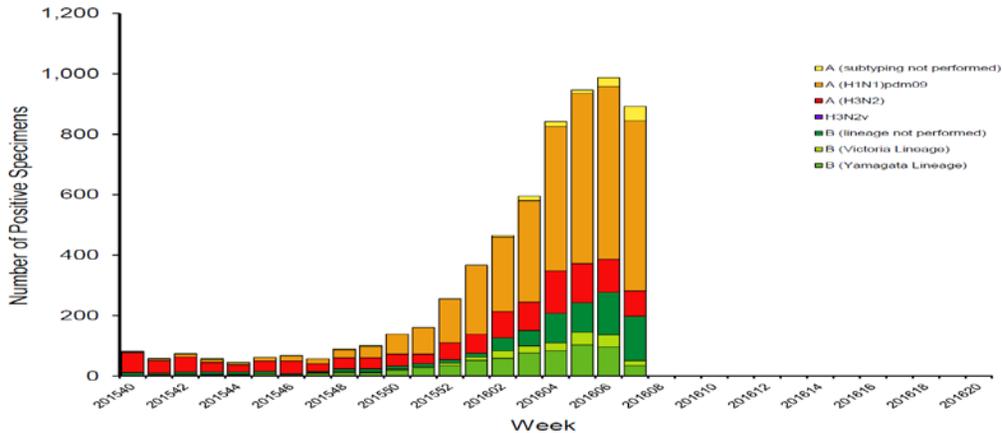
**Pneumonia and Influenza Mortality from the National Center for Health Statistics Mortality Surveillance System Data through the week ending February 6, 2016, as of February 25, 2016**



|   | Week 7      | Data Cumulative since October 4, 2015 (week 40) |
|---|-------------|---|
| <b>No. of specimens tested</b>            | 1,807       | 32,343  |
| <b>No. of positive specimens*</b>         | 892         | 6,346   |
| <b>Positive specimens by type/subtype</b> |             |   |
| <b>Influenza A</b>                        | 694 (77.8%) | 4,790 (75.5%)                                   |
| A(H1N1)pdm09                              | 564 (81.3%) | 3,429 (71.6%)                                   |
| H3  | 83 (11.9%)  | 1,213 (25.3%)                                   |
| Subtyping not performed                   | 47 (6.8%)   | 148 (3.1%)                                      |
| <b>Influenza B</b>                        | 198 (22.2%) | 1,556 (24.5%)                                   |
| Yamagata lineage                          | 34 (17.2%)  | 634 (40.7%)                                     |
| Victoria lineage                          | 17 (8.6%)   | 219 (14.1%)                                     |
| Lineage not performed                     | 147 (74.2%) | 703 (45.2%)                                     |

\*The percent of specimens testing positive for influenza is not reported because public health laboratories often receive samples that have already tested positive for influenza at a clinical laboratory and therefore percent positive would not be a valid indicator of influenza activity. Additional information is available at <http://www.cdc.gov/flu/weekly/overview.htm>

**Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, 2015-2016 Season**



## INFLUENZA VIRUS CHARACTERIZATION

### Influenza A Virus [513]

- **A (H1N1)pdm09 [271]:** All 271 (100%) influenza A (H1N1)pdm09 viruses were antigenically characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2015-2016 Northern Hemisphere vaccine.
- **A (H3N2) [242]:** All 242 H3N2 viruses were genetically sequenced and all viruses belonged to genetic groups for which a majority of viruses antigenically characterized were similar to the cell-propagated A/Switzerland/9715293/2013, the influenza A (H3N2) reference virus representing the 2015-2016 Northern Hemisphere vaccine component.
  - A subset of 109 H3N2 viruses also were antigenically characterized; 102 of 109 (93.6%) H3N2 viruses were A/Switzerland/9715293/2013-like by HI testing or neutralization testing.

### Influenza B Virus [147]

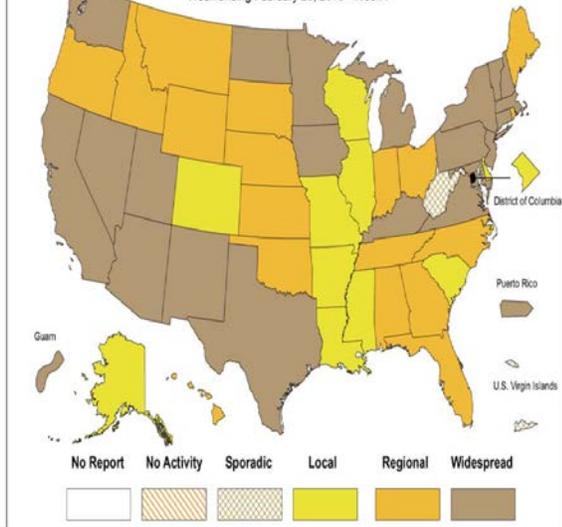
- **Yamagata Lineage [88]:** All 88 (100%) B/Yamagata-lineage viruses were antigenically characterized as B/Phuket/3073/2013-like, which is included as an influenza B component of the 2015-2016 Northern Hemisphere trivalent and quadrivalent influenza vaccines.
- **Victoria Lineage [59]:** Fifty-eight of 59 (98.3%) B/Victoria-lineage viruses were antigenically characterized as B/Brisbane/60/2008-like, which is included as an influenza B component of the 2015-2016 Northern Hemisphere quadrivalent influenza vaccines.

## Neuraminidase Inhibitor Resistance Testing Results on Samples Collected Since October 1, 2015

|                        | Oseltamivir              |                               | Zanamivir                |                               | Peramivir                |                               |
|------------------------|--------------------------|-------------------------------|--------------------------|-------------------------------|--------------------------|-------------------------------|
|                        | Virus Samples tested (n) | Resistant Viruses, Number (%) | Virus Samples tested (n) | Resistant Viruses, Number (%) | Virus Samples tested (n) | Resistant Viruses, Number (%) |
| Influenza A(H1N1)pdm09 | 452                      | 2 (0.4)                       | 341                      | 0 (0.0)                       | 452                      | 2 (0.4)                       |
| Influenza A (H3N2)     | 307                      | 0 (0.0)                       | 307                      | 0 (0.0)                       | 278                      | 0 (0.0)                       |
| Influenza B            | 269                      | 0 (0.0)                       | 269                      | 0 (0.0)                       | 269                      | 0 (0.0)                       |

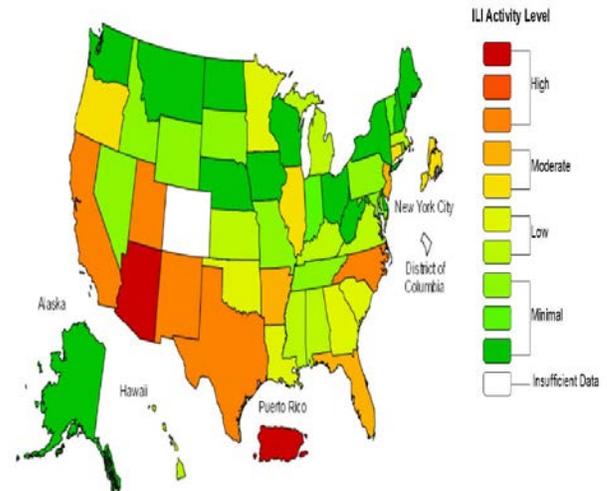
### Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists\*

Week ending February 20, 2016 - Week 7



\* This map indicates geographic spread & does not measure the severity of influenza activity

### Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet 2015-16 Influenza Season Week 7 ending Feb 20, 2016



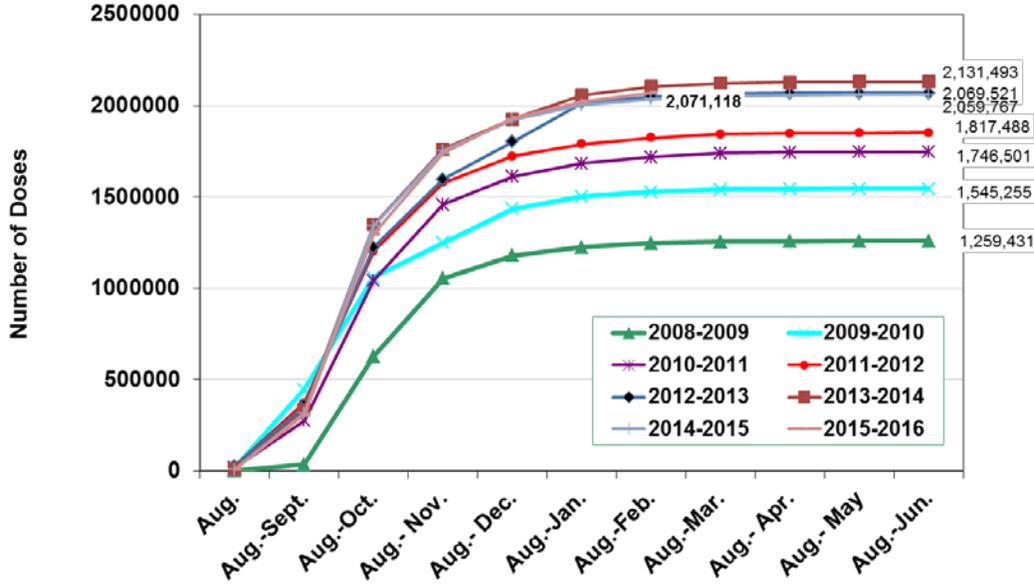
\*This map uses the proportion of outpatient visits to health care providers for influenza-like illness to measure the ILI activity level within state. It does not, however, measure the extent of geographic spread of flu within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels.



## Seasonal Influenza Vaccination in Wisconsin Based on Doses Reported to the Wisconsin Immunization Registry (WIR) February 26, 2016

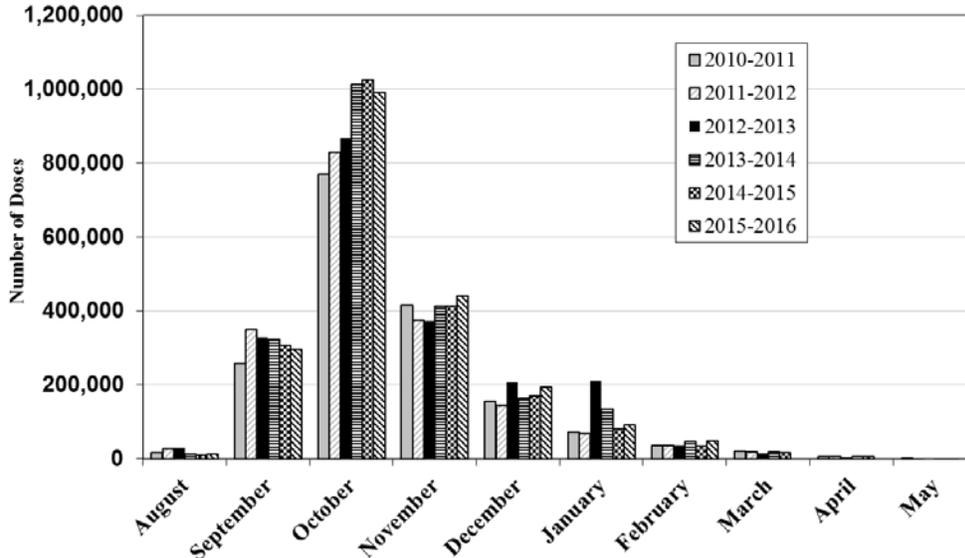
**Data for 2015-2016 Season Reported for 8.1.15-2.25.2016**

**Cumulative Doses of Seasonal Influenza Administered and Reported to the WIR,  
2008-2016 Influenza Seasons**



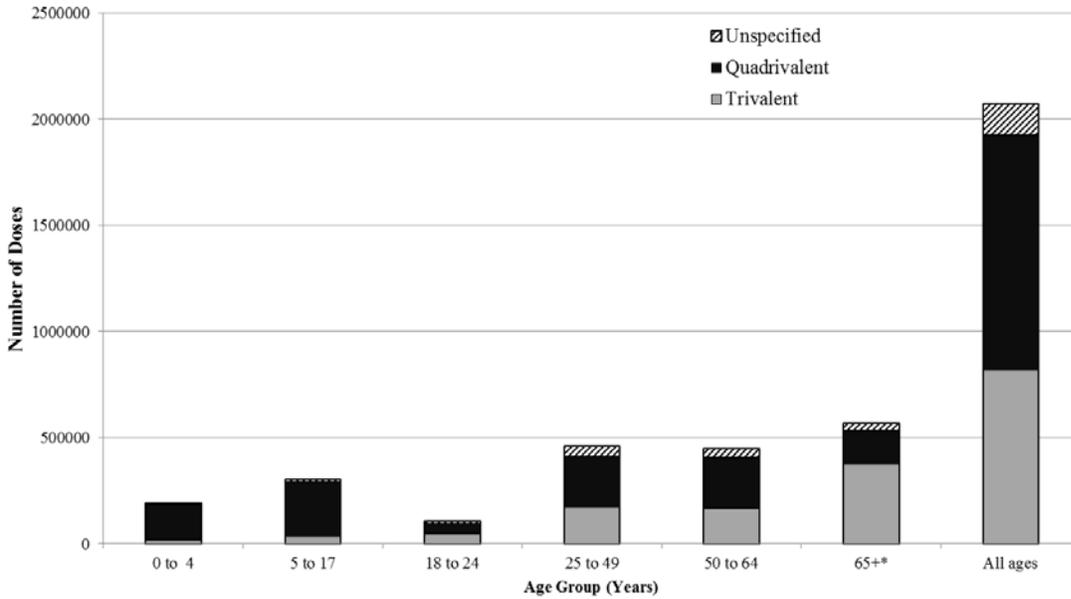
Data source: WIR  
2014-2015 data 8.1.14 through 2.25.16

**Number of Doses of Seasonal Influenza Vaccine Administered and Reported  
to the WIR, by Month for Influenza Seasons 2010-2016**



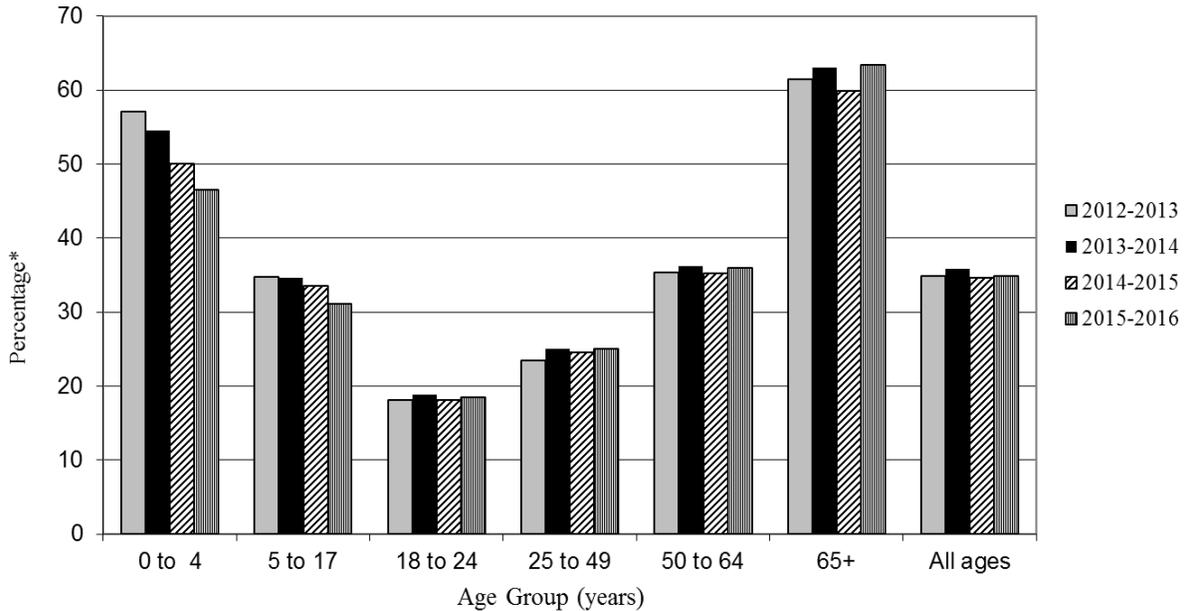
\*Data source: WIR,  
2015-2016 data through 2.25.2016

### Doses of Seasonal Influenza Vaccine Administered and Reported to WIR by Age Group and Vaccine Type, 2015-2016 Influenza Season



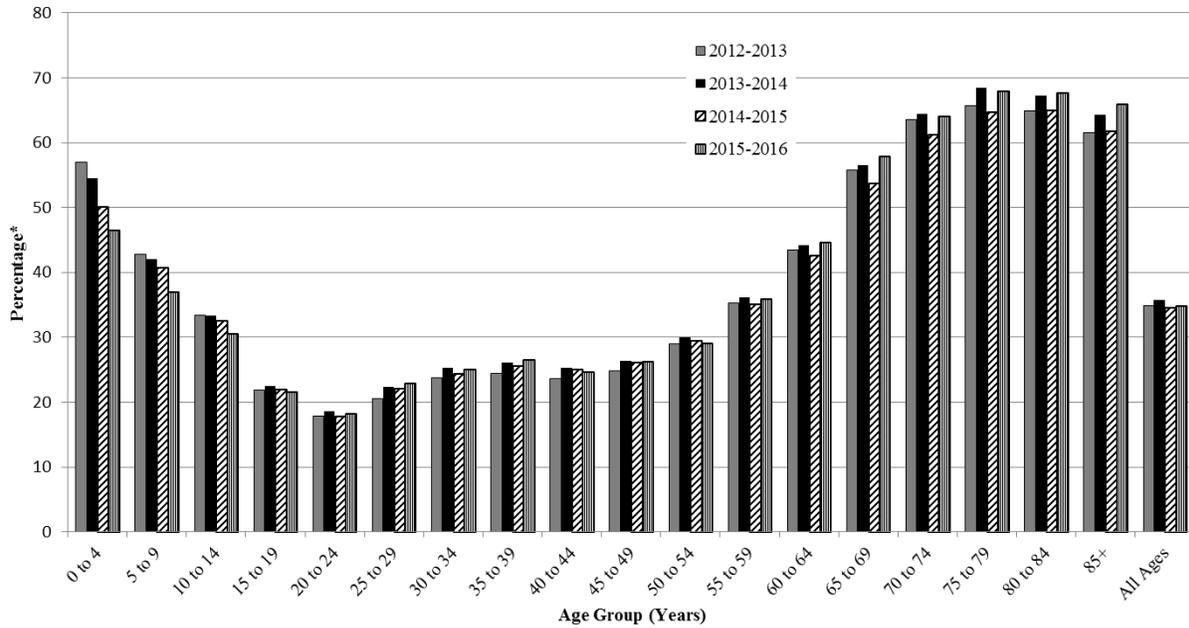
\*Of trivalent influenza doses administered between 8/1/15 and 2/25/2016 and received by adult clients aged 65 years and older, 67.1% of the doses were high dose influenza vaccine.

### Rates of Influenza Vaccination in Wisconsin by Age Group, 2011-2016 Influenza Seasons, Based on Doses Reported to the Wisconsin Immunization Registry (WIR)



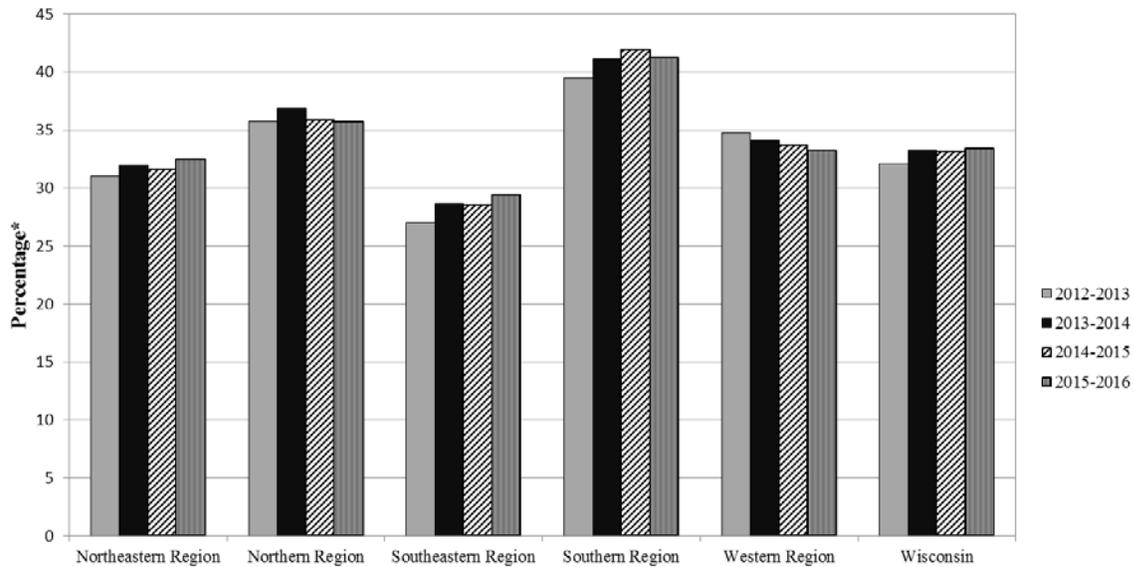
\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 12/2/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 6/11/15, assessed 6/12/2015. For 2015-2016, doses administered between 8/1/15 to 2/25/2016, assessed 2/26/2016. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.

**Rates of Influenza Vaccination in Wisconsin by Age Group, 2011-2016 Influenza Seasons, Based on Doses Reported to the Wisconsin Immunization Registry (WIR)**



\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 12/2/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 6/11/15, assessed 6/12/15. For 2015-2016 season, doses administered between 8/1/15 to 2/25/16, assessed 2/26/16. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.

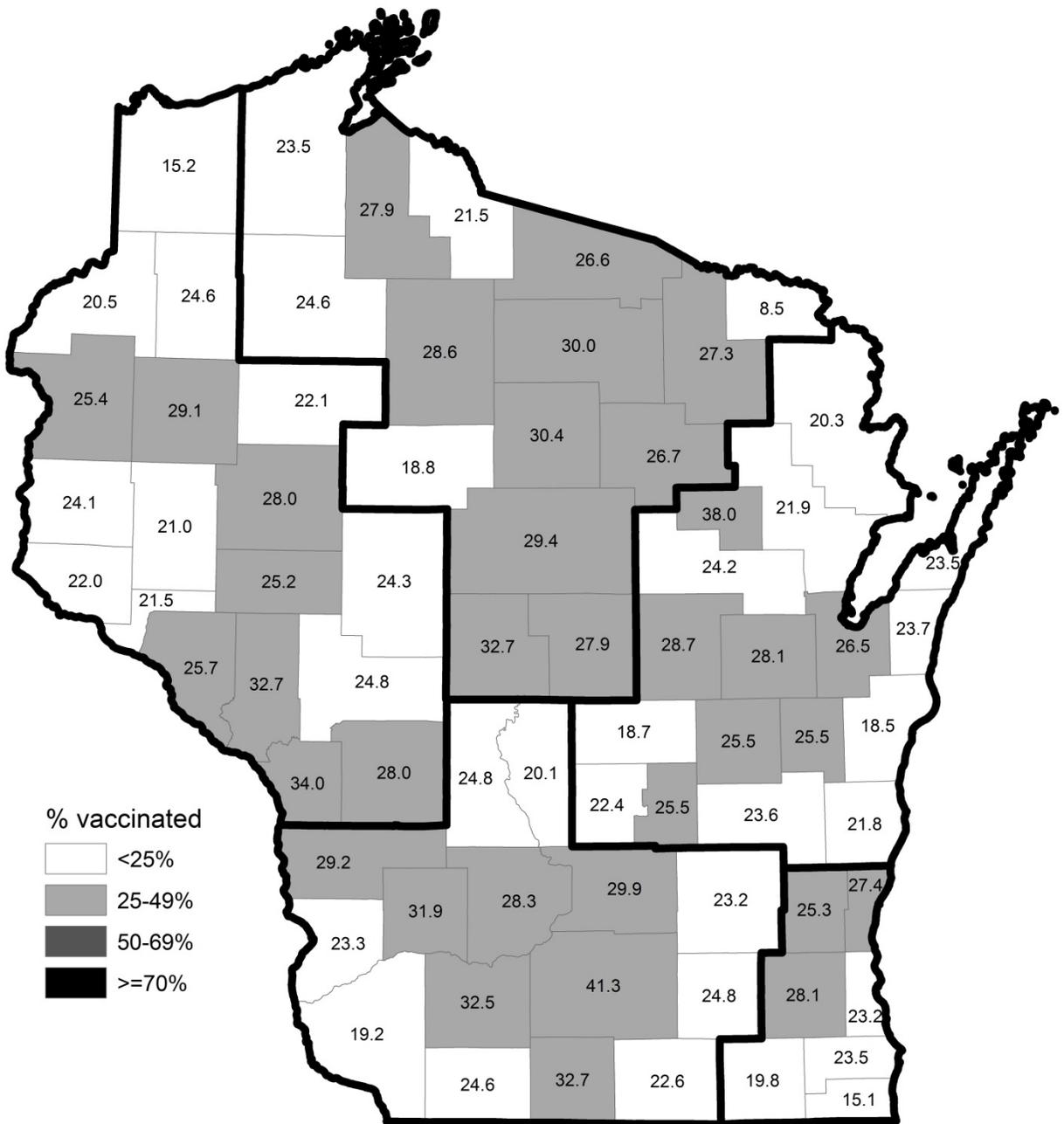
**Rates of Influenza Vaccination in Wisconsin by Region, 2011-2016 Influenza Seasons, Based on Doses Reported to the Wisconsin Immunization Registry (WIR)**



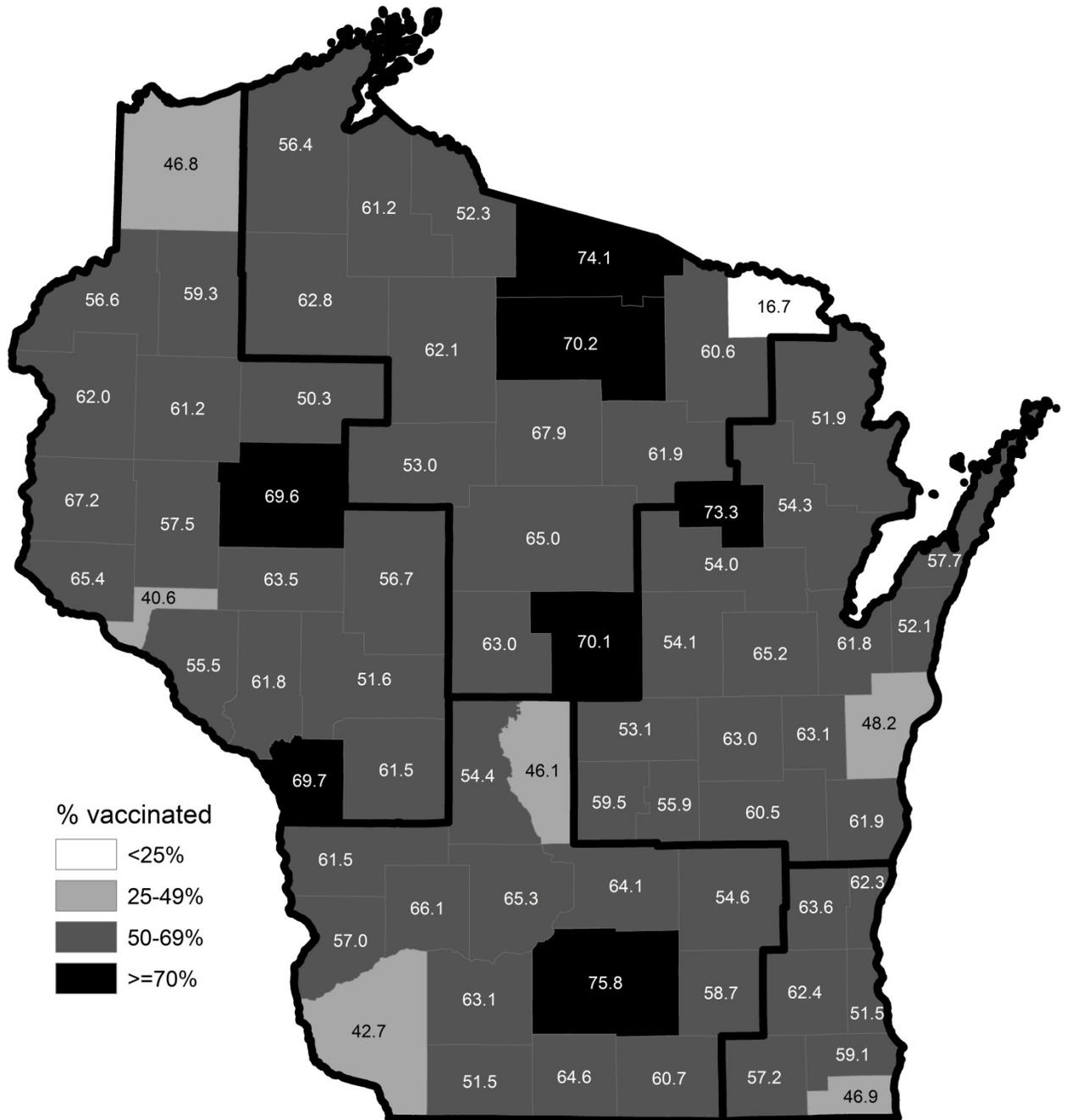
\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by region. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 11/27/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 6/11/15, assessed on 6/12/15. For 2015-2016, doses administered between 8/1/15 to 2/25/2016, assessed on 2/26/2016. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by region.



# Age 19-64 Years



## Age ≥65 Years



- These graphs include only doses of seasonal influenza vaccine administered and reported to the Wisconsin Immunization Registry (WIR).
- Data for 2015-16 season is incomplete because of the expected lag between the vaccine administration date and the date reported to the WIR, which may be as short as one day or as long as several months, depending on the submitter. Therefore, the current season's data will be adjusted as additional data is received.
- While use of the WIR is not mandatory, the WIR receives data from a variety of sources, including health care providers, health maintenance organizations, local health departments and tribal health centers/clinics, schools and pharmacies.
- For additional information regarding the immunization data, please contact Ashley Petit, epidemiologist, with the Wisconsin Immunization Program at (608) 266-7797.