



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



**Respiratory virus surveillance report for the week ending March 12, 2016 week 10-16**

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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)	Low
Northwestern Region	High
Northeastern Region	Moderate
Southeastern Region	Moderate
Southern Region	Moderate

- 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 10-16</u>	<u>Total to Date</u>
Wisconsin	0	0
Nationwide	8	27

***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).

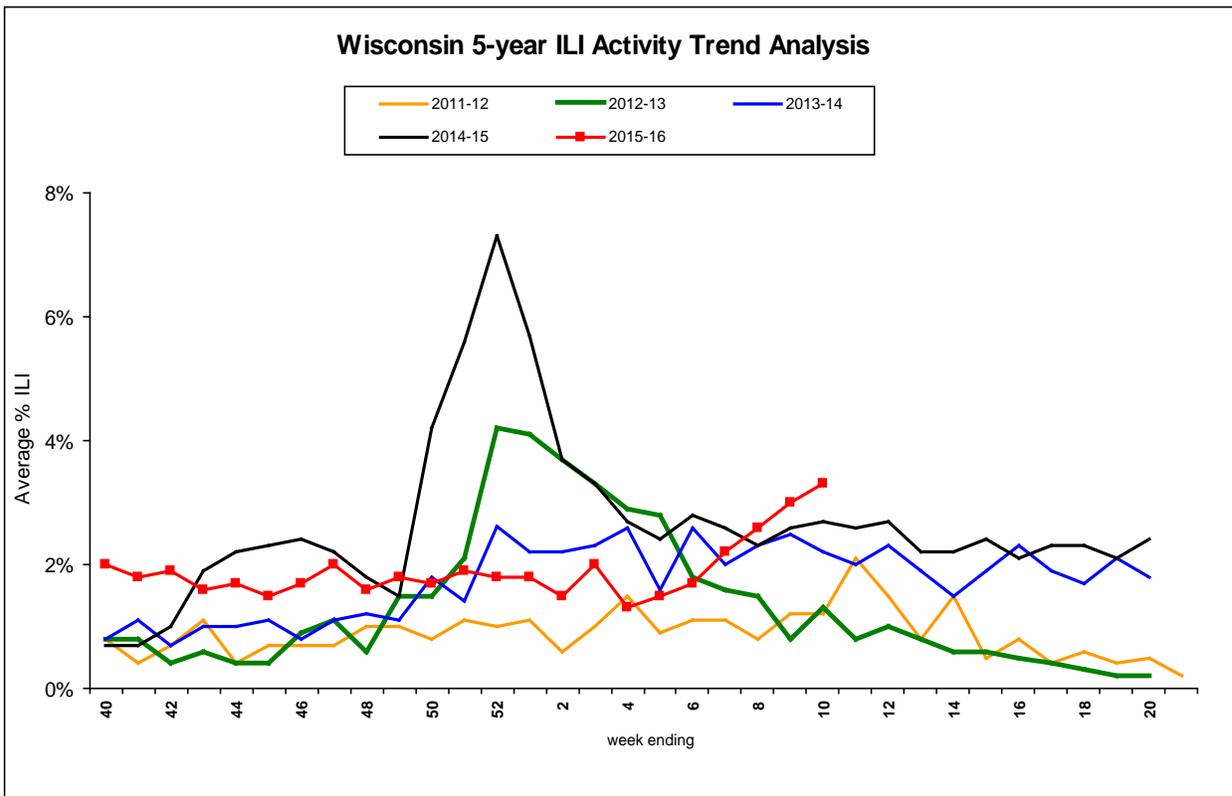
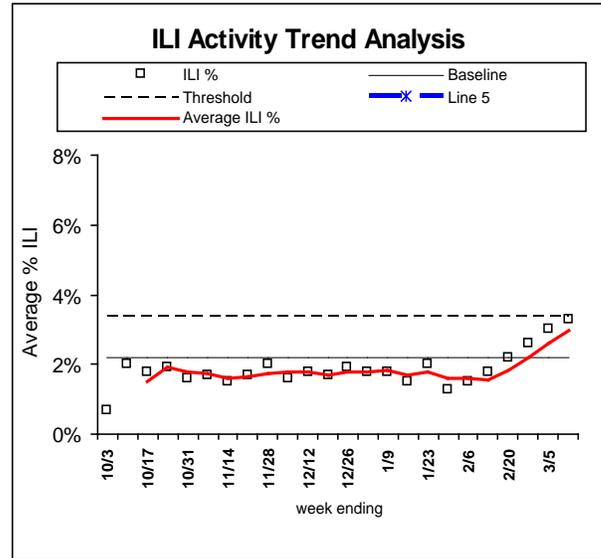
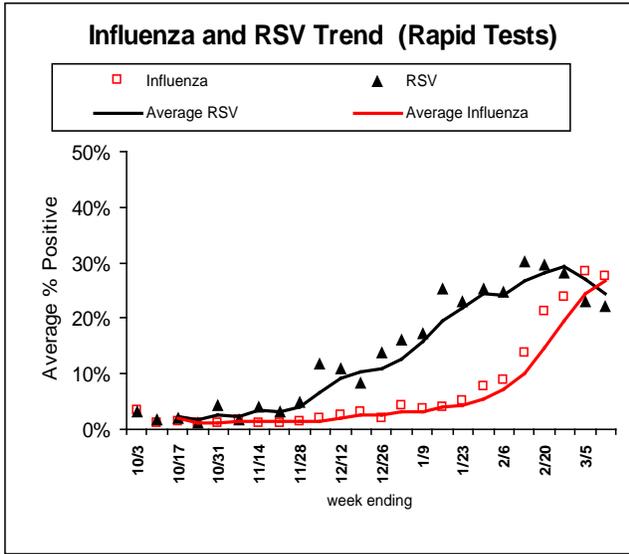
It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and;

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

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

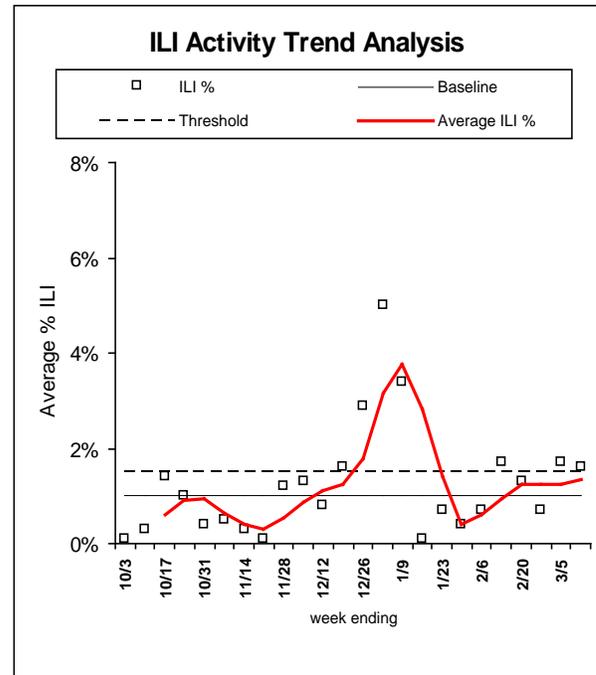
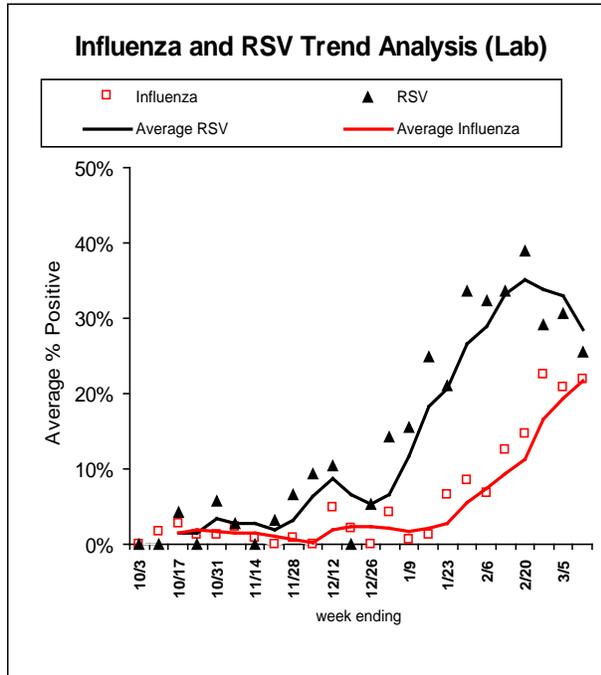
**Wisconsin (ILI activity is Moderate)**

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							
3050	772	69	841	27.6%	474	105	22.2%	3.3%	2.2%	3.4%



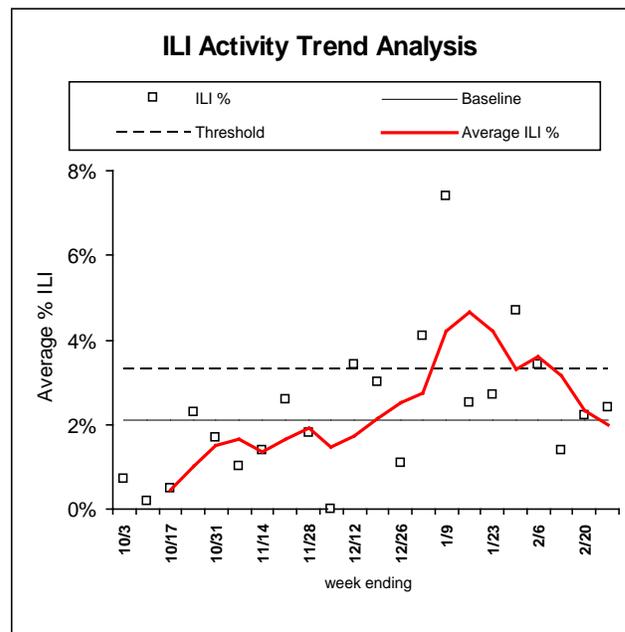
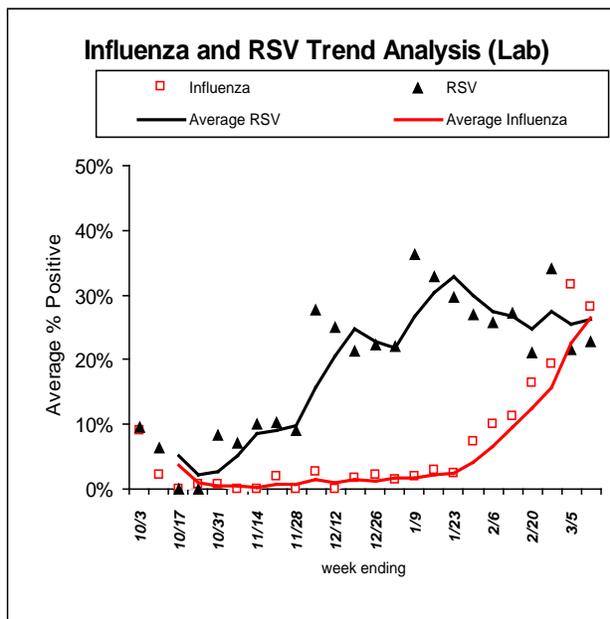
**Northwestern Region (ILI activity is High)**

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							
822	165	15	180	21.9%	208	53	25.5%	1.6%	1.0%	1.5%



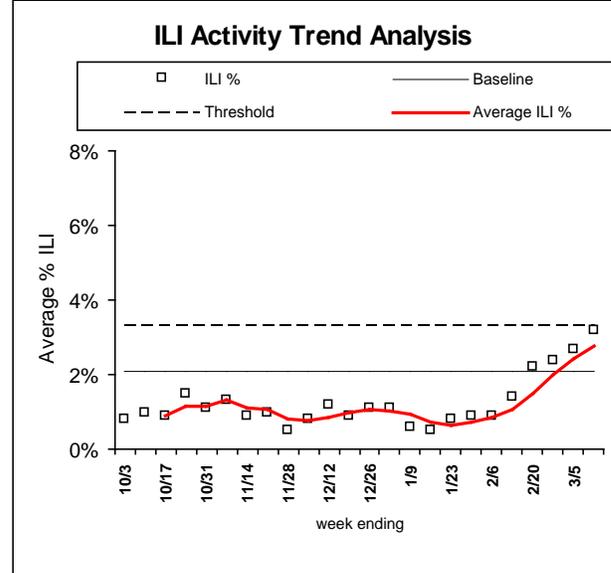
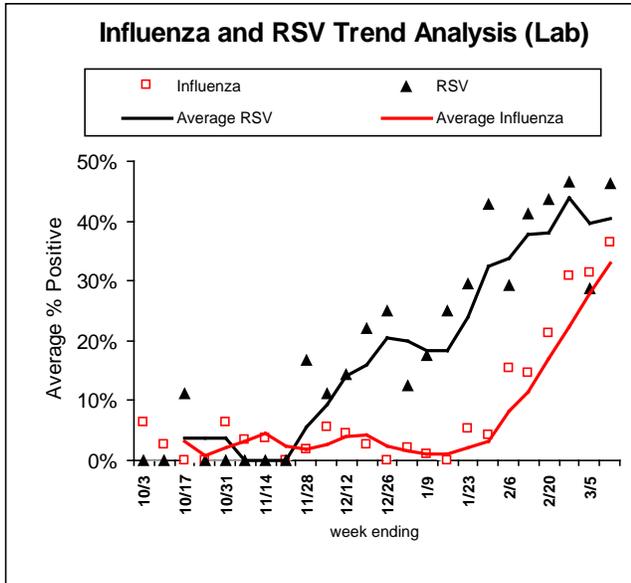
**Northeastern Region (ILI activity is Moderate)**

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							
566	151	9	160	23.8%	105	24	22.9%	2.2%	2.1%	3.3%



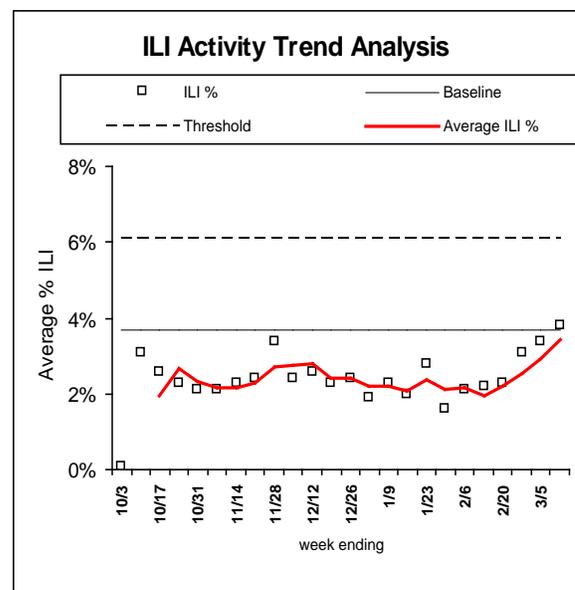
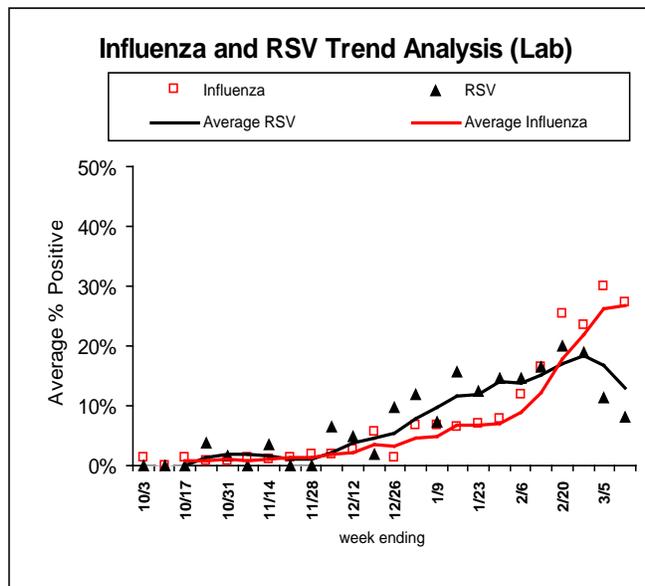
**Southern Region (ILI activity is Moderate)**

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							
516	174	14	188	36.4%	39	18	46.2%	3.2%	2.1%	3.5%



**Southeastern 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							
1146	282	31	313	27.3%	122	10	8.2%	3.8%	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.**

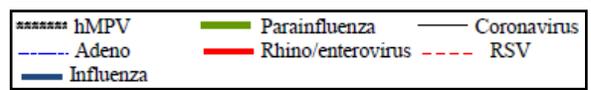
**LABORATORY SURVEILLANCE FOR RESPIRATORY VIRUSES (PCR)**

Respiratory Virus	Tested	Positive	% Positive	Flu A			Flu B		
				H3	pd2009 H1	Unk	Yamagata	Victoria	Unk
Influenza	3236	1044	32.3%	4	401	564	8	7	60

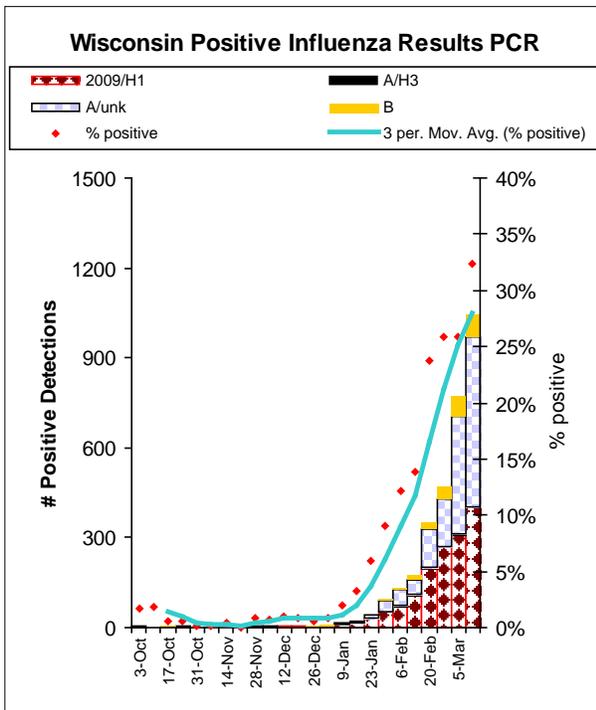
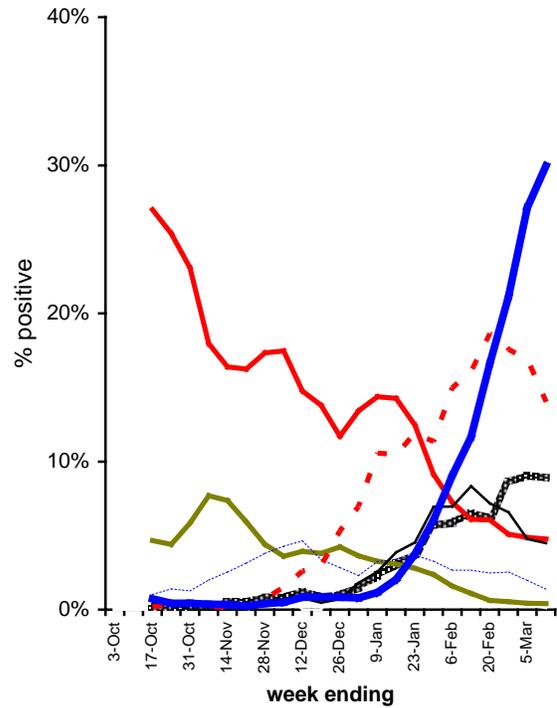
Respiratory Virus	Tested	Positive	% Positive	PI-1	PI-2	PI-3	PI-4
Parainfluenza	2257	3	0.1%	3	0	0	0

Respiratory Virus	Tested	Positive	% Positive	CoV-229E	CoV-OC43	CoV-NL63	CoV-HKU1
Coronavirus	442	22	5.2%	1	5	10	6

Respiratory Virus	Tested	Positive	% Positive
RSV	1425	152	10.7%
Human Metapneumovirus	921	64	6.9%
Rhino-entero	836	45	5.4%
Adenovirus	442	3	0.7%



**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	1472	40	1418	36	25	197	3188
% of Total number positive	46%	1%	45%	1%	<1%	6%	100%

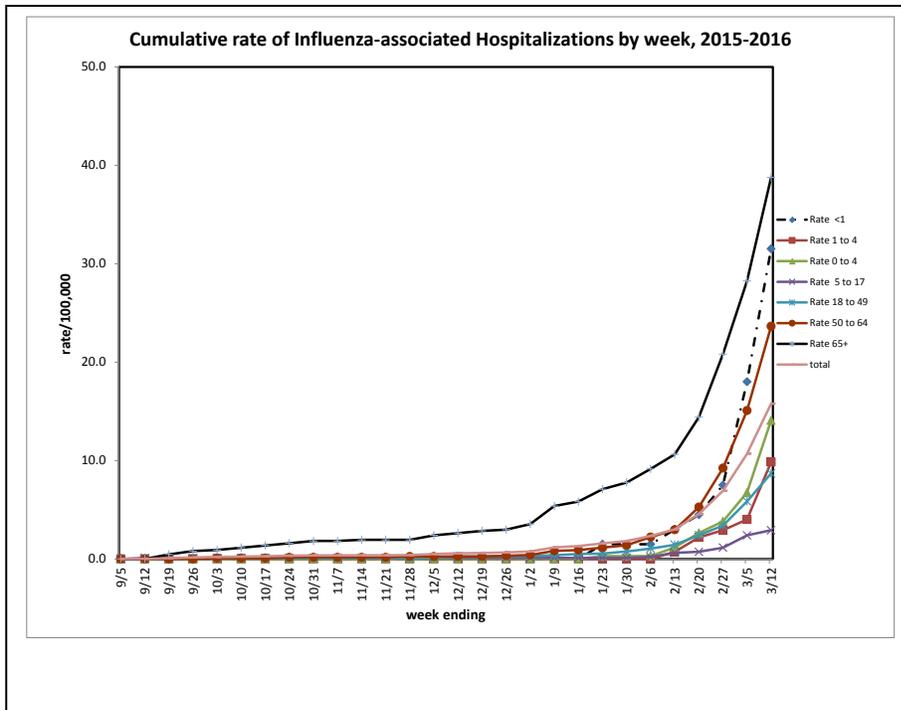
### Influenza-associated Hospitalizations, September 1, 2015 to present

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	24	5	0	15	1	3	1	0	
1 to 4	44	7	0	28	3	6	6	0	
5 to 17	33	10	0	19	2	2	1*	3	
18 to 49	272	60	1	179	11	21	59	21	14
50 to 64	408	73	1	281	21	32	79	21	
65 and over	475	96	6	300	45	28	100	28	
<b>Total</b>	<b>1256</b>	<b>251</b>	<b>8</b>	<b>822</b>	<b>83</b>	<b>92</b>	<b>246</b>	<b>73</b>	<b>14</b>

\*number may not be accurate

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

Region	Last 7 days	Season Total
Southeastern		568
Southern		315
Northeastern		174
Western		139
Northern		60
Wisconsin		1256



#### Incidence/100,000

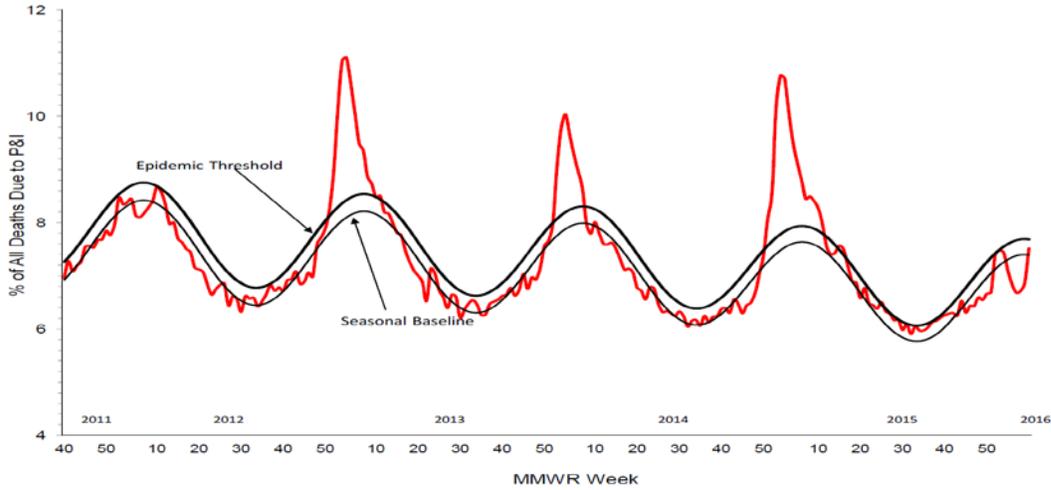
Age group	Wisconsin	National
<1	31.5	NA
1 to 4	9.8	NA
0 to 4	14.1	20.9
5 to 17	2.9	4.8
18 to 49	8.7	7.8
50 to 64	23.6	21.3
65+	38.8	37.2
total	15.8	14.5

## NATIONAL INFLUENZA SURVEILLANCE

### NCHS Mortality Surveillance Data:

Based on NCHS mortality surveillance data available on March 17, 2016, 7.5% of the deaths occurring during the week ending February 27, 2016 (week 8) were due to P&I. This percentage is below the epidemic threshold of 7.7% for week 8.

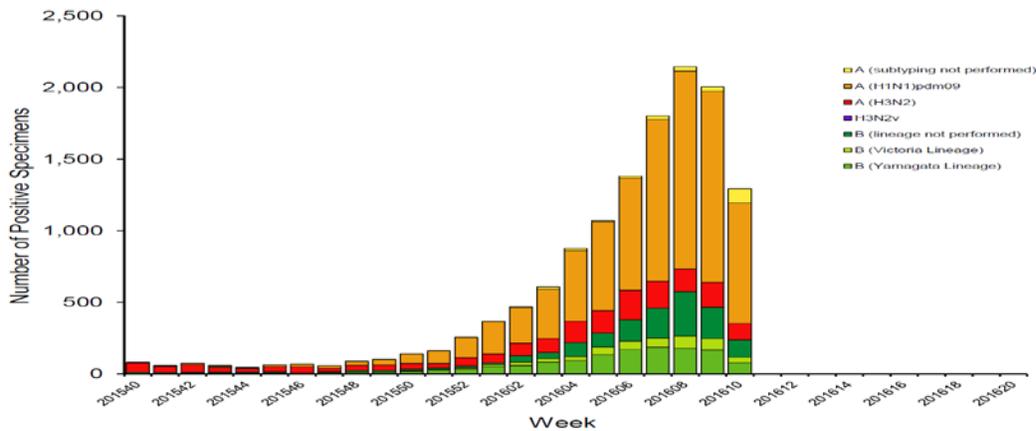
**Pneumonia and Influenza Mortality from the National Center for Health Statistics Mortality Surveillance System Data through the week ending February 27, 2016, as of March 17, 2016**



	Week 10	Data Cumulative since October 4, 2015 (week 40)
<b>No. of specimens tested</b>	2,027	43,313
<b>No. of positive specimens*</b>	1,294	13,271
<b>Positive specimens by type/subtype</b>		
<b>Influenza A</b>	1,055 (81.5%)	10,018 (75.5%)
<b>A(H1N1)pdm09</b>	843 (79.9%)	7,849 (78.3%)
<b>H3</b>	114 (10.8%)	1,902 (19.0%)
<b>Subtyping not performed</b>	98 (9.3%)	267 (2.7%)
<b>Influenza B</b>	239 (18.5%)	3,253 (24.5%)
<b>Yamagata lineage</b>	79 (33.1%)	1,333 (41.0%)
<b>Victoria lineage</b>	37 (15.5%)	503 (15.5%)
<b>Lineage not performed</b>	123 (51.5%)	1,417 (43.6%)

\*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 [741]

- **A (H1N1)pdm09 [446]:** All 446 (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) [295]:** All 295 influenza A (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 119 influenza A (H3N2) viruses also were antigenically characterized: 112 of 119 (94.1%) H3N2 viruses were A/Switzerland/9715293/2013-like by HI testing or neutralization testing.

### Influenza B Virus [357]

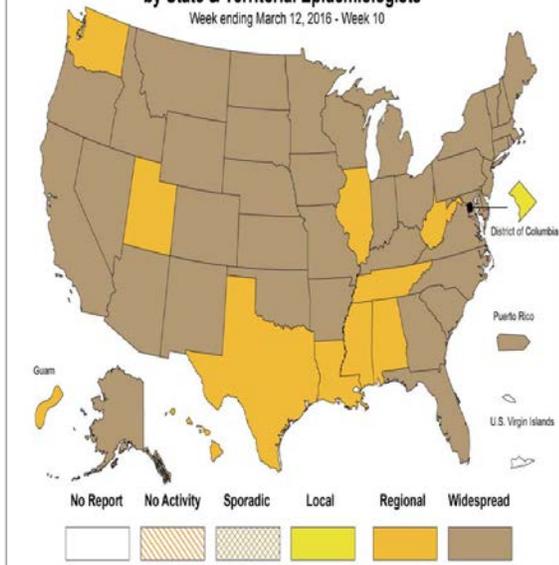
- **Yamagata Lineage [239]:** All 239 (100%) influenza B/Yamagata-lineage viruses were antigenically characterized as B/Phuket/3073/2013-like, which is included as an influenza B component of the 2015-2016 Northern Hemisphere trivalent and quadrivalent influenza vaccines.
- **Victoria Lineage [118]:** 117 of 118 (99.2%) influenza 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	844	4 (0.5)	453	0 (0.0)	844	4 (0.5)
Influenza A (H3N2)	361	0 (0.0)	361	0 (0.0)	332	0 (0.0)
Influenza B	409	0 (0.0)	409	0 (0.0)	409	0 (0.0)

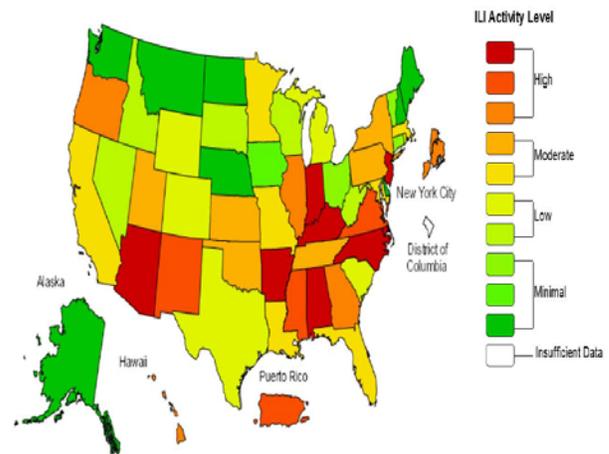
### Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists\*

Week ending March 12, 2016 - Week 10



\* 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 10 ending Mar 12, 2016

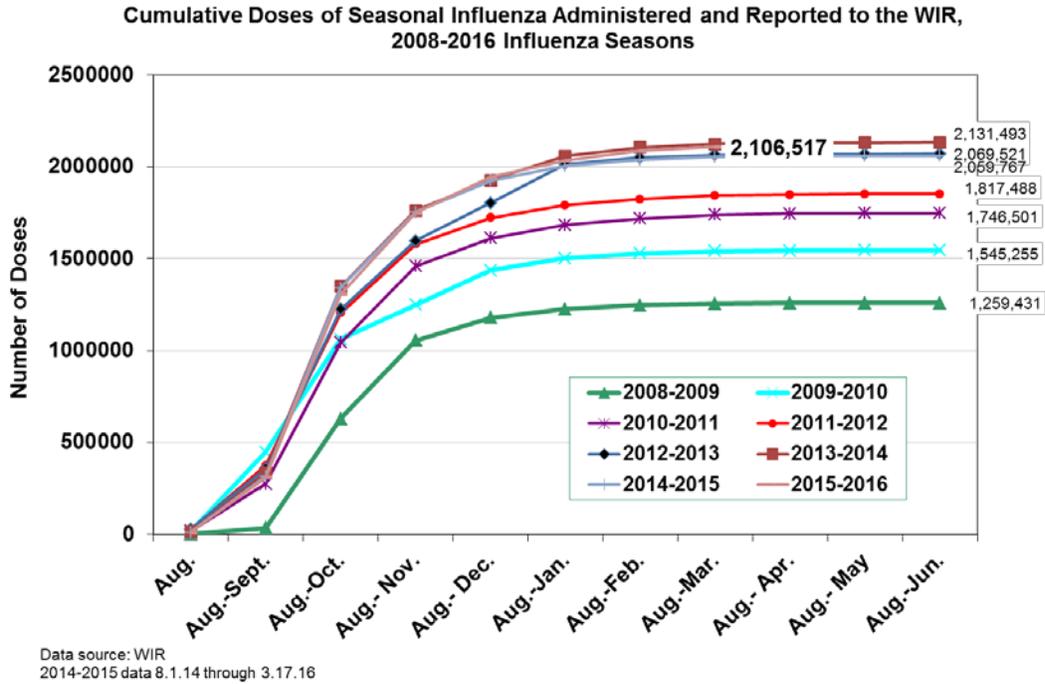


\*This map uses the proportion of outpatient visits to health care providers for influenza-like illness to measure the ILI activity level within state. It does not, however, measure the extent of geographic spread of flu within a state. Therefore, outbreaks occurring in a single city could cause the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

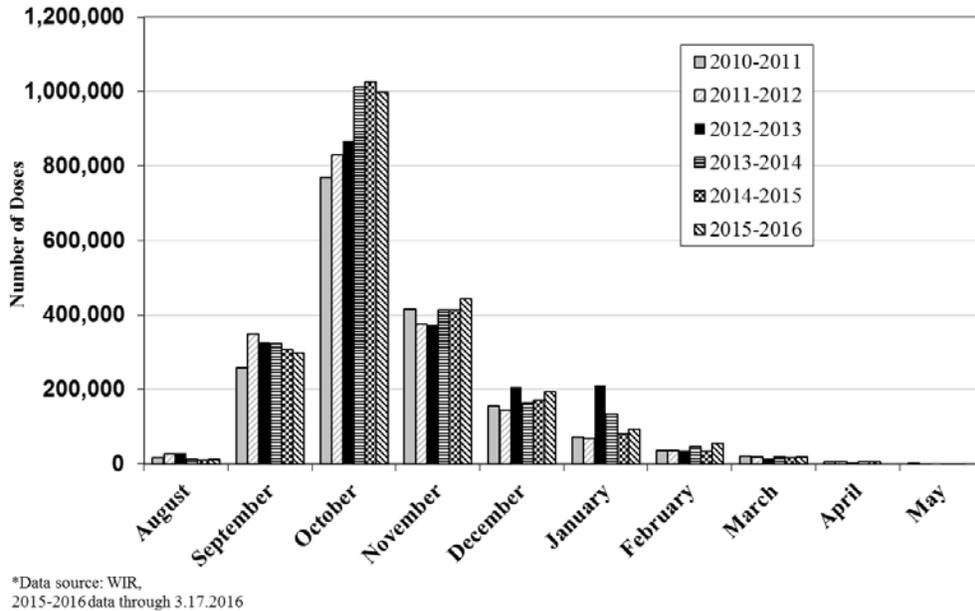


### Seasonal Influenza Vaccination in Wisconsin Based on Doses Reported to the Wisconsin Immunization Registry (WIR) March 18, 2016

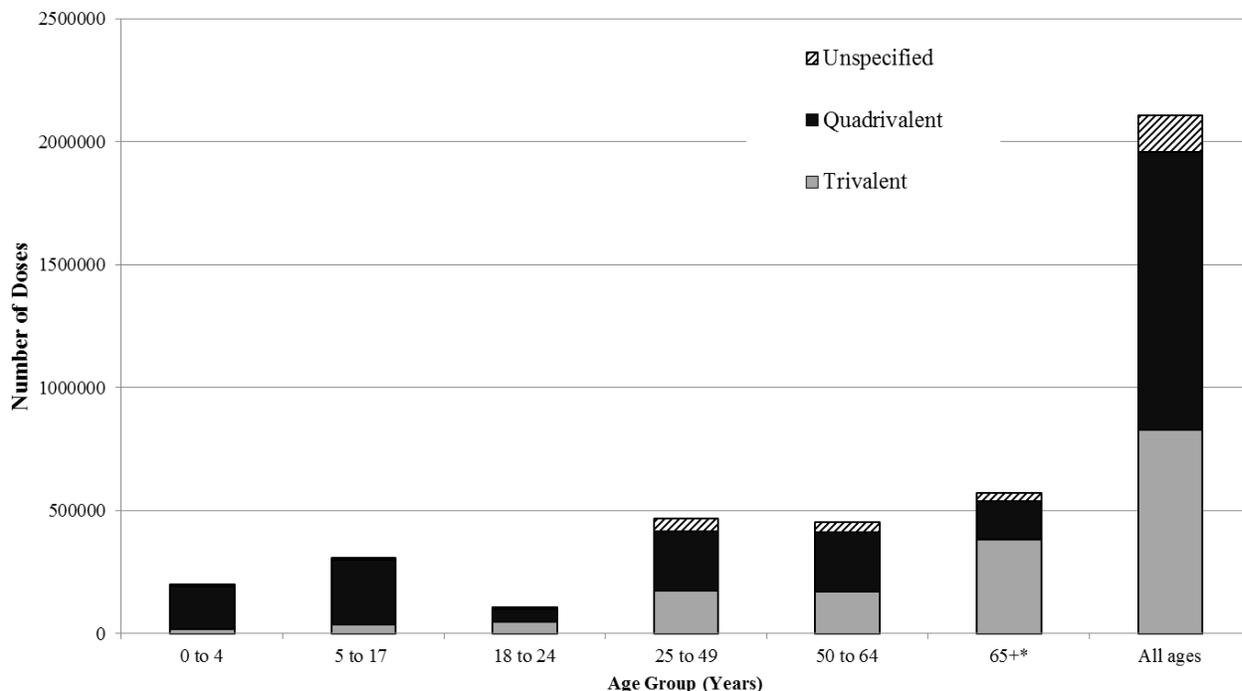
Data for 2015-2016 Season Reported for 8.1.15-3.17.2016



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

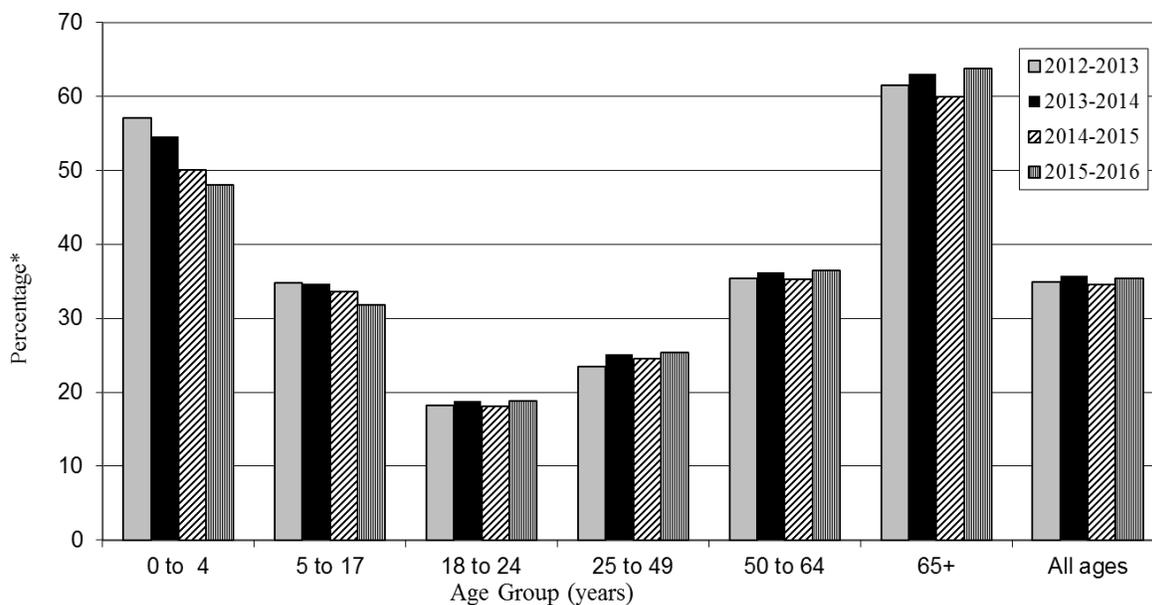


## Doses of Seasonal Influenza Vaccine Administered and Reported to WIR by Age Group and Vaccine Type, 2015-2016 Influenza Season



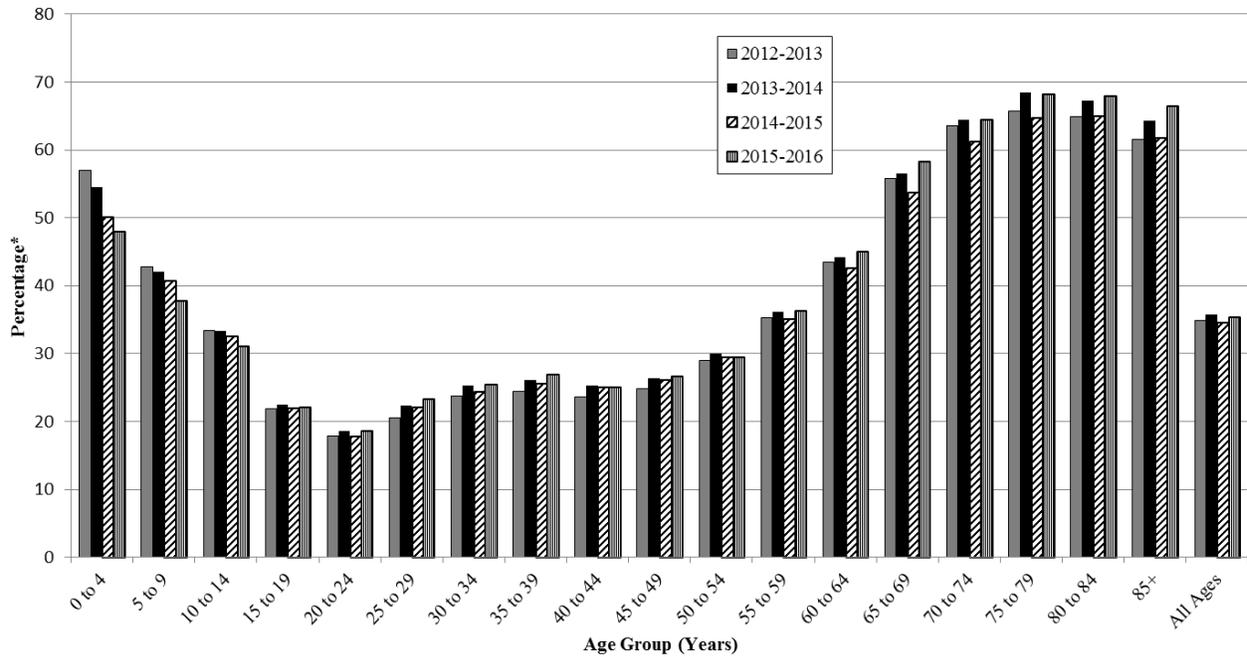
\*Of trivalent influenza doses administered between 8/1/15 and 3/17/2016 and received by adult clients aged 65 years and older, 67.0% of the doses were high dose influenza vaccine.

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



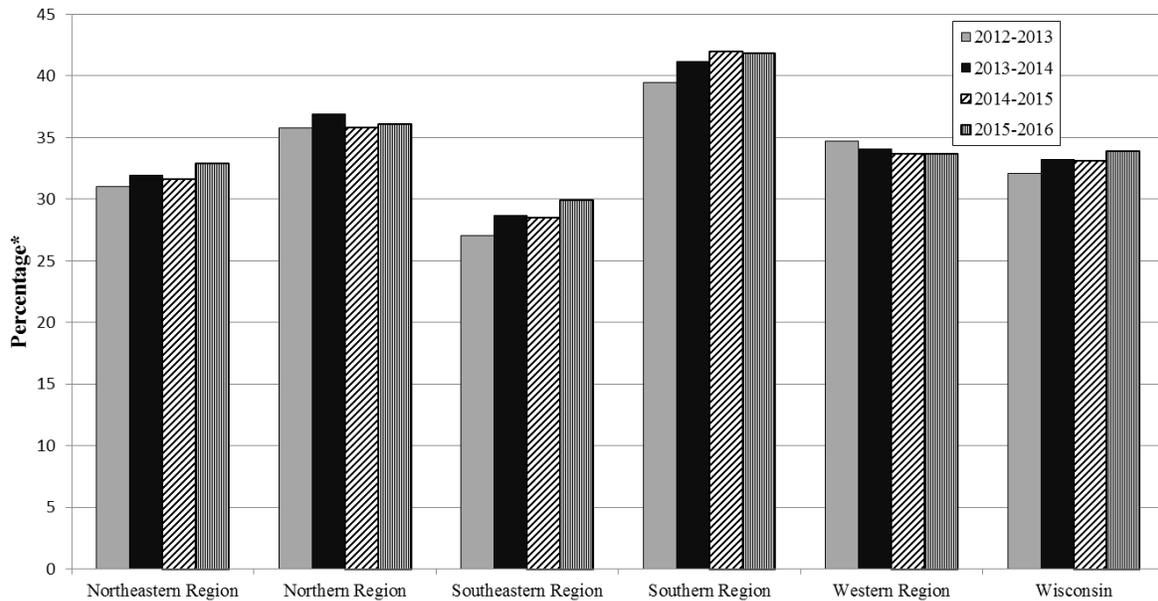
\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 12/2/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 6/11/15, assessed 6/12/15. For 2015-2016, doses administered between 8/1/15 to 3/17/2016, assessed 3/18/2016. 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 3/17/16, assessed 3/18/16. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.

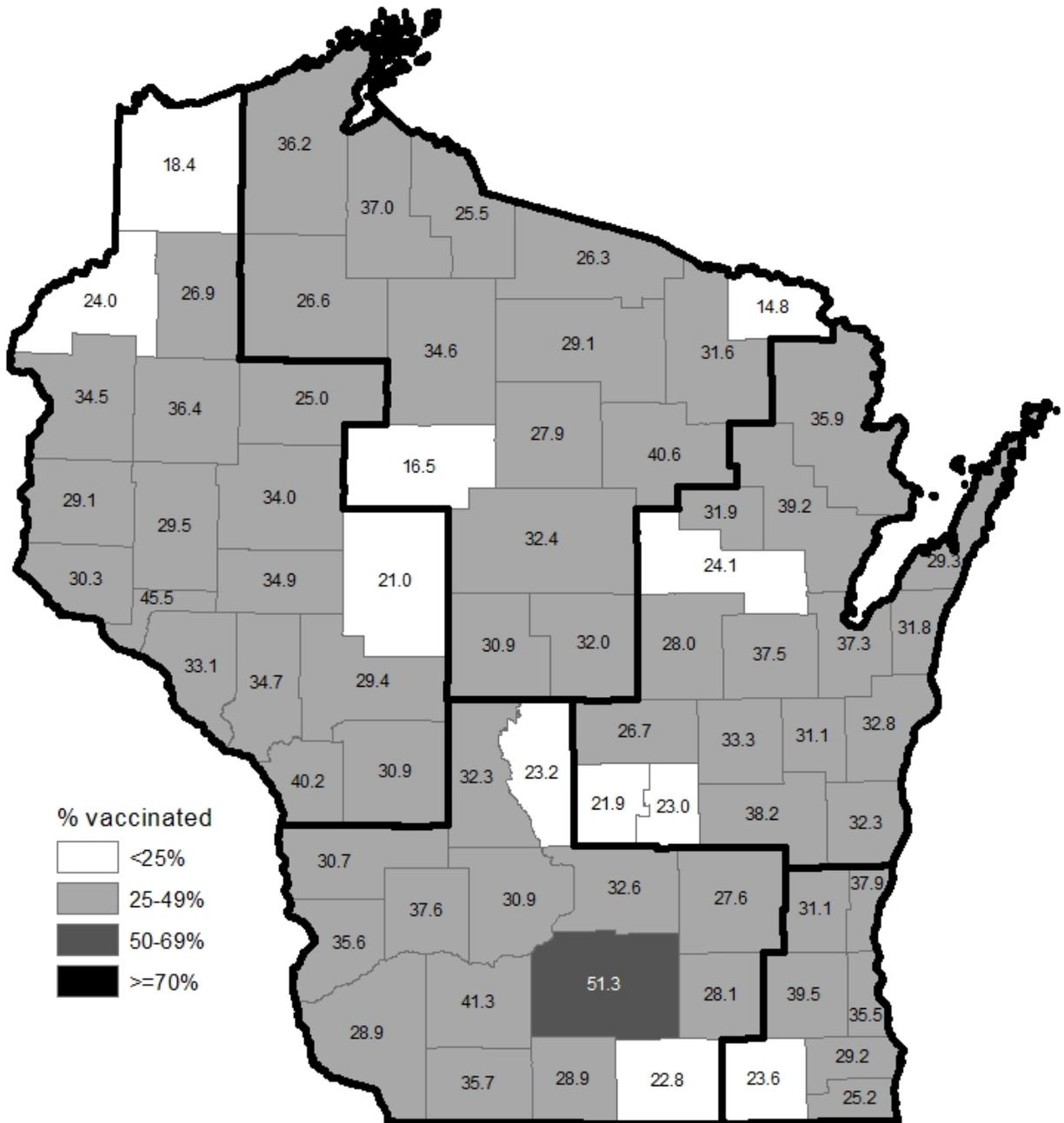
**Rates of Influenza Vaccination in Wisconsin by Region, 2011-2016 Influenza Seasons, Based on Doses Reported to the Wisconsin Immunization Registry (WIR)**



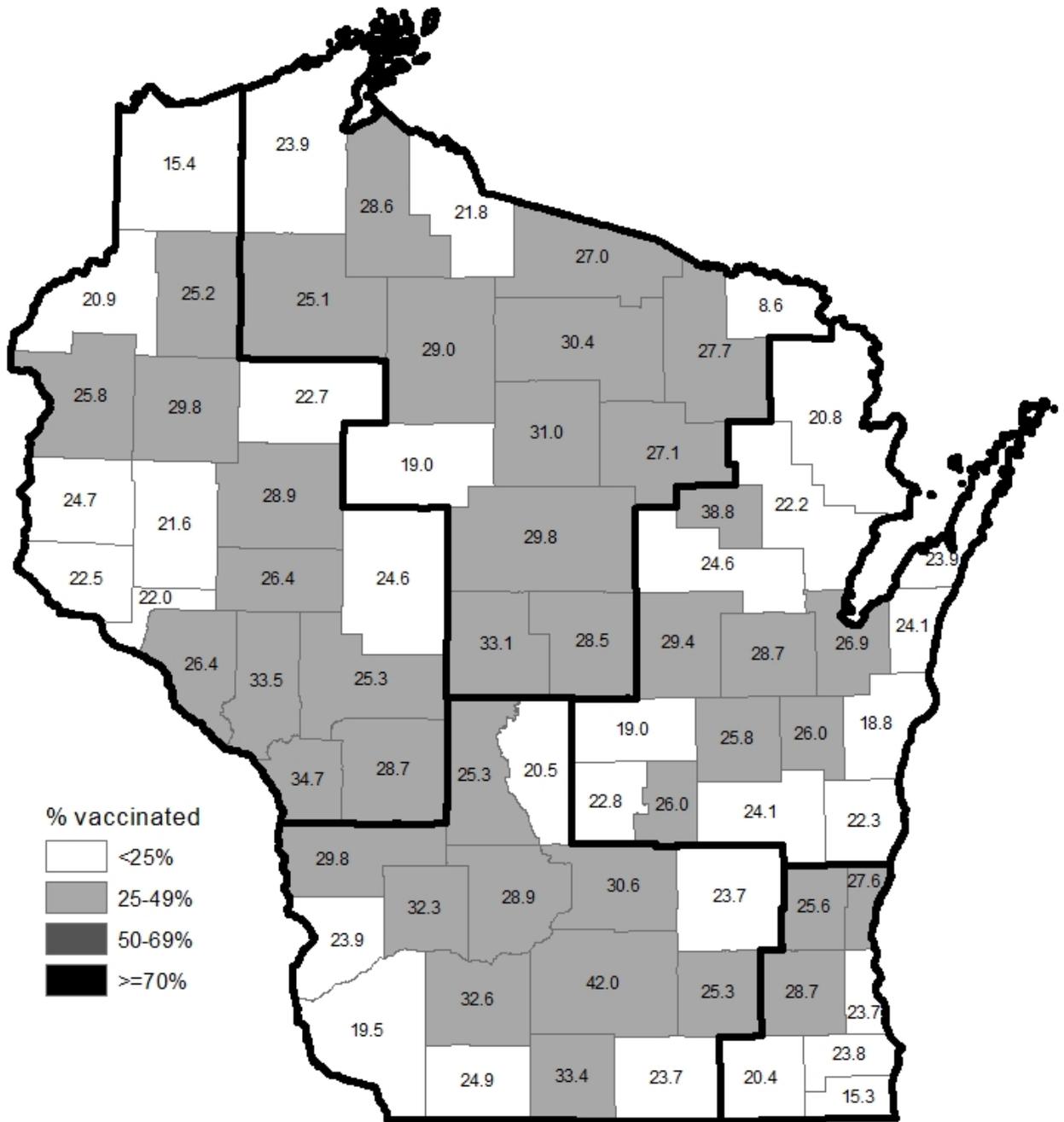
\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by region. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 11/27/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, 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 3/17/2016, assessed on 3/18/2016. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by region.

Percentage of Wisconsin residents who have received one or more doses of influenza vaccine during August 1, 2015–March 17, 2016, by age and county of residence

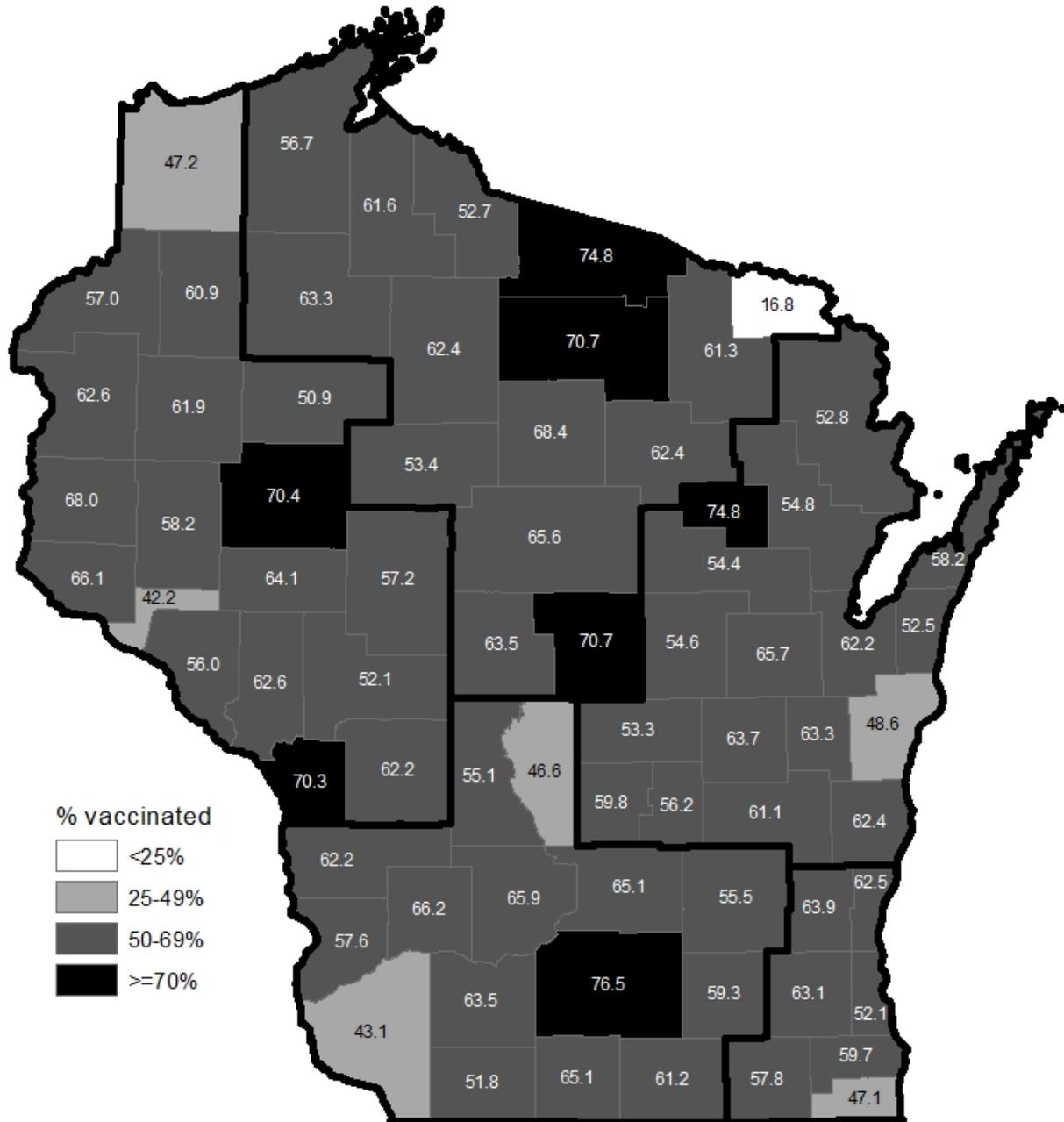
**Age <19 Years**



# 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.