



Influenza Epidemiology Summary Report RI 2007-2008

RI Department of Health (HEALTH)
Center for Epidemiology
Office of Communicable Diseases

Table of Contents

1. Synopsis	Page 1
2. RI Influenza Surveillance Systems	Page 2
3. Influenza Sentinel Provider Surveillance System	Page 3
4. Rhode Island Influenza Rapid Testing Surveillance	Page 6
5. HEALTH Laboratory Surveillance for Influenza	Page 10
6. Influenza Hospitalizations	Page 10
7. Institutional Clusters and Outbreaks Surveillance	Page 12
8. Real-time Outbreak and Disease Surveillance System	Page 13
9. Influenza-Associated Pediatric Mortality	Page 13
10. Pneumonia and Influenza Mortality	Page 13
11. Avian Influenza (H5N1) Current Information	Page 14
12. List of Sentinel Providers	Page 17
13. References	Page 18
14. Appendix A: Estimated Level of Influenza Activity	Page 19
15. Appendix B: Infection Control Measures during Influenza Outbreaks	Page 20
16. Appendix C: MMWR Week Number and Corresponding dates for 2007-08	Page 21
17. Appendix D: Glossary	Page 22
18. Appendix E: For More Information	Page 23

Synopsis

This report summarizes seasonal influenza surveillance observations for Rhode Island from September 30, 2007 to May 17, 2008 and compares them with the 2004-05, 2005-06, and 2006-07 seasons. The 2007-08 season was more severe with regard to morbidity and mortality than the three previous seasons. Influenza activity peaked in February - March 2008, 2 months later than the peak noted in the previous season. The influenza-like illness rate reached a peak of 4.10% in week 6 (February 3, 2008-February 9, 2008), markedly higher than the highest level reported from the prior season of 2.42%. The majority of the influenza-like illness cases were reported among the 5-24 and 25-64 age groups. This trend is consistent with hospitalization records, which show the highest outpatient visits among the 19-34 age group. However, inpatient hospitalization was disproportionately higher among the ≥ 65 age group. Both influenza type A and type B viruses predominated this season in Rhode Island consistent with findings at the regional and national levels. Influenza type B viruses were also detected in patient cases. Simultaneous circulation of both A and B strains, coupled with a vaccine mis-match led to a season with higher morbidity and long duration.

This summary is based on data reported by: the Centers for Disease Control (CDC), the World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories (of which the RI State Laboratory is a member), the RI influenza sentinel provider network, the 121 Cities Mortality Reporting System (of which Providence is a city), the Real-Time Outbreak & Disease Surveillance System (RODS), reports of Institutional Clusters/Outbreaks, and data submitted by point of care testing locations, hospital laboratories and the State Laboratory.

RI Influenza Surveillance Systems

The goal of surveillance is to assess annual influenza activity levels, measure mortality impact, characterize circulating influenza strains to guide anti-viral therapy, determine whether the vaccine strain for the annual formulation is a match with the circulating strain, and detect pandemic strains. In Rhode Island the following surveillance systems are closely monitored:

- 1. Influenza Sentinel Provider Surveillance System:** Currently, 17 Rhode Island sentinel providers are participating in the HEALTH/CDC surveillance system (Table 2, page 17). The sentinel system combines both laboratory testing and the weekly reporting of influenza-like illness cases (by age group) as a proportion (percentage) of all patients seen in their respective practices. An influenza-like illness (ILI) is defined as a fever ($\geq 100^{\circ}\text{F}$ or 37.8°C), and cough and/or sore throat in the absence of a known cause other than influenza. Sentinel providers submit weekly data to the Centers for Disease Control and Prevention (CDC) via the Internet or fax. Sentinel providers are also responsible for routine submission of swabs to the state laboratory for influenza virus detection by polymerase chain reaction (PCR) and culture testing.
- 2. Rhode Island Influenza Rapid Flu Test Surveillance:** Laboratories throughout the state that conduct rapid tests for influenza and fax results to the Department of Health, Office of Communicable Diseases. This reporting is on a voluntary basis.
- 3. HEALTH Laboratory Surveillance for Influenza:** Since 2004, the state laboratory has been typing and subtyping influenza A viruses using real time PCR techniques. The State virology laboratory was certified as a WHO accredited laboratory in 2005. Additionally, avian influenza, influenza associated pediatric deaths, outbreaks/clusters and their associated surveillance specimens are a priority for testing at the State virology lab.
- 4. Influenza Hospitalizations:** Influenza hospitalizations became reportable in Rhode Island in February 2006. Hospitals send information in a spreadsheet on a weekly basis via email or fax on each positive case of influenza. Variables include test date, gender, date of birth inpatient/outpatient location, type of test, and influenza type.
- 5. Institutional Clusters and Outbreaks Surveillance:** Institutional clusters and outbreaks are mandatory reportable events. By regulation 2 cases of ILI should trigger reporting for investigation and testing. An institutional cluster is defined as three (3) or more cases of laboratory confirmed influenza-like illness in a long-term care facility (LTCF), school or other congregate environment (Appendix B).
- 6. Real-time Outbreak and Disease Surveillance System:** The Rhode Island Department of Health has implemented syndromic surveillance using Real-time Outbreak and Disease Surveillance (RODS) system at major hospitals within the state. This allows real-time monitoring of chief complaints (from patients upon arrival in emergency departments) in the constitutional and respiratory syndrome category as indicators of flu activity among other syndromes.

7. **Influenza-Associated Pediatric Mortality:** Influenza-Associated Pediatric Mortality became a notifiable condition in Rhode Island in February 2006. Laboratory-confirmed influenza-associated deaths in children less than 18 years old are reported through the Nationally Notifiable Disease Surveillance System.
8. **Pneumonia and Influenza Mortality:** The City of Providence is included in the 121 Cities Pneumonia and Influenza (P&I) mortality reporting system. This data is reported by the Department of Health's Office of Vital Records and is published weekly in the [Morbidity and Mortality Weekly Report \(MMWR\)](#) published by CDC.

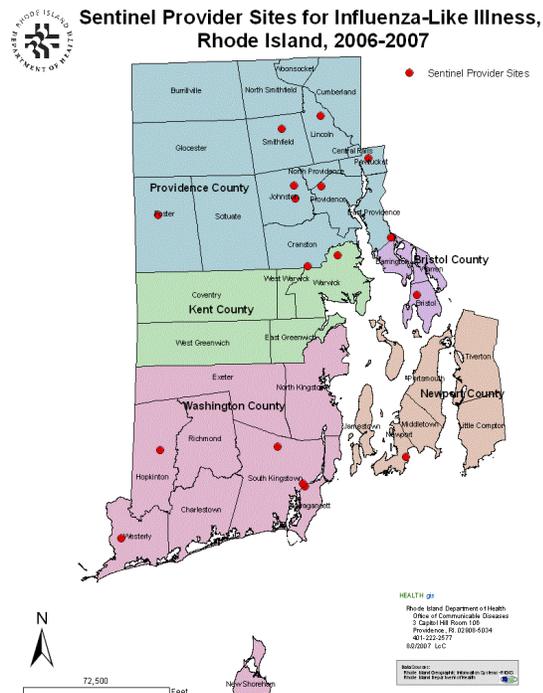
State Epidemiologists Report of Weekly Activity Levels to CDC

The State Epidemiologist reports the RI influenza activity level to CDC on a weekly basis. The activity level is a composite of geographic spread and level of ILI as reported by sentinel providers combined with laboratory positive results and institutional outbreak reports (see Appendix A for description of how influenza activity is determined). This information is then posted weekly on the Department of Health Website at <http://www.health.ri.gov/flu/activity.php>.

Avian Influenza

To continue to monitor for cases of Avian Influenza the Office of Communicable Disease recommends that all cases of clinically suspected Avian Influenza (acquired during travel to areas of the world with reported avian cases in birds, and/or from direct exposure to a known case of avian influenza in a human) be reported immediately by telephone to 222 2577 or 272 5952 (after hours). See <http://www.health.ri.gov/avian/index.php> for more information on avian flu.

Influenza Sentinel Provider Surveillance System



See page 17 for a complete list of sentinel providers in Rhode Island.

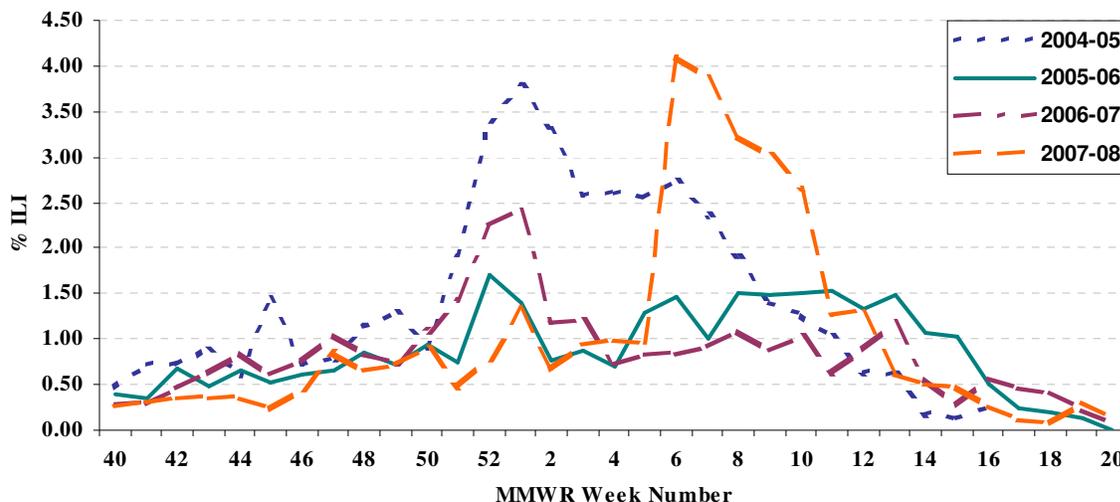
Influenza-Like Illness (ILI) Reports

The surveillance data provided by the Influenza Sentinel Provider Surveillance System for the 2007-08-influenza season indicates that the current influenza season was of greater severity as compared with the two previous seasons. The percentage of influenza-like illness (ILI) cases peaked on week 6 (February 3, 2008-February 9, 2008) at 4.10%. The sentinel providers reported 188 cases of ILI out of a total of 4,577 patient visits that week. This peak occurred 5 weeks later than in the 3 previous seasons.

ILI cases remained above 2.5% per week until week 11 (March 9-15, 2007). There was another small peak of activity at week 13 (March 23-29, 2007). This pattern of activity falls significantly above the range of the three previous influenza seasons. During that same week, the 2004-05, 2005-06, 2006-07 seasons, ILI cases comprised 2.74%, 1.46% and 0.83% of the total patient visits respectively.

All figures are presented using the convention of Morbidity and Mortality Weekly Report (MMWR) week number. For the corresponding dates, please see Appendix C.

Figure 1: Percentage of Influenza-Like Illness (ILI) Patient Visits in Rhode Island by Year



Source: Sentinel Provider Surveillance System, RI Department of Health

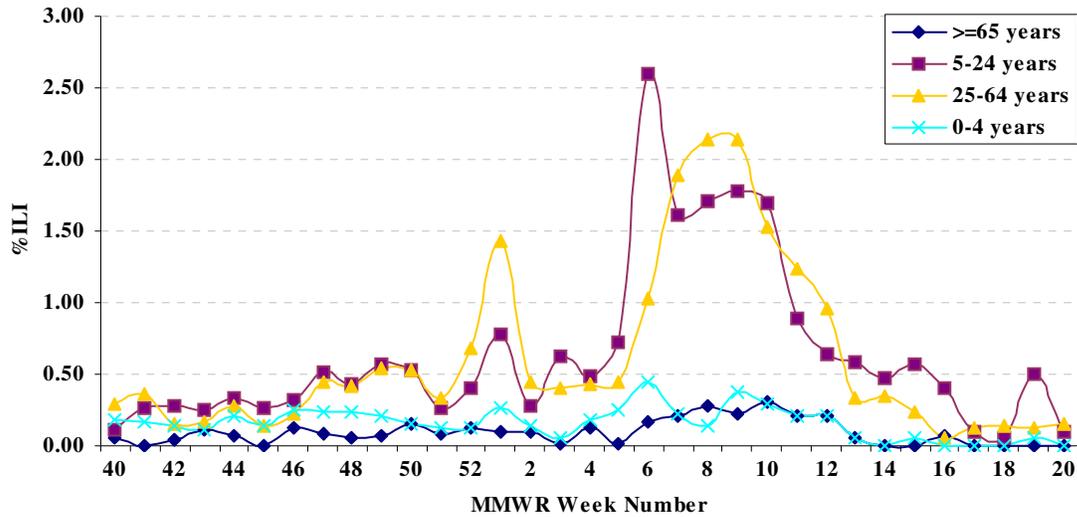
Influenza-Like Illness by Age Group

The 2007-08 surveillance data was further analyzed based on the age of the patients. Figure 2 shows the 5-24 and 25-64 age groups as the most susceptible populations. This was also seen in data from the 2005-06 and 2006-07 seasons (data not shown). During the peak activity for influenza in Rhode Island on week 6 (February 3- 9 2008), the 5-24 and 25-64 age groups accounted for 3.06%* and 0.79% of the total number of patient visits respectively for that week, the highest reported for the first of these two groups for the current season. The 25-64 age group saw increasing activity from week 7 to 11 (February 10-March 15), with the highest activity recorded on week 8 (February 17-23) at 1.69%. These numbers are significantly higher than those reported for 2005-06 and 2006-07. At their highest frequency for last season, the 5-24 and 25-64 age groups represented 1.02% and 0.88% of the total patient visits at their peak week respectively.

The ≥65 age group had the lowest frequency of patient visits reported by sentinel providers, which is consistent with last season. This season the percentage of ILI cases for the ≥65 age group peaked at 0.24% on week 8 (February 17-23). This pattern is consistent with the vaccine recommendation with a supply prioritized for young children and the elderly.

*Please note these percentages reflect the number of patients with ILI in each age group as a proportion of the total number of patient visits reported. The denominator is the total number of patient visits reported, and NOT the number of patient visits in each age group.

Figure 2: Percentage of Influenza-Like Illness (ILI) Patient Visits in RI by Age Group (2007-2008)

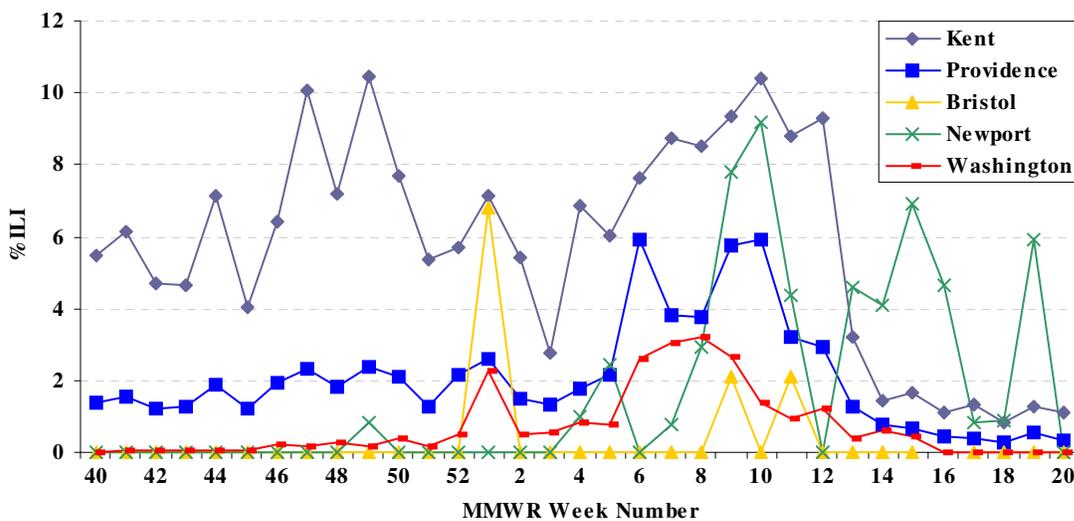


Source: Sentinel Provider Surveillance System, RI Department of Health

Influenza-Like Illness by County

Data show maximum activity from week 6 to 12, consistent with other surveillance systems such as outpatient rapid flu reports (Figure 6). The county to county variation in magnitude is inexplicable.

Figure 3: Influenza-Like Illness (ILI) Reported by RI Sentinel Providers by County and MMWR Week

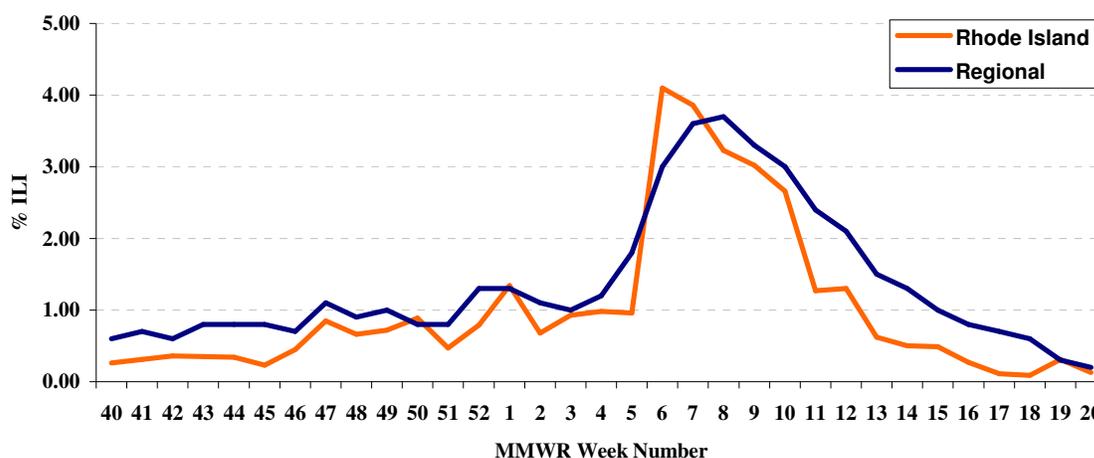


Source: Sentinel Provider Surveillance System, RI Department of Health

2007-2008 Rhode Island Sentinel Surveillance Data Compared with the New England Region

The ILI activity level for Rhode Island showed similar patterns as reported for the New England region at the beginning of the current season. Week 6 to week 12 showed maximum activity with a slightly earlier and higher peak than regionally. National data (Figure 5) are almost identical, validating the robustness of RI surveillance data.

Figure 4: Percentage of Influenza-Like Illness Patient Visits as Reported by Sentinel Providers in RI and the New England Region, 2007-08



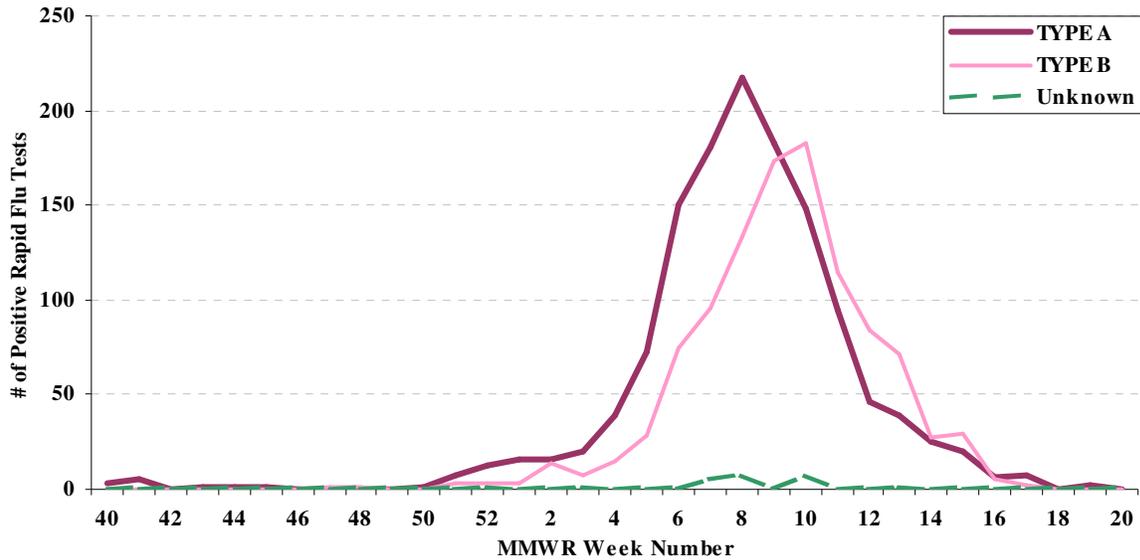
Source: Sentinel Provider Surveillance System, RI Department of Health and CDC

Influenza Rapid Testing Surveillance

Rapid Flu Test Results

A stable network of several hospital laboratories as well as a few point of care testing sites around the state voluntarily submit positive influenza rapid test results every season. The weekly rate of reported positive influenza cases throughout the state showed an increase beginning week 1 (December 30, 2007- January 5, 2008). During the course of the 2007-08 season, there were 1315 positive influenza type A rapid tests and 1068 positive type B rapid tests reported. This is compared to 413 type A and 44 type B positive tests for the 2006-07 seasons, 675 Type A and 108 Type B positive tests for the 2005-06 season, and 905 type A and 85 type B positive tests for the 2004-2005 season.

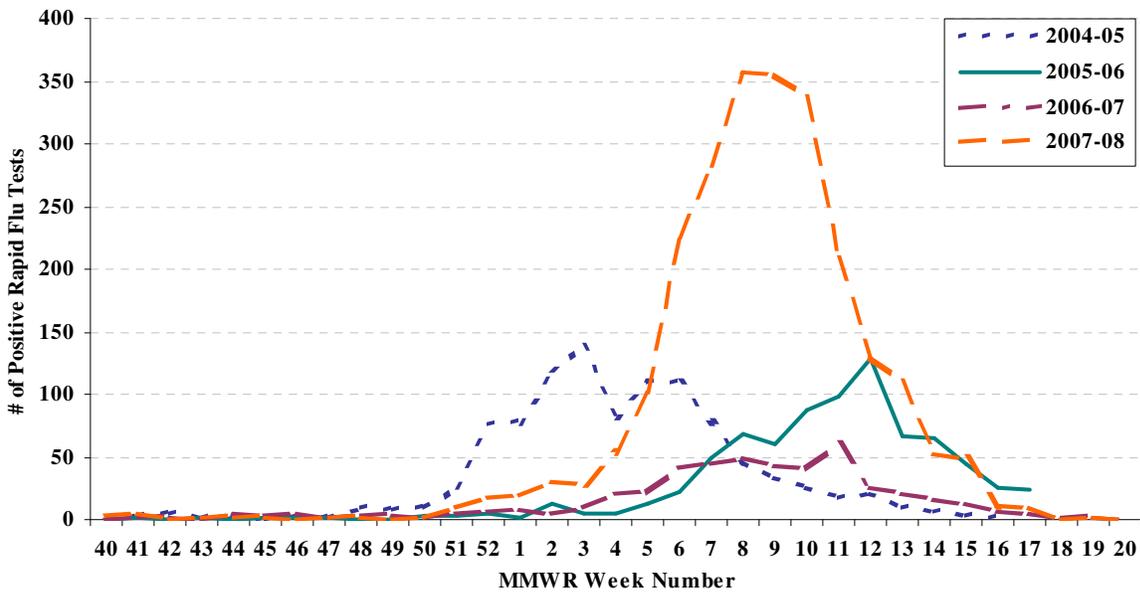
Figure 6: Statewide Influenza Outpatient Positive Rapid Flu Tests, by Flu Type RI 2007-08



Rapid Flu Test Results by Year

The positive rapid flu test reports for the 2007-08 season were greater in number compared to numbers of positive rapid test results from the three previous seasons. The number of reported positive test results for 2006-07 and 2005-06 seasons peaked in the month of March at week 11 and week 12 respectively but peak activity for 2007-08 season occurred earlier, in mid-February, in week 8. Peak activity for the 2004-05 season occurred earlier in January 2005 at week 3.

Figure 7: Statewide Influenza Outpatient Positive Rapid Flu Tests, 2004 through 2008 flu seasons

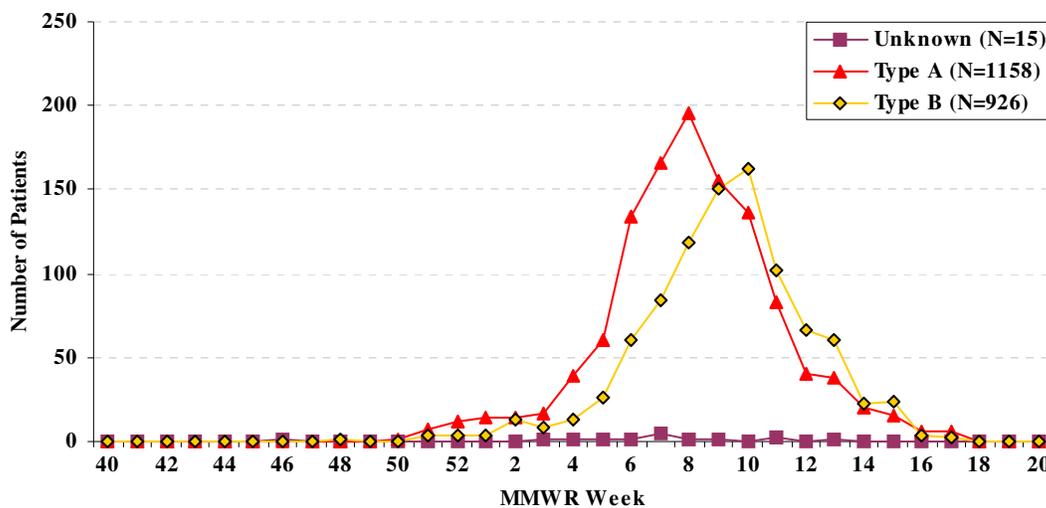


Outpatient Report (from Hospital Labs Only)

Positive Rapid Flu Test Results by Flu Type

This data is a subset of the statewide rapid test data reported in the previous segment. There were 2099 hospital lab outpatient tests for the 2007-08 season. Of this total, 1158 tested positive for influenza type A and 926 tested positive for influenza type B. The highest frequency of positive tests from outpatients occurred at week 8 (February 17-23, 2008), two weeks before the highest frequency reported for inpatient hospitalizations.

Figure 13: Influenza Outpatient Positive Rapid Flu Test Results by Flu Type, RI 2007-2008

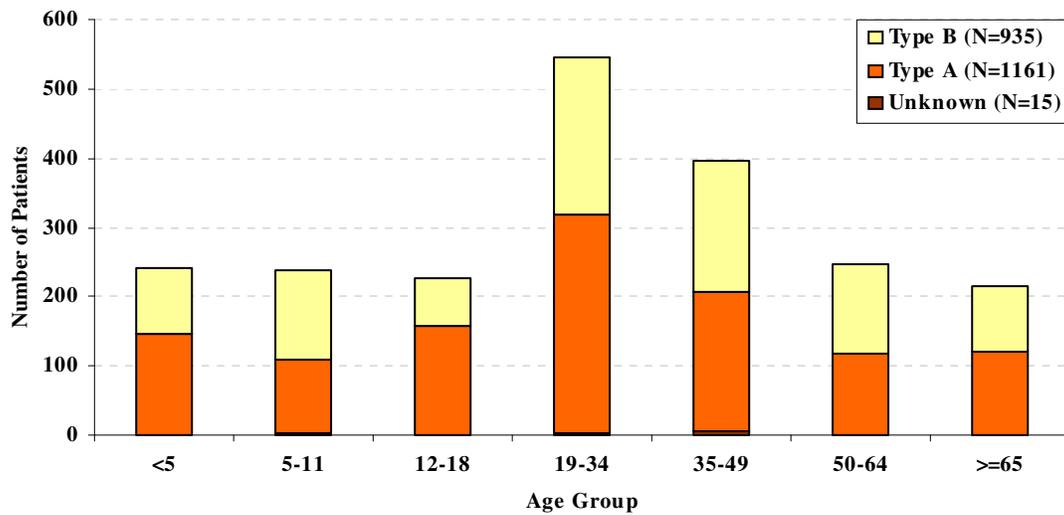


Source: Influenza hospitalization dataset, RI Department of Health

Outpatient Visits by Age Group

The outpatient data was also examined based on patient age group. The 19-34 year age group represents the highest frequency of outpatient visits for the 2007-08 season. This age group accounted for 545 (25.8%) of the total 2111 outpatient visits from all reporting hospitals. Alternatively, the ≥ 65 age group had the lowest frequency of outpatient visits representing 215 (10.1%) of the 2111 total number of outpatient visits. These results correspond with the percentage of ILI cases according to age group as observed in the Sentinel Provider Surveillance System for the 2007-08 season.

Figure 14: Influenza Outpatient Rapid Tests by Flu Type and Age Group, RI 2007-2008

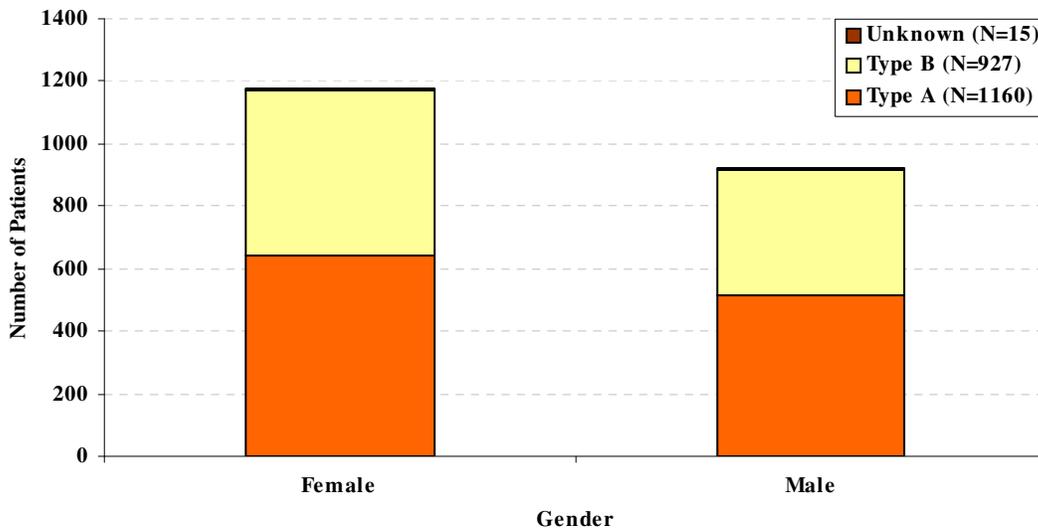


Source: Influenza hospitalization dataset, RI Department of Health

Outpatient Visits by Gender

As with inpatient hospitalizations, female outpatient visits were higher than male outpatient visits (56% vs. 44%). The majority of these patients tested positive for influenza type A.

Figure 15: Influenza Outpatient Rapid Tests by Flu Type and Gender, RI 2007-2008



Source: Influenza hospitalization dataset, RI Department of Health

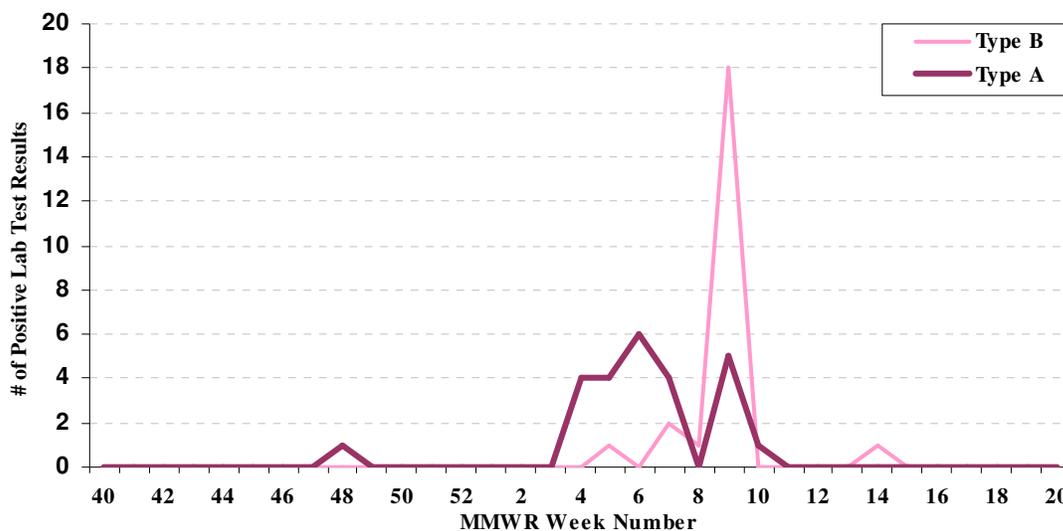
HEALTH Laboratory Surveillance for Influenza

Results of the Subtyping of Specimens by the HEALTH Laboratory

The majority of seasonal influenza cases can be classified as influenza A or B. Influenza A viruses can be further categorized into subtypes on the basis of two surface antigens: hemagglutinin (H) and neuraminidase (N). Since 1977, influenza A (H1N1) viruses, influenza A (H3N2) viruses, and influenza B viruses predominantly have been in global circulation.¹

The RI HEALTH Laboratory tested 73 specimens submitted by sentinel providers. Lab results indicate that 48 specimens tested positive for influenza; 25 or 52% were type A and 23 or 48% were type B. See Fig 8. Should a specimen test positive for influenza A, and the specimen is negative for H3 and H1 (the expected circulating subtypes), the specimen is shipped to CDC to test for the avian flu or H5 strain.

**Figure 8: Influenza-Positive Specimens from Sentinels
Tested at State Laboratory by Subtypes
RI 2007-08**



Source: HEALTH laboratory, RI Department of Health

Influenza Hospitalizations

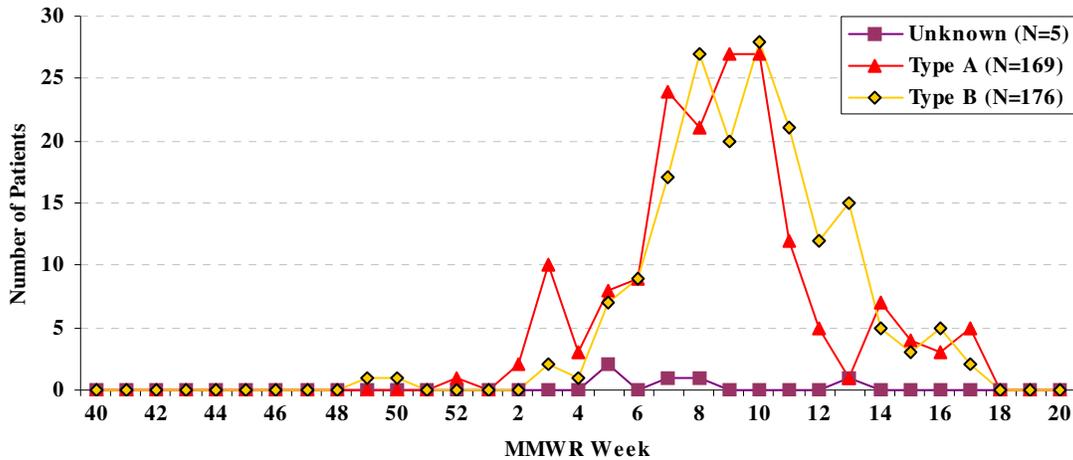
Ten hospital facilities reported rapid testing results of specimens from in/outpatients in Rhode Island. These facilities reported a total of 2464 positive rapid flu tests for the 2007-08 season. Approximately 85.7% of the total number of positive tests was collected from outpatient visits and 14.3% was collected from inpatient hospitalizations.

Inpatient (Hospitalization) Report

Positive Rapid Flu Test Results by Flu Type

There were a total of 350 inpatients admitted who had a positive rapid flu test. (169+176+5= According to rapid flu test results, 176 were positive for influenza type B and 169 were positive for influenza type A, and 5 were of unknown type. The highest frequency of inpatient hospitalizations was reported on week 10 (March 2-8, 2008).

Figure 9: Influenza Inpatient Positive Rapid Flu Test Results by Flu Type, RI 2007-2008

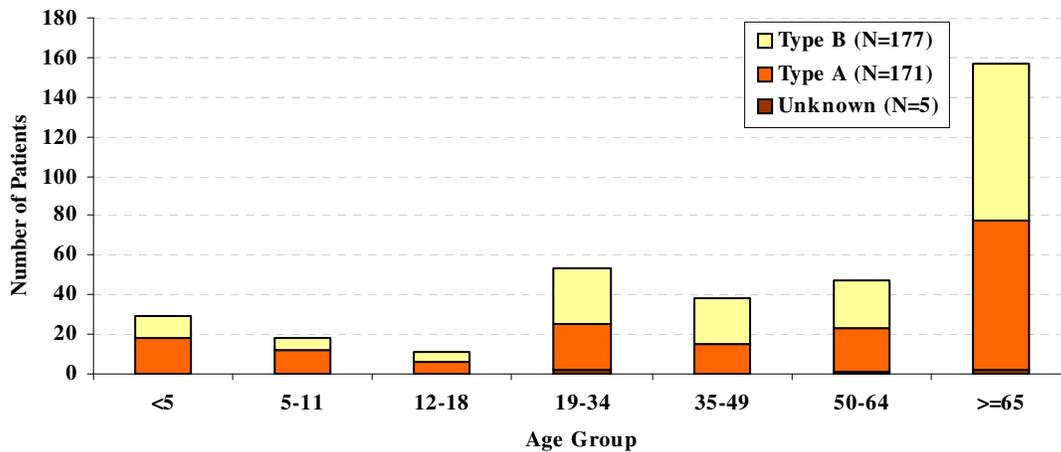


Source: Influenza hospitalization dataset, RI Department of Health

Hospitalization by Age Group

The ≥65 age group had the highest frequency accounting for 44.5% or 157 of the total 353 inpatient hospitalizations. In contrast, the 5-11, 12-18 age groups represented the lowest frequency of inpatient hospitalizations for the season.

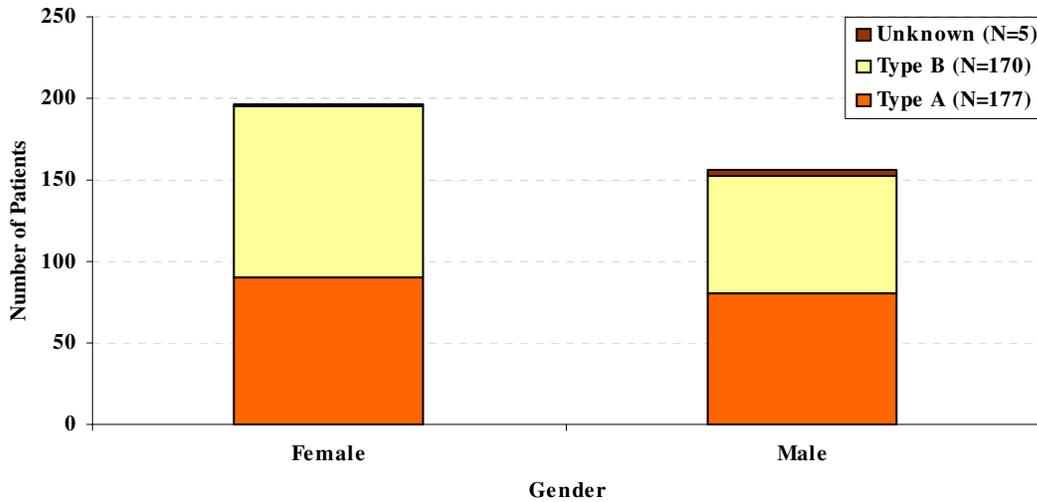
Figure 10: 2007-08 Influenza Hospitalizations in Rhode Island by Flu Type and Age Group



Hospitalization by Gender

Inpatient hospitalization data was further analyzed by gender. There were more female inpatients than male inpatients (55.6% vs. 44.3%), a majority of which tested positive for influenza type B (53.7%).

Figure 11: 2007-08 Influenza Hospitalizations in Rhode Island by Flu Type and Gender

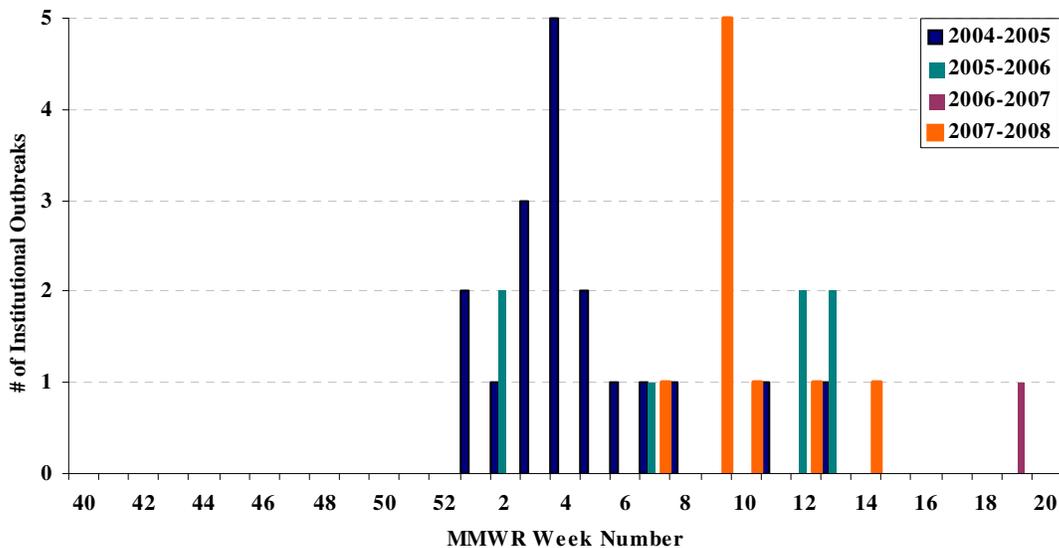


Source: Influenza hospitalization dataset, RI Department of Health

Institutional Clusters and Outbreaks Surveillance

During the 2007-08 season, 9 outbreaks were reported during the flu season, 5 of which occurred on week 9 (February 24, 2008 – March 1, 2008). The 2004-05 and 2005-06 seasons reported 18 and 7 outbreaks, respectively.

Figure 16: Institutional Clusters and Outbreaks by Year and MMWR Week



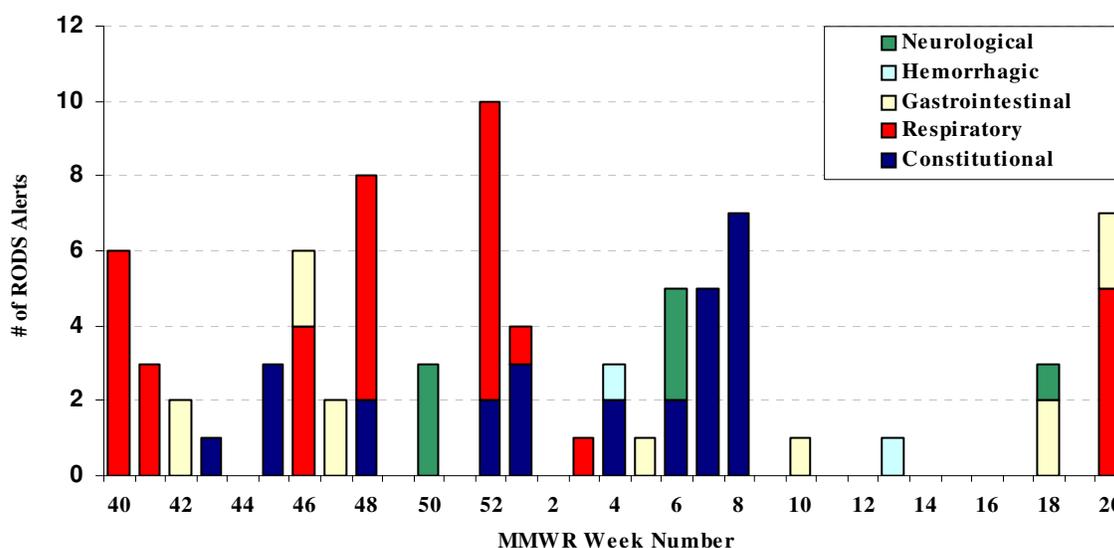
Source: Institutional Clusters & Outbreaks Surveillance System, RI Department of Health

Real-Time Outbreak and Disease Surveillance System

Syndromic Surveillance

The Real-Time Outbreak and Disease Surveillance (RODS) System monitors chief complaints from emergency departments of reporting hospitals. The data is then analyzed based on syndromes in order to detect patterns of disease outbreaks. While there is no specific syndrome for influenza-related visits, the system triggers alerts based on algorithms that detect an unexpected increase in the number of visits. An increase in influenza-like illness would most likely trigger an alert for “Respiratory” or “Constitutional” symptoms. Figure 17 shows a cluster of respiratory alerts centered on week 52 (December 23-29, 2007). Eight alerts for respiratory illness were reported for that week, the highest number of RODS alerts for the season. During the peak activity for ILI cases as reported by sentinel providers in week 40 (September 30, 2007-October 6, 2007), 6 RODS alerts for respiratory illness were also observed.

Figure 17: 2007-08 Real-Time Outbreak and Disease Surveillance (RODS) Alerts by Syndrome and MMWR Week



Source: Real-Time Outbreak and Disease Surveillance System, RI Department of Health

Influenza-Associated Pediatric Mortality

Pediatric influenza deaths became reportable in Rhode Island in February 2006. Since that time, observed pediatric deaths in the state associated with influenza remain low. For the 2005-2006 season, there was one reported pediatric death due to influenza. Since then, there have been no pediatric deaths reported.

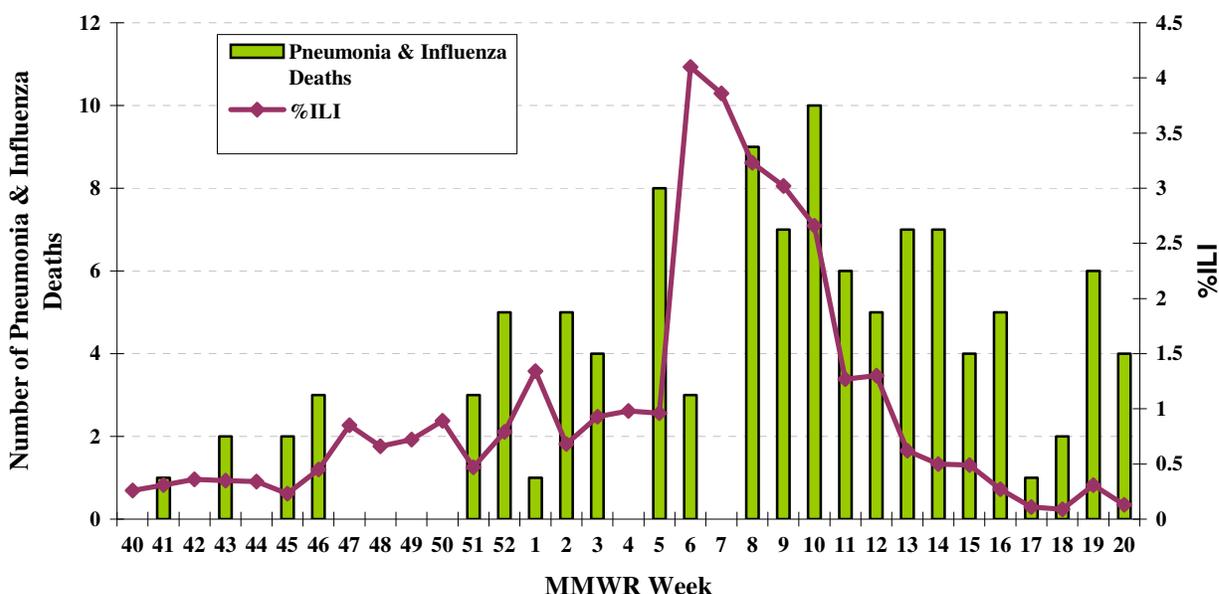
Pneumonia and Influenza Mortality

As part of its national influenza surveillance effort, the Centers for Disease Control and Prevention (CDC) receives weekly mortality reports from 121 (122 cities are currently participating in the 121 Cities Mortality Reporting System) cities and metropolitan areas in the United States within 2-3 weeks from the date of death. These reports summarize the total number of deaths occurring in these

cities/areas each week, as well as the number due to pneumonia and influenza. Together with World Health Organization laboratory results, U.S. private physicians' reports, and state epidemiologist estimates of influenza morbidity, the 121 Cities mortality data are used to assess the impact of influenza each winter. This system consistently covers approximately one-third of the deaths in the United States and provides CDC epidemiologists with preliminary information with which to evaluate the impact of influenza on mortality in the United States and the severity of the currently circulating virus strains. Providence, RI is one of the participating cities.

Figure 18 shows the weekly reported pneumonia and influenza mortality numbers for Providence during the current season superimposed on the %ILI that was reported by the sentinel health providers. The highest number of deaths resulting from pneumonia and influenza occurred during week 10 (March 2-8, 2008). The highest %ILI was reported during week 7 (February 10-16, 2008).

Figure 18: 2007-08 Pneumonia & Influenza Mortality in Providence Compared to Percentage of Influenza-Like Illness in Rhode Island



Avian Influenza (H5N1) Current Information

Type A influenza viruses, which cause many of the human flu epidemics that occur each winter, are the only viruses ever known to have caused human pandemics, in 1918, 1957, and 1968.

Influenza A (H5N1) virus – also called “H5N1 virus” – is an influenza A virus subtype that occurs mainly in birds, is highly contagious among birds, and can be deadly to them. H5N1 virus does not usually infect people, but infections with these viruses have occurred in humans. Most of these cases have resulted from people having direct or close contact with H5N1-infected poultry or H5N1-contaminated surfaces.²

Because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day may be able to infect humans as well as spread easily from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population and an influenza pandemic (worldwide outbreak of disease) could begin.³ There currently is no commercially available vaccine to protect humans against H5N1 virus. However,

vaccine development efforts are taking place. In April 2007, the FDA approved the first US vaccine against the avian influenza virus for human use. The vaccine will not be sold commercially, instead it will be included in the National Stockpile for distribution by public health authorities in case of a disease outbreak. Further research studies are underway to develop vaccines against the H5N1 virus for human use.

As of June 29, 2008 there have been 385 reported cases of Avian Influenza resulting in 243 deaths (Table 1).

Table 1. Cumulative Number of Confirmed Human Cases of Avian Influenza A/ (H5N1) Reported to the World Health Organization (WHO) as of June 29, 2007

Country	2003		2004		2005		2006		2007		2008		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	0	0	7	7
China	1	1	0	0	8	5	13	8	5	3	3	3	30	20
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	7	3	50	22
Indonesia	0	0	0	0	20	13	55	45	42	37	18	15	135	110
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	5	5	106	52
Total	4	4	46	32	98	43	115	79	88	59	34	26	385	243

Source: WHO

Total number of cases includes number of deaths.
 WHO reports only laboratory-confirmed cases.
 All dates refer to onset of illness.

Thank You Sentinel Providers!

Rhode Island Department of Health greatly appreciates the efforts of our State Sentinel Program clinical providers and their staff. These sentinel providers generate data for much of the influenza surveillance program and for the information presented in this report. The Rhode Island Providers currently involved in this program are listed below.

Table 2. Sentinel Providers

RI Sentinel Providers Location by County		
<p style="text-align: center;">Sentinel Provider Sites for Influenza-Like Illness, Rhode Island, 2006-2007</p> <p style="text-align: center;">HEALTH RI Rhode Island Department of Health Office of Communicable Diseases 3 Capitol Hill Room 109 Providence, RI 02903-8204 401-222-2577 6022007 LC</p>	<p>1. Dr. Rex Appenfeller Anchor Medical Associates 1 Commerce St. Lincoln, RI 02865</p>	
	<p>2. Dr. Vincent D'Alessandro 1857 Atwood Ave. Johnston, RI 02919 (Sherri Bonaminio)</p>	<p>10. Dr. Karl Felber Pawtucket Health Center 209 Armistice Blvd Pawtucket, RI 02860 Carol Charon, RN</p>
	<p>3. Dr. Louis Moran University Medicine Foundation 133 Post Road Warwick, RI 02888 (Claudia Moran, RN)</p>	<p>11. Dr. Fred Procopio University of Rhode Island Potter Building Health Center 6 Butterfield Road Kingston, RI 02881 (Chad Henderson, Director)</p>
	<p>4. Dr. Edward Stulik & Dr. Stefano L. Cazzaniga University Medicine Foundation 1525 Wampanoag Trail Suite 202 East Providence, RI 02915 (Deborah Donahue, Office Manager)</p>	<p>12. Lynn Wachtel, RNP Rhode Island College Brown Hall 600 Mount Pleasant Ave Providence, RI 02908 (Matthew McGinn, RN)</p>
	<p>5. Dr. Rocco Andreozzi Westerly Urgentcare 77 Franklin St. Westerly, RI 02891 (Susan Weeden, Office Manager)</p>	<p>13. Dr. William Levin Dr. Donald Derolf Mary Kay Connell, RNP Salve Regina College Health Center 100 Ocre Point Ave Newport, RI 02840 (Jacklyn Parsons)</p>
	<p>6. Dr. Steven Scott Atwood Primary Care 1526 Atwood Ave Johnston, RI 02919 (Pam DiGiacomo, Office Manager)</p>	<p>14. Dr. Steven Hokeness Bryant University Health Center 1150 Douglas Pike Smithfield, RI 02917 (Betty Cotter, RNP)</p>
	<p>7. Dr. Stephen Beaupre Midland Medical 1312 Oaklawn Ave Cranston, RI 02920 (Anna Long, RN)</p>	<p>15. Dr. Christopher Campagna Wood River Health Services, Inc 823 Main St Hope Valley, RI 02832 (Meredith Eckel-Medical Manager)</p>
	<p>8. Dr. Nitin Damle South County Internal Medicine 481 Kingston Rd Wakefield, RI 02879 (Marcia Pellegrino, LPN)</p>	<p>16. Dr. Alane Torf Bristol County Medical Center 1180 Hope Street Bristol, RI 02809 (Jessica Machado)</p>
	<p>9. Joan Mullaney, RNP University Medicine Foundation 142 Danielson Pike Foster, RI 02825 Diane Metz-Med.Asst.</p>	<p>17. Dr. Monica Gross South County Walk-in & Primary 360 Kingstown Road Suite 104 Narragansett, RI 02882 (Jody Robinson, MS)</p>

References:

1. “Background on Influenza. Centers for Disease Control and Prevention.”
<http://www.cdc.gov/flu/professionals/background.htm>
2. “Key Facts About Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus.” Centers for Disease Control and Prevention... <http://www.cdc.gov/flu/avian/gen-info/facts.htm>
3. “Avian Influenza: Current Situation.” Centers for Disease Control and Prevention.
<http://www.cdc.gov/flu/avian/outbreaks/current.htm>

Appendix A. Estimated Level of Influenza Activity

State health departments report the estimated level of influenza activity in their states each week. These levels are defined as follows (note that region corresponds to county in RI):

- **No Activity:** Overall clinical activity remains low and there are no lab confirmed cases.
- **Sporadic:** Isolated cases of lab confirmed influenza in the state; ILI activity is not increased OR a lab confirmed outbreak in a single institution in state; ILI activity is not increased
- **Local:** Increased ILI within a single region AND recent (within the past 3 weeks) laboratory evidence of influenza in the region. ILI activity in other regions is not increased. OR two or more institutional outbreaks (ILI or lab confirmed) within a single region AND recent lab confirmed influenza in that region. Other regions do not have increased ILI and virus activity is no greater than sporadic in those regions.
- **Regional:** Increased ILI in ≥ 2 but less than half of the regions AND recent lab confirmed influenza in the affected regions. OR Institutional outbreaks (ILI or lab confirmed in ≥ 2 and less than half of the regions AND recent lab confirmed influenza in the affected regions.
- **Widespread:** Increase ILI and/or institutional outbreaks (ILI or lab confirmed) in at least half of the regions AND recent (within the past 3 weeks) lab confirmed influenza in the state.

Appendix B. Infection Control Measures During Times of Influenza Outbreaks

INFLUENZA INSTITUTIONAL OUTBREAKS

Definitions

- **Cluster:** Three or more cases of acute febrile respiratory illness (AFRI) occurring within 48 to 72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility).
- **Outbreak:** A sudden increase of AFRI cases over the normal background rate or when any resident tests positive for influenza. One case of confirmed influenza by any testing method in a long-term care facility resident is an outbreak.

When influenza outbreaks occur in health-care settings, additional measures should be taken to limit transmission. These include:

- Inform local and state health department officials within 24 hours of outbreak recognition. Determine if the health department wants clinical specimens or viral isolates.
- Implement daily active surveillance for respiratory illness among all residents and health care personnel until at least 1 week after the last confirmed influenza case occurred.
- Identify influenza virus as the causative agent early in the outbreak by performing [rapid influenza virus testing](#) of residents with recent onset of symptoms suggestive of influenza. In addition, obtain viral cultures from a subset of residents to confirm rapid test results (both positive and negative) and to determine the influenza virus type and influenza A subtype. Ensure that the laboratory performing the tests notifies the facility of test results promptly.
- Implement [Droplet Precautions](#) (<http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html>) for all residents with suspected or confirmed influenza.
- Confine the first symptomatic resident and exposed roommate to their room, restrict them from common activities, and serve meals in their rooms.
- If other patients become symptomatic, cancel common activities and serve all meals in patient rooms. If patients are ill on specific wards, do not move patients or personnel to other wards, or admit new patients to the wards with symptomatic patients.
- Limit visitation, exclude ill visitors, and consider restricting visitation of children via posted notices.
- Monitor personnel absenteeism due to respiratory symptoms and exclude those with influenza-like symptoms from patient care for 5 days following onset of symptoms, when possible.
- Restrict personnel movement from areas of the facility having outbreaks to areas without patients with influenza.
- Limit new admissions.
- Administer the current season's influenza vaccine to unvaccinated residents and health care personnel as per [current vaccination recommendations](#) for nasal and intramuscular influenza vaccines.
- Administer [influenza antiviral chemoprophylaxis and treatment](#) to residents and health care personnel according to current recommendations.
- Consider antiviral chemoprophylaxis for all health care personnel, regardless of their vaccination status, if the health department has announced that the outbreak is caused by a

**Appendix C. MMWR Week Number and Corresponding Dates
for 2007-2008**

CDC Week Number for 2007-08	Beginning Date	Ending Date
40	30-Sept	06-Oct
41	07-Oct	13-Oct
42	14-Oct	20-Oct
43	21-Oct	27-Oct
44	28-Oct	03-Nov
45	04-Nov	10-Nov
46	11-Nov	17-Nov
47	18-Nov	24-Nov
48	25-Nov	01-Dec
49	02-Dec	08-Dec
50	09-Dec	15-Dec
51	16-Dec	22-Dec
52	23-Dec	29-Dec
1	30-Dec	05-Jan
2	06-Jan	12-Jan
3	13-Jan	19-Jan
4	20-Jan	26-Jan
5	27-Jan	02-Feb
6	03-Feb	09-Feb
7	10-Feb	16-Feb
8	17-Feb	23-Feb
9	24-Feb	01-Mar
10	02-Mar	08-Mar
11	09-Mar	15-Mar
12	16-Mar	22-Mar
13	23-Mar	29-Mar
14	30-Mar	05-Apr
15	06-Apr	12-Apr
16	13-Apr	19-Apr
17	20-Apr	26-Apr
18	27-Apr	03-May
19	04-May	10-May
20	11-May	17-May

Appendix D. Glossary

RI Sentinel Provider: a healthcare provider in Rhode Island who volunteers to monitor outpatient visits for ILI during an influenza season. The Rhode Island sentinel providers are part of the National Sentinel Provider Network that is a collaborative effort between CDC and state health departments. The purpose of the Sentinel Provider Network is to monitor outpatient visits for ILI. Rhode Island Sentinel providers report ILI information to CDC on a weekly basis. Information is provided by age group and by total patient visits for all causes for each week. The %ILI for each state is calculated based on the total number of ILI visits during a particular week divided by the sum total of all patient visits during the same week.

Influenza-Like Illness (ILI): Defined as a temperature of $\geq 100.0^{\circ}\text{F}$ (37.8°C) and either cough or sore throat in the absence of known cause.

National Baseline: %ILI that would be expected if influenza viruses were not circulating. The national baseline is 2.1% for this season. The national baseline was calculated as the mean weighted percentage of visits for ILI during non-influenza weeks, plus two standard deviations.

Avian Flu (H5N1): Avian influenza is caused by influenza viruses that occur naturally among wild birds. The H5N1 variant is deadly to domestic fowl and can be transmitted from birds to humans. At this time the H5N1 virus cannot easily be transmitted from person to person. There is no human immunity to this virus and no vaccine is available.

Pandemic Flu: Pandemic influenza is a worldwide outbreak of severe flu caused by a virus that is new to humans. Pandemics occur when a new or markedly changed virus develops. Because the virus is new or very different from any virus seen before, there is no natural immunity (defenses) in the human population, and the disease can spread easily from person to person. In a pandemic, many people may get sick at the same time, and many may die.

Seasonal Flu: Seasonal influenza is a respiratory illness that can be transmitted person to person. Most people have some immunity, and a vaccine is available.

Appendix E: For More Information:

Rhode Island Department of Health Influenza Website

<http://www.health.ri.gov/flu/index.php>

Centers for Disease Control (CDC)

<http://www.cdc.gov/flu/>

World Health Organization (WHO)

<http://www.who.int/topics/influenza/en/>

Prevention: Cover your cough print ready flyer

http://www.cdc.gov/flu/protect/pdf/covercough_school8-5x11.pdf

Rules and Regulations Pertaining to the Reporting of Communicable, Environmental, and Occupational Diseases – February 2006.

http://www2.sec.state.ri.us/rules/released/pdf/DOH/DOH_3844.pdf

MMWR Influenza reports:

http://www.cdc.gov/mmwr/mguide_flu.html

Avian and Pandemic Influenza:

World Health Organization Avian Influenza page

http://www.who.int/csr/disease/avian_influenza/en/

CDC Avian Influenza page:

<http://www.cdc.gov/flu/avian/outbreaks/current.htm>

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