

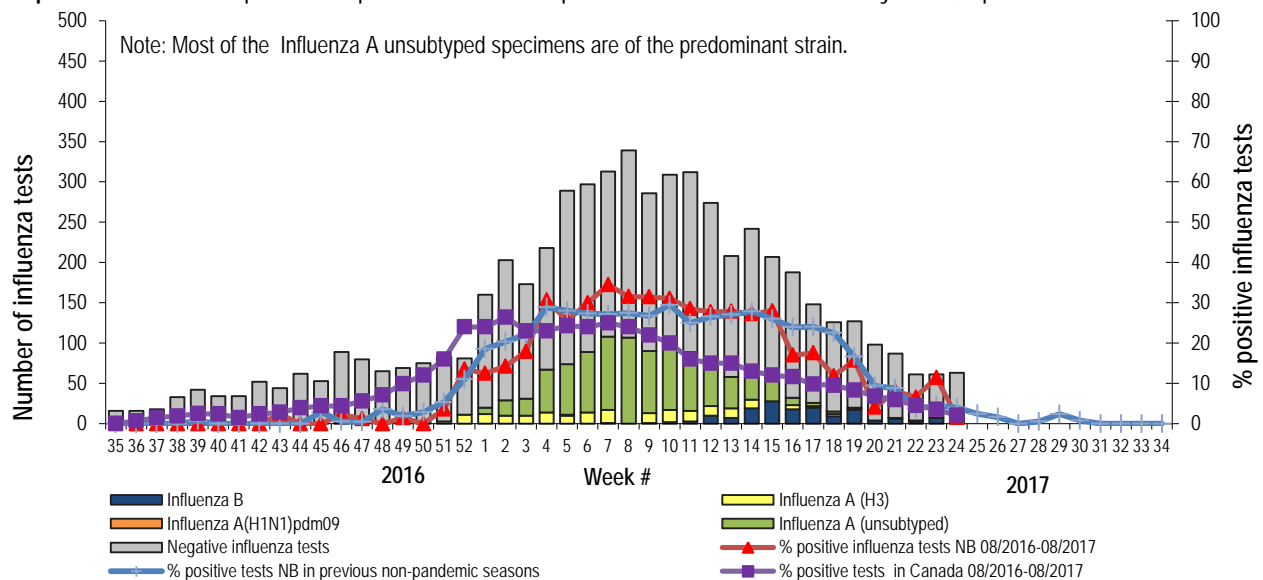
New Brunswick Influenza Activity Summary Report: 2016-2017 season
(Data from August 28, 2016 to June 17, 2017)

Highlights of the 2016-2017 Influenza season:

- This season, influenza activity peaked during week 7 (February 12 to February 18, 2017) in New Brunswick. Nationally, the peak of activity, mainly driven by the Western Provinces, was observed earlier at week 2 (January 8 to January 14, 2017).
- The number of influenza tests submitted had increased by more than 1100 tests compared to the previous season; however the positivity rate was lower (20% versus 25% in 2015-2016).
- Up to June 17 2017, **1193** laboratory confirmed influenza cases were reported: 1035 were influenza A and 158 were influenza B. The number of reported cases is comparable to the previous season (2015/2016) when 1214 cases were reported for the same period of time and the predominant strain was the influenza A (H1N1) pdm09.
- The predominant strain this season was the Influenza A (H3N2): 191 Influenza A specimens were subtyped (representing 18% of the total positive influenza A specimens). Among the subtyped specimens, 99% were Influenza A (H3N2) and 1% was A (H1N1) pdm09.
- Adults aged 20-64 accounted for 41% of the lab confirmed influenza cases this season and those aged 65 and above accounted for 33% of lab confirmed influenza cases.
- The median age for influenza A and influenza B cases was 52 years and 49 years old respectively.
- There have been **327** hospitalizations reported, including **37** ICU admissions and **14** deaths.
- Among all hospitalized this season, 66% were individuals 65 years and older (compared to 35% in 2015/2016 and 75% in 2014/2015) and 6% were children less than 5 years of age (compared to 16% in 2015/2016 and 4% in 2014/2015).
- Fourteen nursing homes reported outbreaks.

1) Influenza Laboratory Data¹ (Data source: Lab results from the Georges L. Dumont University Hospital Center)

Graph 1. Number and percent of positive influenza specimens in New Brunswick by week, up to June 17 2017



¹ For more details on influenza cases, please refer to the Weekly New Brunswick Influenza Reports posted at the following link: http://www2.gnb.ca/content/gnb/en/departments/ocmoh/cdc/content/influenza/influenza_surveillance_activities.html

Table 1. Demographics of positive influenza tests in New Brunswick, cumulative, up to June 17 2017 (data source: G. Dumont lab results)

| Number of Laboratory Confirmed Influenza Cases Stratified by Type, Gender, and Age Groups | | | | | |
|---|-------|---------------|-----------------------|---------|---------|
| Cumulative | | | | | |
| August 28, 2016-June 17, 2017 | | | | | |
| | A(H3) | A(H1N1) pdm09 | A (unsubtyped/ Other) | A Total | B Total |
| Gender | | | | | |
| Male | 91 | 0 | 398 | 489 | 74 |
| Female | 99 | 1 | 446 | 546 | 84 |
| Age Groups | | | | | |
| <5 | 19 | 0 | 101 | 120 | 13 |
| 5-9 | 10 | 1 | 48 | 59 | 13 |
| 10-19 | 22 | 0 | 66 | 88 | 21 |
| 20-44 | 27 | 0 | 143 | 170 | 24 |
| 45-64 | 47 | 0 | 194 | 241 | 52 |
| 65+ | 65 | 0 | 292 | 357 | 35 |

2) **Nursing Homes Influenza Outbreak² Data** (Data source: Influenza Outbreak Investigation Final Report submitted by Regional Public Health, hard copy)

- In NB, there are 67 licensed nursing homes, out of which 14 reported influenza outbreaks during this season. This is higher than the number of outbreaks reported in the previous season (5 outbreaks) most likely because influenza A H1N1, which preferentially affects young and middle- aged adults, was predominantly circulating last season. The number of outbreaks reported this season, is much lower than those reported in the 2014-2015 season and the 2012-2013 season (42 and 26 outbreaks respectively), when the same predominant strain was circulating.
- Regional distribution of the nursing home outbreaks is presented in table 2.

Table 2. Influenza outbreak reports, by Region, for season 2016-2017.

| Region | Total# of nursing homes | Total # of reported outbreaks |
|----------|-------------------------|-------------------------------|
| Region 1 | 14 | 1 |
| Region 2 | 16 | 3 |
| Region 3 | 16 | 8 |
| Region 4 | 5 | 0 |
| Region 5 | 2 | 0 |
| Region 6 | 9 | 0 |
| Region 7 | 5 | 2 |

- All were influenza A outbreaks, except one. The first influenza outbreak was reported on January 11, 2017 and the last outbreak was reported on June 16, 2017.

² An influenza outbreak in a nursing home is defined as two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case.

- The median percentage immunized for residents was 91.5% (range 76%-100 %) and the median percentage immunized for staff was 51.5% (range 23%-75%).
- The median ILI attack rate for residents was 10.3% (range 1.1% - 46.7 %) and the median ILI attack rate for staff was 1.8% (range 0% - 10 %).
- The median duration of the outbreaks³ was 10.5 days (range 6-15 days).
- The median duration between first ILI case and laboratory confirmation was 4.5 days (range 1-9 days).
- 79% (11/14) of the nursing home outbreaks occurred throughout the entire facility versus 21% that were considered localized outbreaks.
- Antivirals prophylaxis was recommended in 86% (12/14) of the nursing homes outbreaks. Out of the 12 nursing homes where antivirals were recommended, all administered the prophylaxis to residents.
- 43% (6/14) of the nursing home reported hospitalizations related to the outbreaks.
- 12 related deaths were reported from 9 nursing homes (out of the 14) experiencing influenza outbreaks.

3) Influenza associated Hospitalization Data (Data source: New Brunswick Influenza Hospitalization and Death Surveillance Database, submitted by Regional Public Health, electronic copy)

A. Hospitalizations, ICU admissions and outcome (cumulative up to June 17 2017)⁴
Graph 2 and 3, Table 3 and 4.

- There have been **327 hospitalizations** reported, of which **37 were admitted to the ICU**.
 - This season, the overall number of hospitalizations was higher than that in 2015/2016 season (predominant (H1N1)pdm09) when 249 hospitalizations were reported for the same time period. However the proportion of ICU admissions was lower this season (11% of all hospitalized) compared to 2015/2016 season (22% of all hospitalized).
 - The proportion of ICU admissions in 2016/2017 was comparable to the 2014/2015 season (predominant H3N2) when 9% were admitted to ICU.
- 66% of all hospitalizations occurred among individuals 65 years old or above in this current season compared to 35% in the 2015/2016 season, and 75% in the 2014/2015 season for the same time period.
- **14 influenza related deaths have been reported:** 6 were males and 8 were females. The median age was 84 years (range 24-99 years). Deaths occurred in the period between December 21 and May 29 2017. All except one case had at least one risk factor⁵, 9 were vaccinated, 2 were not vaccinated and the vaccination status was unknown for 3.
- Hospitalizations occurred between the period of November 21, 2016 and June 6, 2017. However some cases were hospitalized several months before influenza laboratory confirmation.
- The median length of stay was 5 days (range 1-115 days).
- The median age for hospitalization was 72 years (range 9 days-99 years).
- Most of the hospitalized cases were from Region 1 (41 %), followed by Region 3 (25 %), 7 (12 %) and Region 2 (11%).
- 61% (201/327) of the hospitalized cases were treated with antivirals.

³ Duration of outbreak is indicated as the time period in days from the date of first positive laboratory confirmation to the date when outbreak was declared over.

⁴ Disclaimer: Hospitalizations (including ICU admissions) are influenza associated; they may or may not be due to influenza. Deaths are influenza associated; influenza may not be the direct cause of death.

⁵ Risk factors include: chronic pulmonary disease, asthma, chronic heart disease, diabetes, kidney disease, immunosuppressed, cancer, chronic liver disease, anemia/hemoglobinopathy, chronic neurological disease, pregnant, First nations, obesity, current smoker, resident of a nursing home and children who have been treated with ASA for long period of time, and other chronic diseases.

B. Hospitalizations and ICU admissions by influenza type

- 90% (294/327) of the hospitalized cases were due to influenza A and 10% (33/327) were due to influenza B.
- The median age for influenza A hospitalized cases was 73 years (9 days - 99 years) and 67 years (6 months- 99 years) for the influenza B hospitalized cases.
- Children 15 years of age and younger represented 15% of influenza B hospitalized cases and 11% of influenza A hospitalized cases
- 12% (35/294) of the influenza A hospitalized cases were admitted to ICU (median age of 68 years) and only two influenza B hospitalized case was admitted to ICU.

C. Hospitalizations and vaccination status

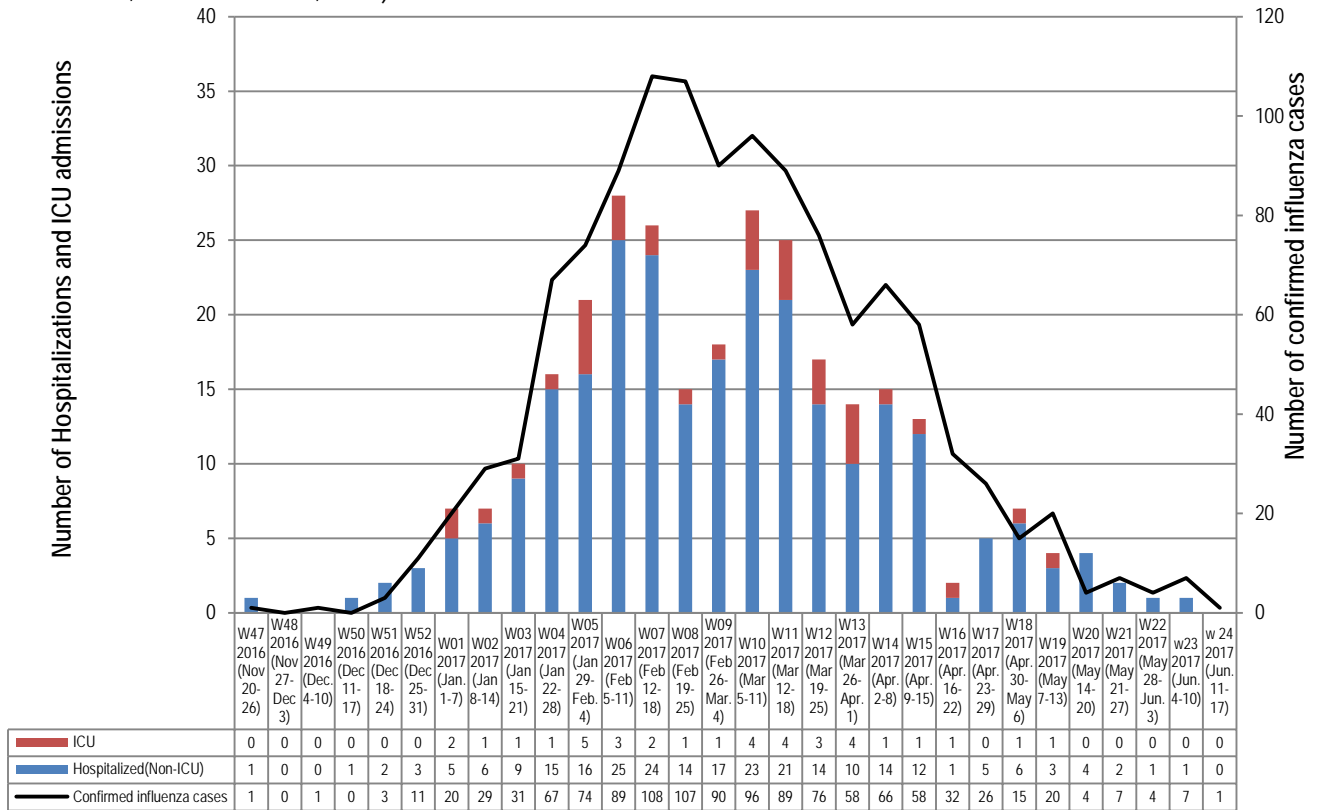
- Influenza vaccine is not recommended in infants less than 6 months.
- Five hospitalized children were under 6 months of age and not able to receive the vaccine, therefore were excluded from the analysis of the vaccination status.
- Out of 322 hospitalized cases who could receive the vaccine, 121 were not vaccinated (38%) while 32% (103/322) received the vaccine; vaccination status was unknown for 30% of hospitalized individuals (98/322).
 - Of those with known vaccination status (Yes+No=224), 46% (103/224) were vaccinated.
NOTE: This proportion cannot be generalized to the whole hospitalized population, as 30% of cases report unknown vaccination status. These individuals may include vaccinated or unvaccinated individuals.
- 46% (17/37) of cases admitted to the ICU didn't receive the current seasonal vaccination. 32% (12/37) received the vaccine, and the vaccination status is unknown for 22% (8/37).
- Among those hospitalized who could receive the vaccine, 96% (310/322) were considered meeting the high risk eligibility criteria for publicly funded vaccine⁶.
- Among those hospitalized and not vaccinated (n=121), 112 individuals (93%) would have been eligible to receive publicly funded seasonal influenza vaccine.
- Among those with ICU admissions and able to receive the vaccine, 100% (37/37) were considered meeting the high risk eligibility criteria for publicly funded vaccine.

D. Risk factors for hospitalization: Graph 4

- 65% of the hospitalized cases had at least 2 risk factors and 83% had at least 1 risk factor.
- In addition to age (being 65 years of age and older), the main prevalent risk factors in the hospitalized cases were chronic pulmonary disease, diabetes, chronic heart disease, asthma, cancer, chronic neurological disease and being immunosuppressed.

⁶ Meeting the high risk eligibility criteria for publicly funded vaccine includes: children between 6 months and 18 years old, people 65 years and older, persons having any co-morbid condition, being pregnant, being a First Nation or residing in a nursing home. It does not include people capable of transmitting influenza to those at high risk. Link to eligibility criteria can be found in [SEASONAL INFLUENZA VACCINE \('Flu shot'\) FACTSHEET](#)

Graph 2. Number of Laboratory Confirmed Influenza Cases and Level of Care* by CDC Week, New Brunswick (November 21, 2016 to June 17, 2017)



* Date of hospital admission was used as a proxy for ICU patients because Date of ICU admission is not available for all patients
 Note: Those who had been hospitalized 15 days or more prior to laboratory confirmation date were excluded from the graph.

Graph 3. NB influenza-related Hospitalization, ICU admissions and Deaths by Age group, Influenza season 2016-2017 (Data up to June 17, 2017)

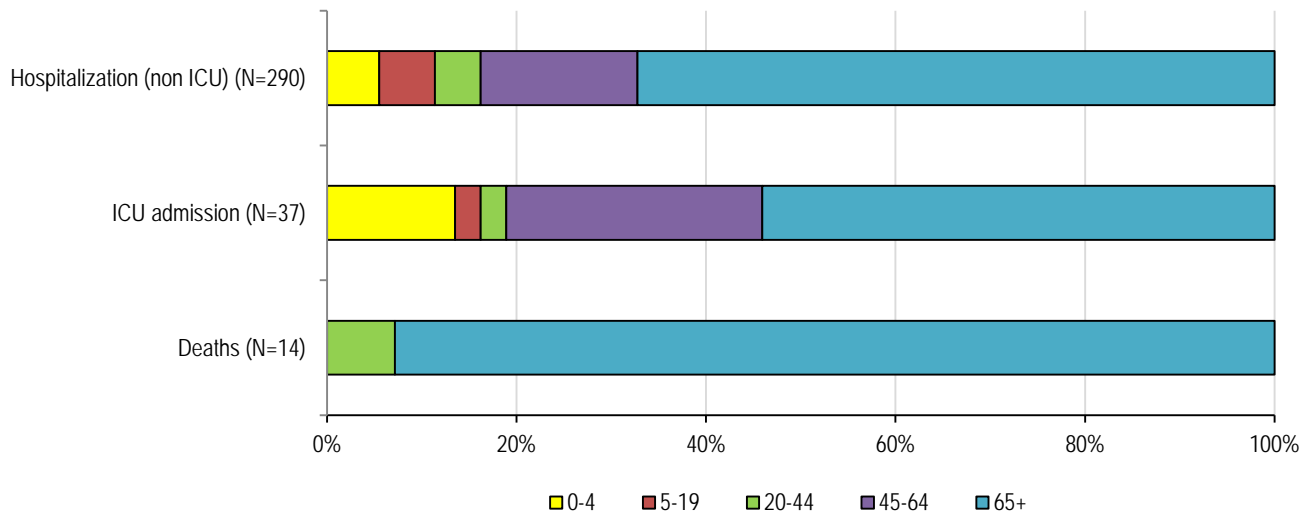


Table 3. Number of Hospitalizations stratified by influenza type, gender and age groups for current and 2014/2015* season up to June 17.

| Number of Hospitalizations Stratified by Type, Gender, and Age Groups | | | | | | | | | | | |
|---|-------|---------------|-----------------------|---------|---------|--------------------|---|---------------|-----------------------|---------|---------|
| Cumulative current season up to June 17, 2017 | | | | | | | Cumulative season 2014/2015 up to June 17, 2015 | | | | |
| | A(H3) | A(H1N1) pdm09 | A (unsubtyped/ Other) | A Total | B Total | A & B Co-infection | A(H3) | A(H1N1) pdm09 | A (unsubtyped/ Other) | A Total | B Total |
| Gender | | | | | | | | | | | |
| Male | 91 | 0 | 398 | 489 | 74 | 0 | 16 | 0 | 115 | 131 | 60 |
| Female | 99 | 1 | 446 | 546 | 84 | 0 | 23 | 0 | 170 | 193 | 59 |
| Age Groups | | | | | | | | | | | |
| <5 | 8 | 0 | 101 | 120 | 13 | 0 | 0 | 0 | 12 | 12 | 4 |
| 5-9 | 10 | 1 | 48 | 59 | 13 | 0 | 0 | 0 | 2 | 2 | 7 |
| 10-19 | 22 | 0 | 66 | 88 | 21 | 0 | 0 | 0 | 2 | 2 | 2 |
| 20-44 | 27 | 0 | 143 | 170 | 24 | 0 | 0 | 0 | 14 | 14 | 5 |
| 45-64 | 47 | 0 | 194 | 241 | 52 | 0 | 5 | 0 | 29 | 34 | 25 |
| 65+ | 65 | 0 | 292 | 357 | 35 | 0 | 34 | 0 | 226 | 260 | 76 |

*Comparison is made with the hospitalizations during the 2014/2015 season due to the same predominant circulating strain A (H3N2).

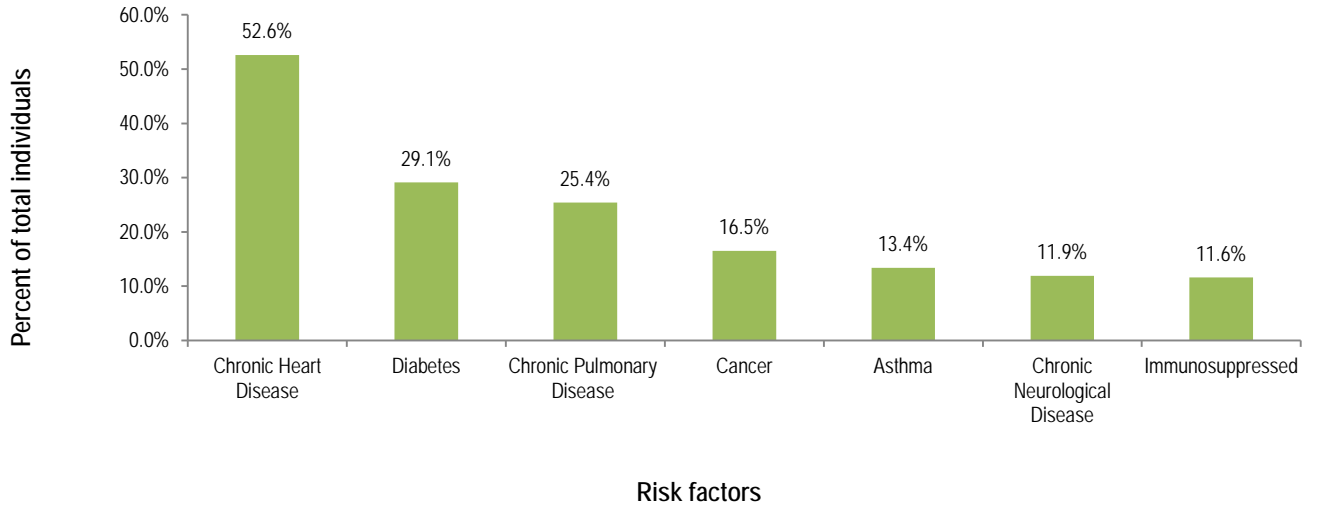
Table 4. NB influenza-related Hospitalization, ICU admissions and Deaths by Region, influenza season 2016-2017 (Data up to June 17 2017)

| | | R1 | R2 | R3 | R4 | R5 | R6 | R7 |
|---------------|--------------------------------|------------|-----------|-----------|----------|----------|-----------|-----------|
| Level of care | Hospitalization (not ICU) | 125 | 25 | 77 | 8 | 6 | 16 | 33 |
| | ICU admission* | 10 | 12 | 4 | 1 | 1 | 2 | 7 |
| | Total Hospitalization** | 135 | 37 | 81 | 9 | 7 | 18 | 40 |

Notes for Table 4:

- * = the number of individuals admitted to ICU
- ** = total hospitalizations (includes those admitted to ICU)

Graph 4. Predominant risk factors and co-morbid conditions in hospitalized cases, percentage of total hospitalized cases (Data up to June 17, 2017)



Note: Risk factors are not mutually exclusive; some individuals may have more than 1 risk factor or condition.