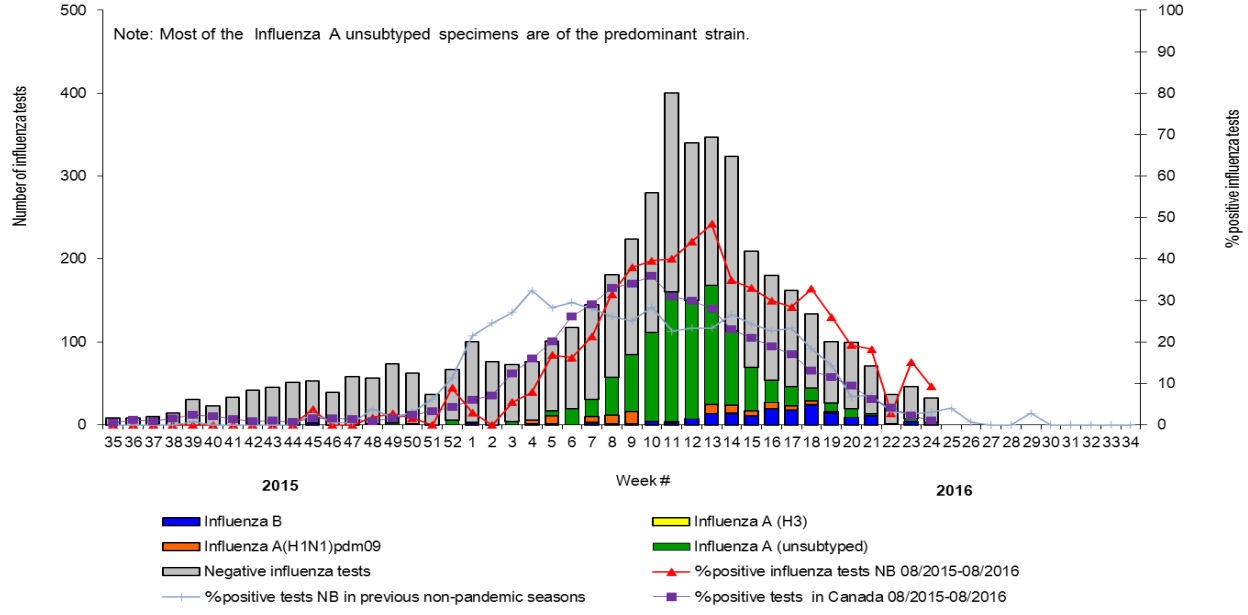
New Brunswick Influenza Activity Summary Report: 2015-2016 season
(Data from August 30 ,2015 to June 4 ,2016)

Highlights of the 2015-2016 Influenza season:

- This season, we experienced later influenza activity than expected. This trend was also seen nationally. Influenza activity peaked during Week 13 (March 27 to April 2, 2016).
- The number of influenza tests submitted had decreased by more than 500 tests compared to the previous season; however the same positivity rate was maintained (~25%).
- Up to June 4 2016, **1207** laboratory confirmed influenza cases were reported: 1055 were influenza A and 152 were influenza B. The number of reported cases is lower but comparable to the previous season (2014/2015) when 1407 cases were reported for the same period of time and the predominant strain was the influenza A (H3N2).
- The predominant strain this season was the Influenza A (H1N1)pdm09: 103 Influenza A specimens were subtyped (representing 10% of the total positive influenza A specimens). Among the subtyped specimens, 94% were Influenza A (H1N1)pdm09 and 6% were A (H3N2).
- Adults aged 20-64 accounted for 51% of the lab confirmed influenza cases this season and children aged 0-9 accounted for 28% of lab confirmed influenza cases.
- The median age for influenza A and influenza B cases was 36 years and 15 years old respectively.
- There have been 243 hospitalizations reported, including 54 ICU admissions and 18 deaths.
- Among all hospitalized this season, 35% were individuals 65 years and older (compared to 75% in 2014/2015 and 30% in 2013/2014) and 16% were children less than 5 years of age (compared to 4% in 2014/2015 and 8% in 2013/2014).
- Five nursing homes reported outbreaks.

1) Influenza Laboratory Data[1] (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 4 2016



[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 4 2016 (data source: G. Dumont lab results)

Number of Laboratory Confirmed Influenza Cases Stratified by Type, Gender, and Age Groups					
Cumulative					
August 30, 2015-June 4, 2016					
	A(H3)	A(H1N1) pdm09	A (unsubtyped/ Other)	A Total	B Total
Gender					
Male	5	46	455	**506**	**79**
Female	1	51	497	**549**	**73**
Age Groups					
<5	2	10	166	**178**	**32**
5-9	0	5	82	**87**	**38**
10-19	0	9	75	**84**	**14**
20-44	1	22	279	**302**	**33**
45-64	3	41	224	**268**	**16**
65+	0	10	126	**136**	**19**

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

- In NB, there are 65 licensed nursing homes, out of which 5 reported influenza outbreaks during this season. This is much lower than the number of outbreak reported in the previous season (42 outbreaks) most likely due to the different predominant influenza virus strains circulating in the 2 seasons.
- Regional distribution of the nursing home outbreaks is presented in table 2.

Table 2. Influenza outbreak reports, by Region, for season 2015-2016.

Region	Total# of nursing homes	Total # of reported outbreaks
Region 1	14	2
Region 2	15	2
Region 3	15	0
Region 4	6	0
Region 5	2	0
Region 6	9	0
Region 7	4	1

- 4 were influenza A outbreaks and 1 was an influenza B outbreak.
- The median percentage immunized for residents was 94% (range 81%-97%) and the median percentage immunized for staff was 54% (range 31%-98%).

[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 ILI attack rate for residents was 6.7% (range 5.0% - 56.7%) and the median ILI attack rate for staff was 4.1% (range 0% - 12%).
- The median duration of the outbreaks[3] was 7 days (range 5-32).
- The median duration between first ILI case and laboratory confirmation was 2 days (range 0-22).
- 60% (3/5) of the nursing home outbreaks occurred throughout the entire facility versus 40% that were considered localized outbreaks.
- Antivirals prophylaxis was recommended in 80% (4/5) of the nursing homes outbreaks. Out of the 4 nursing homes where antivirals were recommended, all administered the prophylaxis o residents.
- 20% (1/5) of the nursing home reported hospitalizations related to the outbreaks.
- None of the nursing homes reported deaths related to the 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 4 2016)[4]
Graph 2 and 3, Table 3 and 4.

- There have been **243 hospitalizations** reported, of which **54 were admitted to the ICU**.
  - This season, the overall number of hospitalizations was lower than that in 2014/2015 season (predominant H3N2) when 443 hospitalizations were reported. However the proportion of ICU admissions was higher this season (22% of all hospitalized) compared to 2014/2015 season (11% of all hospitalized).
  - Both hospitalization and proportion of ICU admissions in 2015/2016 were comparable to the 2013/2014 season (predominant H1N1pdm09) when 265 hospitalizations were reported of which 20% were admitted in ICU.
- 35% of all hospitalizations occurred among individuals 65 years old or above in this current season compared to 75% in the 2014/2015 season, and 30% in the 2013/2014 season for the same time period.
- **18 influenza related deaths have been reported:** 15 were males and 3 were females. The median age was 62 years (range 37-89 years). Deaths occurred in the period between February 9 and May 27 2016. All except one case had at least one risk factor[5], 3 were vaccinated, 7 were not vaccinated and the vaccination status was unknown for 8.
- Hospitalizations occurred between the period of November 11, 2015 and May 26, 2016. However some cases were hospitalized several months before influenza laboratory confirmation.
- 157 patients (65%) have been discharged. The median length of stay was 4 days (range 1-190 days).
- The median age for hospitalization was 56 years (range 1 month-94 years).
- Most of the hospitalized cases were from Region 1 (42%), followed by Region 2 (23%) and 3 (13%).
- 52% (126/243) of the hospitalized cases were treated with antivirals.

B. Hospitalizations and ICU admissions by influenza type

- 90% (218/243) of the hospitalized cases were due to influenza A and 10% (24/243) were due to influenza B.

[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.

- The median age for influenza A hospitalized cases was 57.5 years (1 month - 93 years) and 20 years (1 month- 94 years) for the influenza B hospitalized cases.
- Children 15 years of age and younger represented 50% of influenza B hospitalized cases and 22% of influenza A hospitalized cases
- 22% (49/218) of the influenza A hospitalized cases were admitted to ICU (median age of 60 years) and 17% (4/24) of the influenza B hospitalized cases were admitted to ICU.

C. Hospitalizations and vaccination status

- Influenza vaccine is not recommended in infants less than 6 months.
- Six 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 237 hospitalized cases who could receive the vaccine, 109 were not vaccinated (46%) while 30% (70/237) received the vaccine; vaccination status was unknown for 24% of hospitalized individuals (58/237).
  - Of those with known vaccination status (Yes+No=179), 39% (70/179) were vaccinated. **NOTE:** This proportion cannot be generalized to the whole hospitalized population, as 24% of cases report unknown vaccination status. These individuals may include vaccinated or unvaccinated individuals.
- 55% (28/51) of cases admitted to the ICU didn't receive the current seasonal vaccination. 31% (16/51) received the vaccine, and the vaccination status is unknown for 14% (7/51).
- Among those hospitalized who could receive the vaccine, 96% (227/237) were considered meeting the high risk eligibility criteria for publicly funded vaccine[6].
- Among those hospitalized and not vaccinated (n=109), 103 individuals (94%) would have been eligible to receive publicly funded seasonal influenza vaccine.
- Among those with ICU admissions and able to receive the vaccine, 98% (50/51) were considered meeting the high risk eligibility criteria for publicly funded vaccine.

D. Risk factors for hospitalization: Graph 4

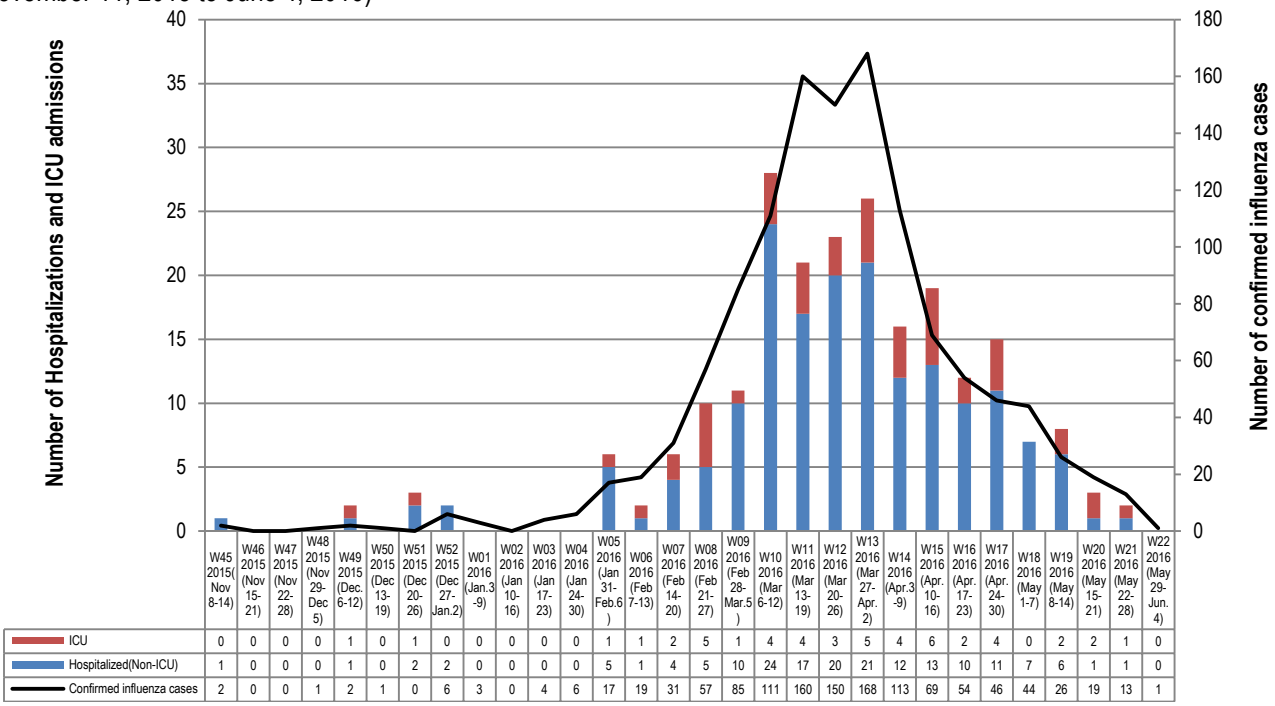
- 59% of the hospitalized cases had at least 2 risk factors and 77% had at least 1 risk factor.
- In addition to age (less than 5 years old, and 65 years and older), the main prevalent risk factors in the hospitalized cases were chronic pulmonary disease, smoking, diabetes, chronic heart disease, being immunosuppressed(mainly due to cancer).

E. A closer look at children less than 5 years of age: Graph 5

- 16% (39/243) of all hospitalizations occurred among children less than 5 years of age, of those 15% (6/39) were admitted to ICU. This percentage is higher compared to the 2014/2015 season when 4% (16/443) of hospitalizations were in children under 5 years of age and 8% (22/265) during the 2013/2014 season for the same time period.
- The median age for those hospitalized children was 2 years and the median length of stay was 2 days (range 1-9 days).
- Of the hospitalized children under 5 years of age who were eligible for the vaccine, 18% (6/33) received the vaccine, **58% (19/33) did not receive the vaccine** and vaccination status was unknown for 24% (8/33). (See graph 5)
- 4 out of 10 hospitalized children under 5 years of age with co-morbid conditions had asthma.

[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 11, 2015 to June 4, 2016)



	W45 2015(Nov 8-14)	W46 2015 (Nov 15-21)	W47 2015 (Nov 22-28)	W48 2015 (Nov 29-Dec 5)	W49 2015 (Dec. 6-12)	W50 2015 (Dec 13-19)	W51 2015 (Dec 20-26)	W52 2015 (Dec 27-Jan.2)	W01 2016 (Jan.3-9)	W02 2016 (Jan 10-16)	W03 2016 (Jan 17-23)	W04 2016 (Jan 24-30)	W05 2016 (Jan 31-Feb.6)	W06 2016 (Feb 7-13)	W07 2016 (Feb 14-20)	W08 2016 (Feb 21-27)	W09 2016 (Feb 28-Mar.5)	W10 2016 (Mar 6-12)	W11 2016 (Mar 13-19)	W12 2016 (Mar 20-26)	W13 2016 (Mar 27-Apr. 2)	W14 2016 (Apr.3-9)	W15 2016 (Apr. 10-16)	W16 2016 (Apr. 17-23)	W17 2016 (Apr. 24-30)	W18 2016 (May 1-7)	W19 2016 (May 8-14)	W20 2016 (May 15-21)	W21 2016 (May 22-28)	W22 2016 (May 29-Jun. 4)
ICU	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	5	1	4	4	3	5	4	6	2	4	0	2	2	1	0
Hospitalized(Non-ICU)	1	0	0	0	1	0	2	2	0	0	0	0	5	1	4	5	10	24	17	20	21	12	13	10	11	7	6	1	1	0
Confirmed influenza cases	2	0	0	1	2	1	0	6	3	0	4	6	17	19	31	57	85	111	160	150	168	113	69	54	46	44	26	19	13	1

* 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 2015-2016 (Data up to June 4, 2016)

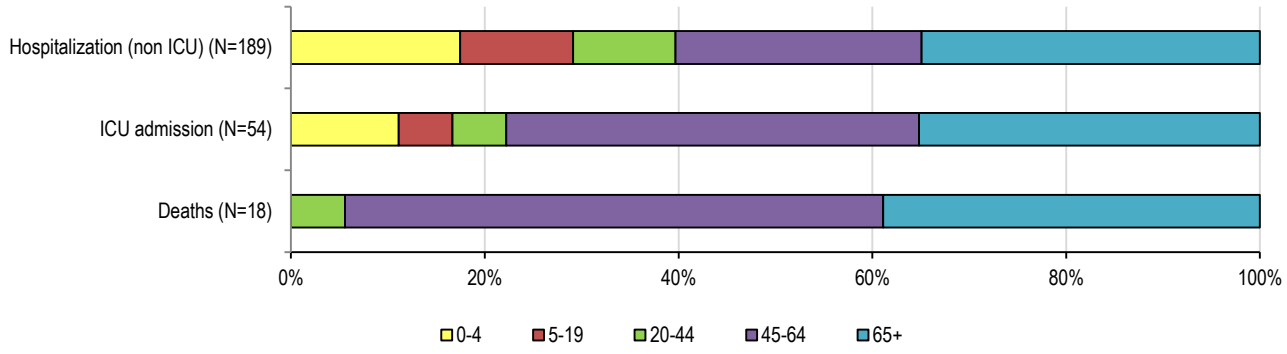


Table 3. Number of Hospitalizations stratified by influenza type, gender and age groups for current and 2013/2014* season up to June 4.

Number of Hospitalizations Stratified by Type, Gender, and Age Groups											
	Cumulative current season up to June 4, 2016						Cumulative season 2013/2014 up to June 4, 2014				
	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	1	5	113	**119**	**17**	**0**	0	37	92	**129**	**10**
Female	0	5	94	**99**	**7**	**1**	0	47	71	**118**	**8**
Age Groups											
<5	1	2	30	**33**	**6**	**0**	0	8	14	**22**	**0**
5-9	0	1	9	**10**	**4**	**0**	0	1	5	**6**	**1**
10-19	0	0	8	**8**	**2**	**1**	0	0	4	**4**	**2**
20-44	0	0	21	**21**	**2**	**0**	0	16	28	**44**	**1**
45-64	0	3	63	**66**	**5**	**0**	0	28	70	**98**	**7**
65+	0	4	76	**80**	**5**	**0**	0	31	42	**73**	**7**

***Comparison is made with the hospitalizations during the 2013/2014 season due to the same predominant circulating strain A (H1N1)pdm09.**

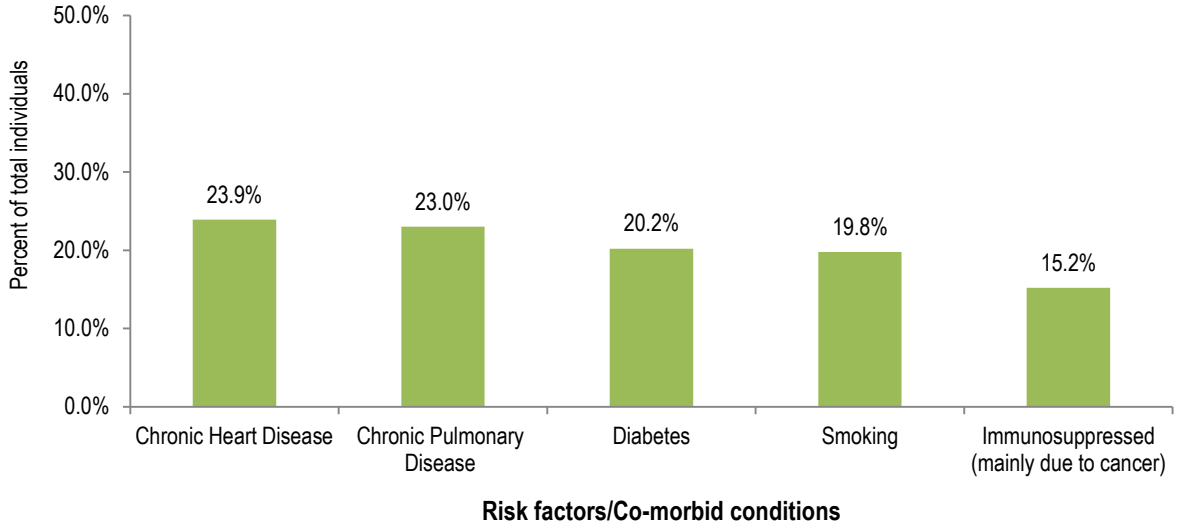
Table 4. NB influenza-related Hospitalization, ICU admissions and Deaths by Region, influenza season 2015-2016 (Data up to June 4 2016)

		R1	R2	R3	R4	R5	R6	R7
Level of care	Hospitalization (not ICU)	85	42	23	10	4	10	15
	ICU admission*	16	15	8	2	2	7	4
	Total Hospitalization**	**101**	**57**	**31**	**12**	**6**	**17**	**19**

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 4, 2016)



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

Graph 5. Number of Hospitalized children under 5 years of age, by age group in months and vaccination status, in New Brunswick (N=39). (Data up to June 4, 2016)