



MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
WEEKLY INFLUENZA UPDATE
April 5, 2013

All data in this report are preliminary and subject to change as more information is received.

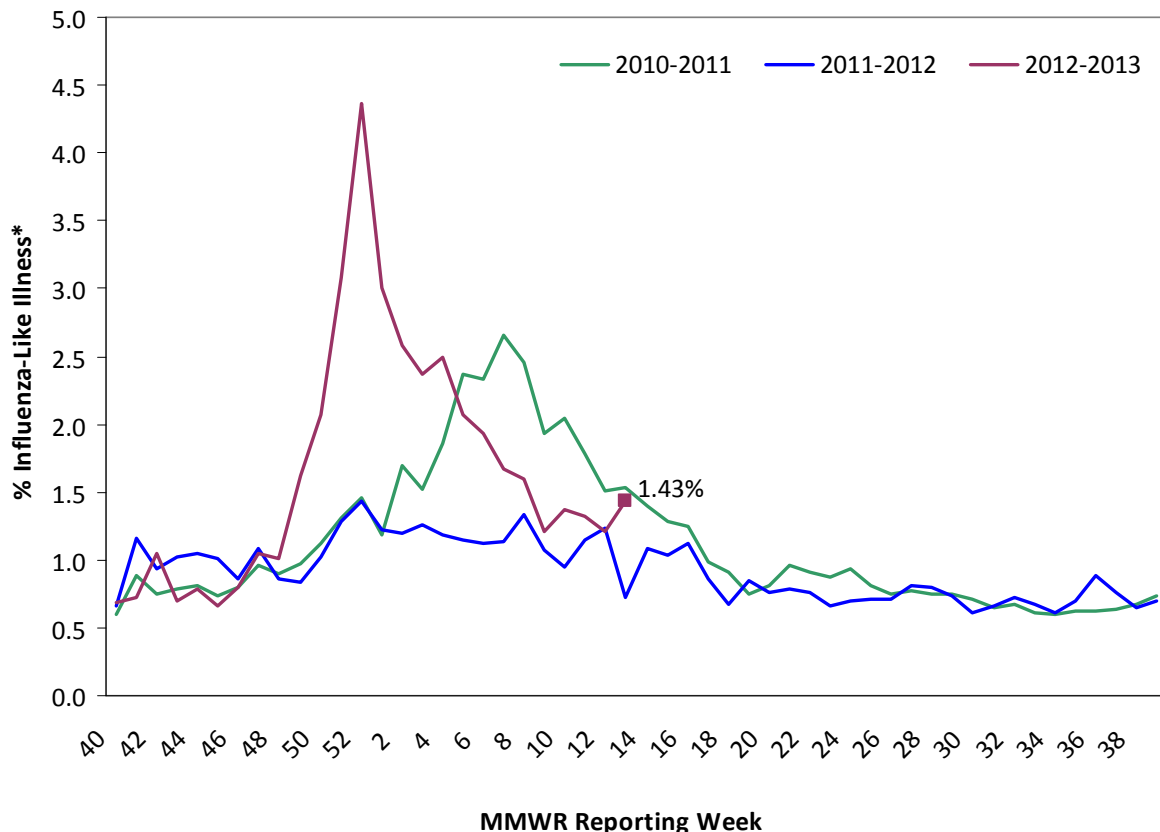
Sentinel Provider Surveillance: Influenza-like illness activity

Week 13 Activity¹ (representing geographic distribution): Widespread

Week 13 ILI Activity² (representing intensity of ILI activity): 3 (Minimal)

Provider offices across the US report the amount of influenza-like illness (ILI) they see in their patients each week during regular flu season. These outpatient providers' offices, which include doctors' offices, school health services, and community health centers, are called 'sentinel sites.' Here we present Massachusetts sentinel site data. Please note that the data do not represent only confirmed influenza cases, but also those just with ILI, which may be caused by other viruses. ILI is defined as fever above 100.0¹ in addition to either cough or sore throat. ILI is a marker of influenza and is used throughout the regular influenza season to monitor influenza since most people are not tested for influenza. Figure 1 shows that ILI activity is low and is consistent with activity levels normally seen at this time of year. For more information, see CDC's influenza surveillance website at www.cdc.gov/flu/weekly/fluactivitysurv.htm.

Figure 1: Percentage of ILI visits reported by sentinel provider sites



*Influenza-like illness (ILI, defined by fever >100F and cough and/or sore throat), as reported by Massachusetts sentinel surveillance sites.

¹ CDC activity indicator also used in past seasons – indicates how widespread influenza activity level is in the state.

² New CDC activity indicator, introduced for 2010-2011 season – more quantitative indicator of the level of ILI activity across the state.

Table 1 below shows a geographical distribution of reported ILI in Massachusetts. Table 1 shows that sentinel sites in most regions of the state are reporting slightly elevated levels of ILI, while some sentinel sites in the West are reporting little to no activity.

Table 1: Percent ILI reported weekly by Massachusetts sentinel sites

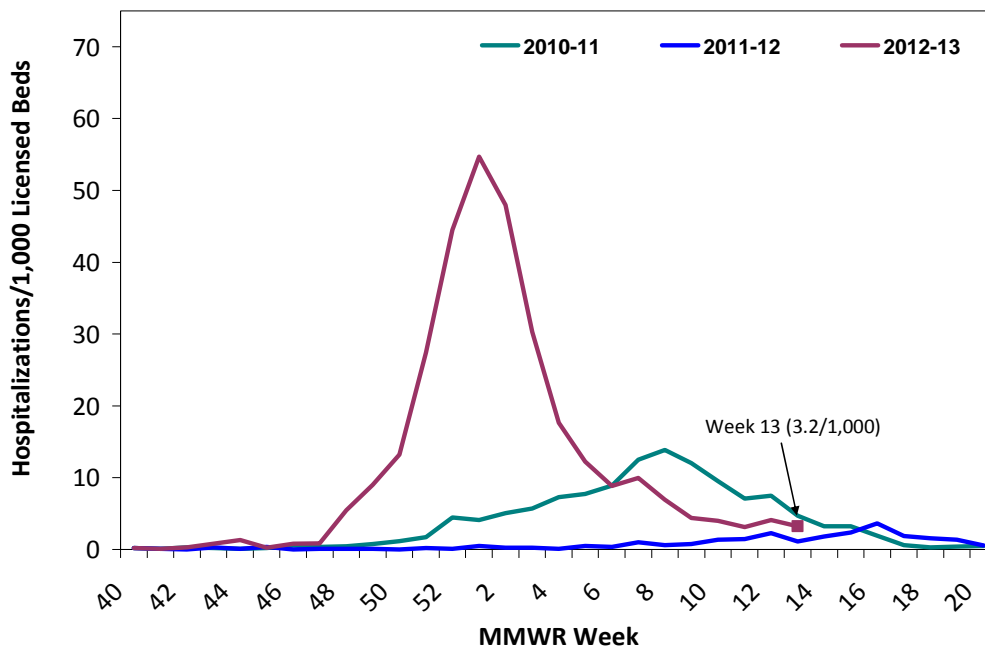
	Regional Baseline % ILI*	2012-2013			2011-2012		
		% ILI	Report. Sites	Total enroll.	% ILI	Report. Sites	Total enroll.
Boston	0.84	1.00	3	5	0.31	5	7
Central	1.43	1.56	8	11	0.20	8	11
Inner Metro Boston	0.97	1.34	11	13	0.92	11	12
Northeast	0.92	1.38	8	11	0.62	9	12
Outer Metro Boston	2.55	3.46	3	4	1.67	4	4
Southeast	0.24	0.68	2	3	0.00	2	3
West	1.17	0.30	4	7	0.78	6	8

*Regional baseline % ILI is calculated weekly using reporting providers' baseline % ILI estimates.

Influenza-Associated Hospitalizations

In 2010, MDPH began to request voluntary reporting of all laboratory-confirmed influenza hospitalizations from hospitals in Massachusetts. Up to 50 hospitals from across the state report these data to MDPH on a weekly basis during flu season. The graph below shows the number of laboratory-confirmed hospitalizations per 1,000 licensed beds represented by reporting hospitals for the current season and two previous seasons.

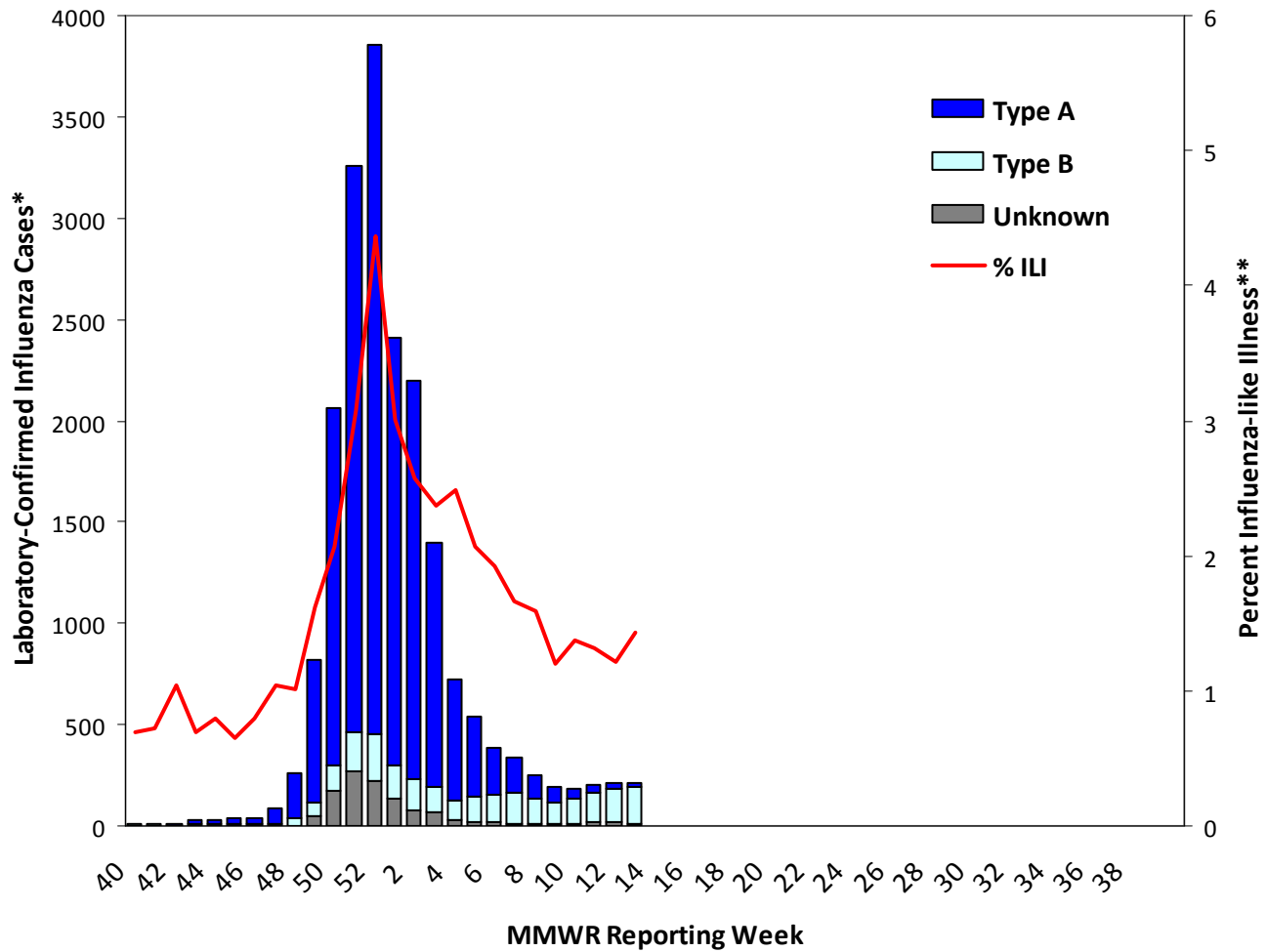
Figure 2: Massachusetts laboratory-confirmed influenza hospitalizations



Laboratory testing for influenza

Laboratories in Massachusetts report all positive influenza tests to MDPH, including viral culture, polymerase chain reaction (PCR) and rapid influenza diagnostic tests. Because the majority of cases are not tested, the number of 'confirmed' cases does not reflect the overall incidence of influenza; however, this information is essential to track the types of influenza circulating in Massachusetts and can be a useful indicator of the presence and distribution of influenza in the state. Figure 3 illustrates the number of laboratory confirmed cases in Massachusetts by week, shown along with Massachusetts ILI. Table 2 reflects the number of laboratory-confirmed influenza cases by region and influenza type.

**Figure 3: Laboratory-confirmed Influenza Cases and Influenza-like Illness
Massachusetts, September 30, 2012 – March 30, 2013**



*Influenza cases confirmed via viral culture, PCR or rapid test by specimen collection date.

**Influenza-like illness (ILI, defined as fever>100F and cough and/or sore throat), as reported by Massachusetts sentinel surveillance sites by CDC week date.

Table 2: Laboratory-confirmed Influenza by Region – 2012-2013 and 2011-2012 Influenza Seasons

Region	2012-2013						2011-2012					
	A		B		Untyped		A		B		Untyped	
	Week	YTD	Week	YTD	Week	YTD	Week	YTD	Week	YTD	Week	YTD
Boston	5	1385	9	141	0	12	0	28	0	39	0	0
Central	3	2264	40	548	2	50	0	41	0	18	0	5
Inner Metro Boston	6	2583	24	307	0	67	9	125	2	47	0	4
Northeast	2	2876	40	352	9	714	4	95	2	41	0	17
Outer Metro Boston	5	2026	18	288	0	84	6	65	2	46	0	1
Southeast	4	2617	27	359	0	177	5	93	3	177	4	73
Unknown	0	965	8	160	0	10	0	13	0	3	0	0
West	1	1197	11	378	0	17	7	92	1	21	0	8
Total	26	15,913	177	2,533	11	1,131	31	552	10	392	4	108

Testing at the Hinton State Laboratory Institute

The William A. Hinton State Laboratory Institute performs confirmatory testing, typing and subtyping of influenza using PCR and viral culture. Figure 4 summarizes the testing conducted at the HSLI since MMWR week 40 or the week ending October 6, 2012. To date the HSLI has confirmed 168 cases of seasonal A/H3N2 influenza, 8 cases of 2009 A/H1N1 influenza and 42 cases of influenza B for the 2012-2013 season.

At the start of the 2012-2013 season, the first 10 early season isolates and thereafter 5 every two weeks will be sent by Hinton State Laboratory Institute (HSLI) for National Routine Surveillance including antigenic characterization by hemagglutination inhibition (HI), genetic analysis (sequencing) and sensitivity to FDA-approved drugs for identification of resistance. HSLI will perform pyrosequencing of 5 or more samples every two weeks to detect the point mutation (H275Y) in the N1 NA gene target of influenza A (2009) viruses to assess trends in oseltamivir-resistance. This information will be reported locally and captured nationally in FluView. Specimens will also be evaluated at commercial laboratories. There were three specimens from MA during the 2009-2010 season with this mutation conferring oseltamivir-resistance and none during the 2010-2011 and 2011-2012 seasons and none for the 2012-2013 season to date. Fourteen influenza A/H3N2 specimens, two A/H1N1 and three influenza B specimens have been characterized for the 2012-2013 season to date; two influenza B specimens, all 14 A/H3N2 specimens and both influenza A/H1N1 specimens were consistent with strains in the 2012-2013 seasonal influenza vaccine; one influenza B specimen was not consistent with the strain included in the vaccine.

Figure 4: Influenza positive tests reported to CDC by HSLI, September 30, 2012 – March 30, 2013

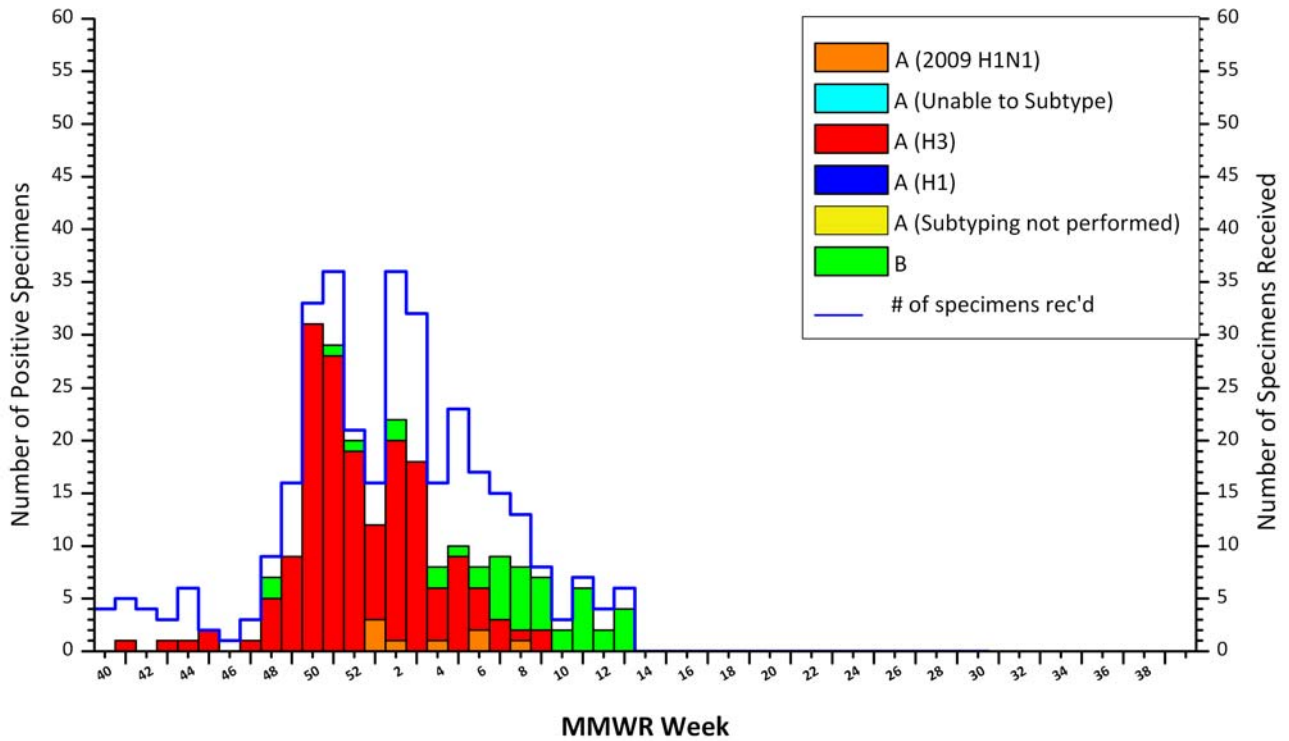


Table 3: Weekly Summary of HSLI Influenza Surveillance Test Results

2012-2013 Season: Influenza Surveillance William A. Hinton State Laboratory Institute								
MMWR Week: (Specimen Collected)	2009 H1N1	Seasonal A/H1N1	Seasonal A/H3N2	Influenza B	No. Flu Pos (%)	Unsat	Total Tested	Total Rec'd
10 (03/03 - 03/09/13)	0	0	0	2	2(67%)	0	3	3
11 (03/10 - 03/16/13)	0	0	0	6	6(86%)	0	7	7
12 (03/17 - 03/23/13)	0	0	0	2	2(50%)	0	4	4
13 (03/24 - 03/30/13)	0	0	0	4	4(67%)	0	6	6
Prior 4 wk Total	0	0	0	14	14(70%)	0	20	20
Cumulative Season total	8	0	168	42	218(68%)	18	321	339

All data are subject to change as test results become finalized. 2012-2013 influenza season began MMWR 40 (09/30 - 10/06/2012).