MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
WEEKLY INFLUENZA UPDATE
January 5, 2012

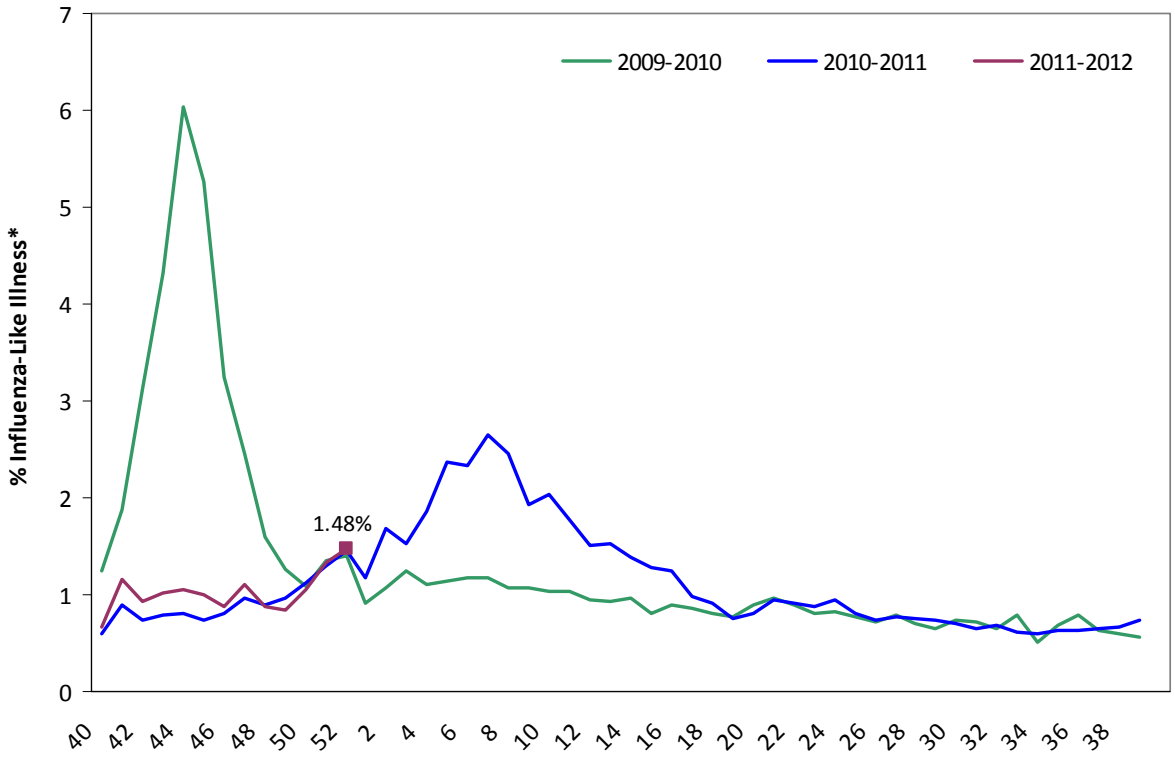
All data in this report are preliminary and subject to change as more information is received.

Sentinel Provider Surveillance: Influenza-like illness activity

Week 52 Activity[1] (representing geographic distribution): Local
Week 52 ILI Activity[2] (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 100.0[1] 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 slightly elevated 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 some sentinel sites from the Outer Metro Boston region of the state are reporting increased ILI activity, while sites from other regions in the state are reporting mildly elevated levels. Elevated ILI in most but not all regions is typical for this time of the season, as overall activity increases.

Table 1: Percent ILI reported weekly by Massachusetts sentinel sites

	2011-2012			2010-2011		
	% ILI	Report. Sites	Total enroll.	% ILI	Report. Sites	Total enroll.
Boston	1.17	5	7	1.50	6	7
Central	1.71	8	12	0.94	11	12
Inner Metro Boston	1.49	8	12	1.46	9	10
Northeast	1.20	9	12	1.45	10	12
Outer Metro Boston	3.78	3	4	2.92	4	4
Southeast	0.00	1	3	0.14	3	4
West	1.17	4	8	1.64	7	9

Automated Epidemiologic Geotemporal Integrated Surveillance System (AEGIS) Flu Data

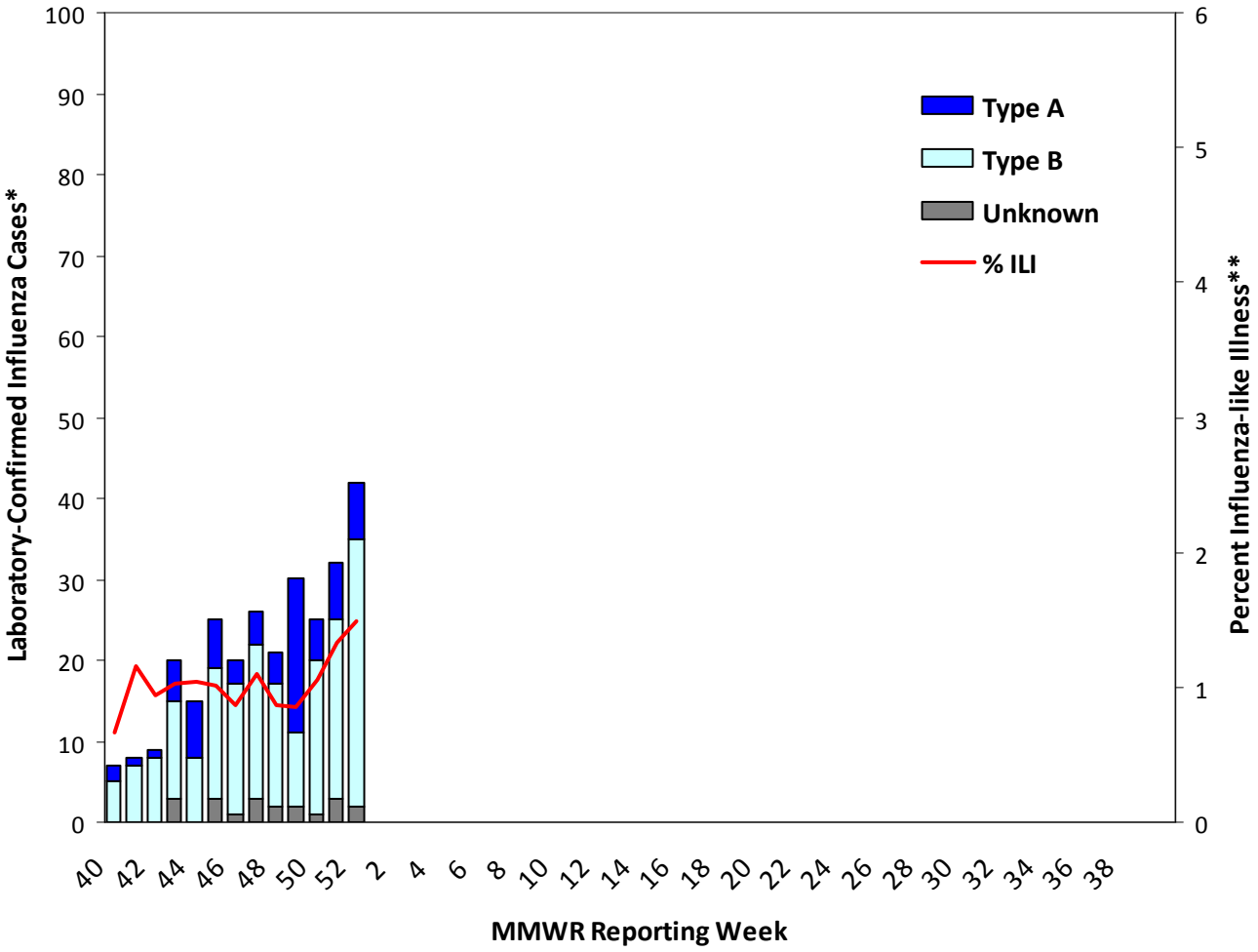
The AEGIS System is the syndromic surveillance system for MDPH, and performs automated, real-time surveillance for infectious disease outbreaks. As an adaptation of the AEGIS surveillance system, AEGIS Flu is designed to provide early warning of influenza epidemics and pandemics. With special focus on demographic and spatial patterns of illness, AEGIS Flu provides automated, real-time surveillance of influenza rates, location, and spread. Emergency department (ED) ILI data are collected from participating Massachusetts hospitals. Visits from emergency departments can be affected by several factors, including how worried people are about the flu, whether people can see their own doctor, media announcements, etc. The data are most useful for following trends over several days or weeks. In Figure 2 below, we can see current rates of total visits to emergency departments in MA due to flu-like symptoms compared to historical trends. AEGIS ILI data are elevated compared with what is expected at this time of year.

Figure 2: Percentage of Total Visits to MA Emergency Departments Due to Flu-Like Symptoms

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, October 2, 2011 – December 31, 2011



*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 – 2011-2012 and 2010-2011 Influenza Seasons

	2011-2012						2010-2011					
	A		B		Untyped		A		B		Untyped	
Region	Week	YTD	Week	YTD	Week	YTD	Week	YTD	Week	YTD	Week	YTD
Boston	0	0	6	11	0	0	40	72	2	5	4	7
Central	0	2	5	24	0	1	4	21	2	3	0	2
Inner Metro Boston	1	12	10	18	0	1	36	88	2	7	0	4
Northeast	0	5	1	16	1	2	16	60	2	7	1	22
Outer Metro Boston	2	3	0	12	0	1	14	44	2	5	0	2
Southeast	2	30	1	8	1	10	40	92	6	9	14	41
Unknown	0	6	10	63	0	3	5	16	2	7	0	2
West	2	12	0	3	0	2	18	39	2	2	0	0
Total	7	70	33	155	2	20	173	432	20	45	19	80

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 8, 2011. To date the HSLI has confirmed 3 cases of seasonal A/H3N2 influenza for the 2011-2012 season.

At the start of the 2011-2012 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. As it is early in the season, no specimens have been characterized for the 2011-2012 season to date.

Figure 4: Influenza positive tests reported to CDC by HSLI, October 2, 2011 – December 31, 2011

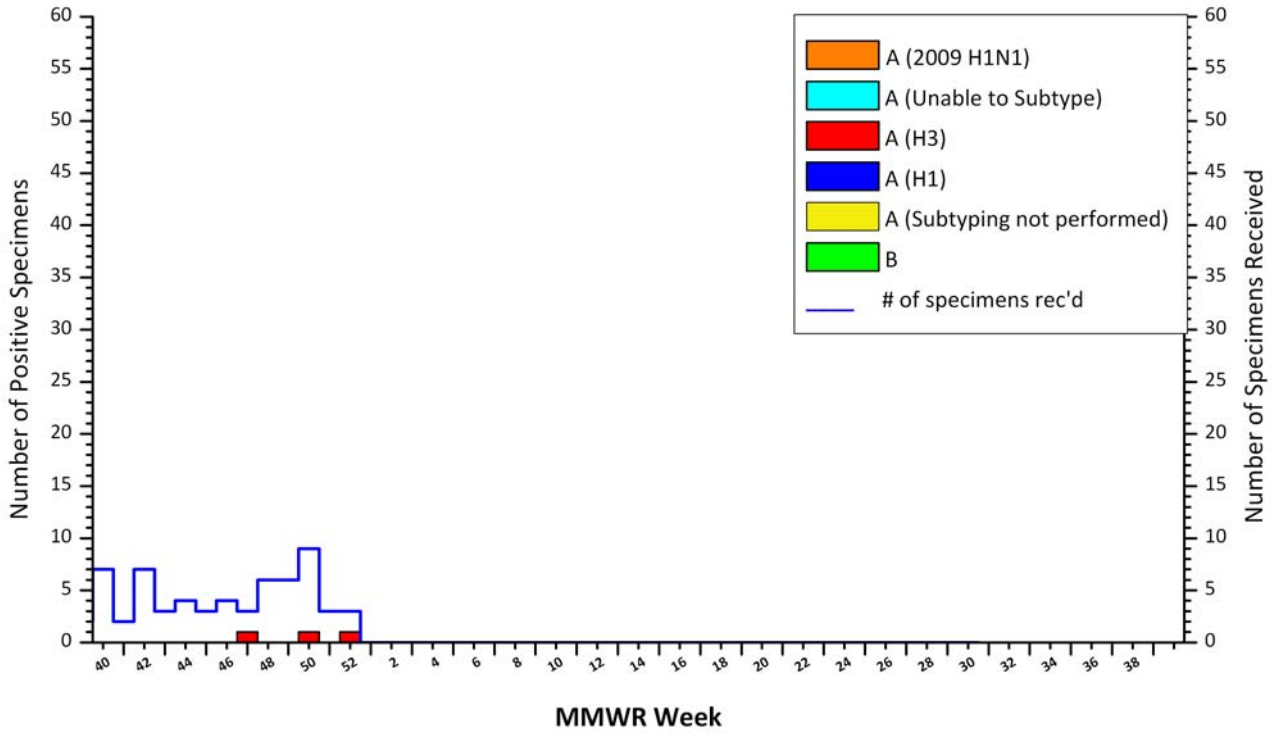


Table 3: Weekly Summary of HSLI Influenza Surveillance Test Results

2011-2012 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
49 (12/04 - 12/10/11)	0	0	0	0	**0(0%)**	0	**6**	**6**
50 (12/11 - 12/17/11)	0	0	1	0	**1(11%)**	0	**9**	**9**
51 (12/18 - 12/24/11)	0	0	0	0	**0(0%)**	1	**2**	**3**
52 (12/25 - 12/31/11)	0	0	1	0	**1(50%)**	1	**2**	**3**
Prior 4 wk Total	**0**	**0**	**2**	**0**	**2(11%)**	**2**	**19**	**21**
Cumulative Season total	**0**	**0**	**3**	**0**	**3(6%)**	**10**	**50**	**60**

All data are subject to change as test results become finalized. 2011-2012 influenza season began MMWR 40 (10/2-10/08/2011)