

Influenza Season Summary 2012-2013

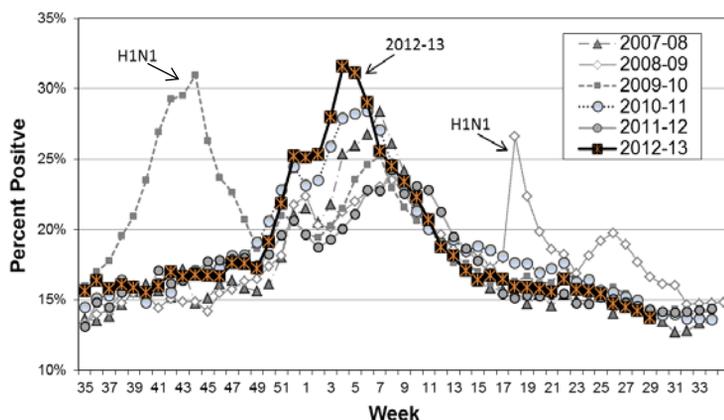
The 2012-13 influenza season in Los Angeles County (LAC) was moderately severe with the highest percent positive of influenza like illness (ILI) visits seen in our reporting emergency departments in the past 6 seasons (Figure 1). Peak activity occurred during the last week of January/beginning of February where almost 30% of visits among participating emergency departments were ILI related and the highest number of deaths occurred (Table 1, Figure 3). In addition, relative to last season, there were more influenza attributed deaths across all age groups especially in the elderly (Table 2). The typical bimodal peak of ILI activity that LAC has seen in the past was not observed in 2012-13, rather the majority of influenza activity occurred from late December to early February. Consistent with previous years, type A flu dominated the 2012-13 season, specifically the more virulent H3N2 strain. There were a total of 50 community respiratory outbreaks, 9 confirmed as influenza.

**Table 1. Surveillance Summary for LA County (2012-2013)
Peak Activity MMWR Week 5**

LA County Surveillance Summary	Influenza Peak Week 5 1/27/13-2/2/13	2012-13 Season Summary 9/30/12-7/20/13
Positive Flu Tests/Total Tests (Percent Positive Flu Tests)	552/1,904 (29.0%)	3163/28,642 (11.0%)
Percent Flu A/B	79%/21%	68%/32%
Community Respiratory Outbreaks (Influenza, Confirmed+)	13 (2)	62 (9)
Flu Deaths, Confirmed++ (Pediatric Deaths, Confirmed++)	13 (1)	70 (8)

+Confirmed influenza outbreak is defined by 2 or more positive lab tests for Influenza
 ++Confirmed influenza death is defined by a positive lab test, compatible symptoms, and clear progression from illness to death

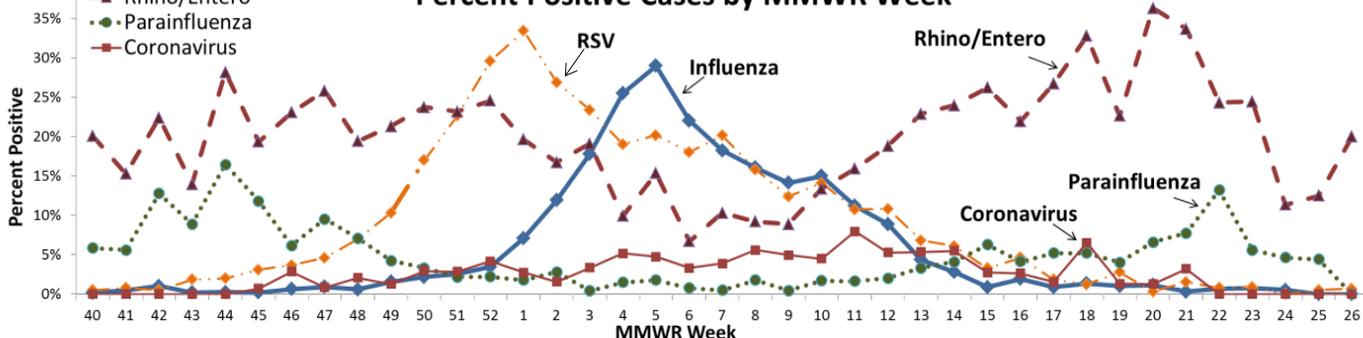
**Figure 1. Respiratory Illness ED Visits in LA County (2007-2013)
Percent Positive Visits by MMWR Surveillance Week**



Multiple Circulating Respiratory Viruses

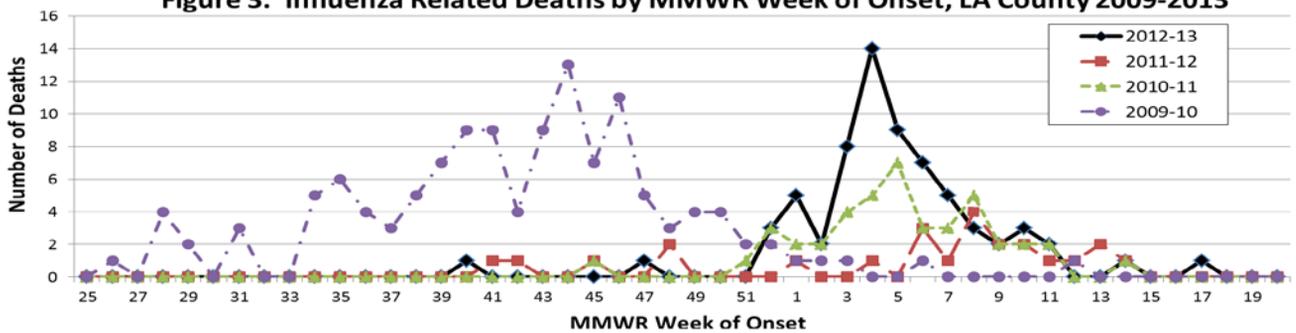
Testing of patient samples is done by 9 sentinel hospitals and laboratories across the county and reported back to LAC Department of Public Health to monitor overall surveillance of circulating respiratory viruses. Consistent with ED visits for ILI (Figure 1), influenza activity quickly rose at the end of 2012, rapidly increasing from 10% prevalence to almost 30% during January 2013 (Figure 2). Respiratory syncytial virus (RSV) surged earlier than influenza then dropped off as flu activity increased. Rhino/enterovirus lagged behind both, then peaked in the spring after RSV and influenza virus activity decreased. Coronavirus remained low throughout the season while parainfluenza activity had minor upward movement in the early fall and late spring when RSV and influenza were at their lowest.

**Figure 2. Respiratory Viruses, LA County 2012-2013
Percent Positive Cases by MMWR Week**



2012-2013 Moderately Severe Season with Increased Fatal Cases

Figure 3. Influenza Related Deaths by MMWR Week of Onset, LA County 2009-2013



During the 2012-13 influenza season LAC experienced a substantial increase in fatalities attributed to flu compared with the previous two seasons. The past three flu seasons have been predominated by type A influenza (H3N2) however for the 2012-13 season a different strain emerged antigenically characterized as A/Victoria/361/2011, whereas the previous two seasons were primarily of the Perth lineage, A/Perth/16/2009. Despite the Victoria strain being included in the 2012-13 season vaccine, LAC identified the highest number of flu deaths since the H1N1 pandemic season reflecting a moderately severe season. Consistent with last season, those 65 and older comprised the majority (53%) of deaths (Table 2). The CDC found a low vaccination efficacy rate for those over 65 years old which suggests a failure to mount a sufficient immune response (1). Table 2 shows the atypically high percentage of deaths in those under 65 years old (77%) that were most affected during the 2009 pandemic year relative to those 65 and up. During normal seasonal flu years, 90% of deaths nationally occur in those over 65 (2). Comorbid factors remain similar to previous years, with high blood pressure and overweight/obesity continuing to be top risk factors. Unfortunately data collection on flu vaccination rates in fatal cases is sparse, preventing us from examining protection from, or lack of, mortality incidence.

1. CDC. Interim Adjusted Estimates of Seasonal Influenza Vaccine Effectiveness-United States, February 2013.
 2. CDC. Updated CDC Estimates of 2009 H1N1 Influenza Cases, Hospitalizations and Deaths in the United States, April 2009 – April 10, 2010.

Table 2. Characteristics of Influenza Fatalities, LA County 2009-2013

Viruses Associated with Confirmed Influenza Fatalities 2009-2013					Demographic Characteristics of Influenza Fatalities by Flu Season 2009-2013					
	2012-13 [†] N (%)	2011-12 N (%)	2010-11 [†] N (%)	2009-10 N (%)		2012-13 N (%)	2011-12 N (%)	2010-11 N (%)	2009-10 [†] N (%)	
A no type	29 (41)	14 (58)	15 (35)	19 (16)	Age (years)	Median	68	64	45	48
A H1N1p	5 (6)	5 (21)	18 (42)	104 (82)		Range	0-100	0-104	0-92	0-94
A H3N2	23 (32)	1 (4)	3 (7)	0		0-5	5 (7)	2 (8)	4 (9)	3 (2)
B no type	15 (21)	4 (17)	7 (16)	3 (2)	6-17	3 (4)	2 (8)	2 (5)	10 (8)	
Total	70	24	43	127	18-40	4 (6)	2 (8)	14 (33)	37 (29)	
[†] One case tested positive for H1N1p & H3N2, and one tested positive for Flu A&B, both counted twice [‡] Two cases tested positive Flu A&B counted twice					41-64	22 (31)	6 (25)	19 (44)	60 (47)	
Top 10 Underlying Medical Conditions, Confirmed Adult Influenza Fatalities LA County 2009-2013					65+	36 (52)	12 (50)	4 (9)	17 (13)	
Sorted by % for 2012-13 Season	2012-13 N (%)	2011-12 N (%)	2010-11 N (%)	2009-10 N (%)	Gender	Female	35 (50)	14 (58)	23 (53)	70 (55)
Hypertension	32 (52)	13 (65)	17 (47)	34 (27)	Male	35 (50)	10 (42)	20 (47)	57 (45)	
Overweight or obese	26 (42)	9 (45)	31 (86)	69 (54)	Race	Hispanic	29 (42)	12 (50)	26 (60)	56 (49)
Heart Disease	23 (38)	12 (60)	6 (17)	40 (31)	White Non-Hispanic	25 (37)	5 (21)	9 (21)	39 (34)	
Diabetes	19 (31)	7 (35)	10 (28)	44 (35)	Black	8 (12)	4 (17)	4 (9)	11 (9)	
Lung Disease	11 (18)	3 (15)	6 (17)	42 (33)	Asian/Pacific Islander	6 (9)	3 (12)	4 (9)	9 (8)	
Immunosuppression	9 (15)	7 (35)	5 (14)	30 (24)	SPA [‡]	1: Antelope Valley	3 (4)	0 (0)	1 (2)	6 (5)
History of tobacco use	8 (13)	8 (40)	9 (25)	12 (9)	2: San Fernando	18 (26)	4 (17)	16 (37)	25 (21)	
History of drug or alcohol abuse	5 (8)	4 (20)	3 (8)	7 (5)	3: San Gabriel	8 (12)	2 (8)	4 (9)	32 (26)	
Asthma	5 (8)	3 (15)	3 (8)	9 (7)	4: Metro	13 (18)	5 (21)	3 (7)	14 (12)	
Pregnancy	0	0	1 (3)	4 (3)	5: West	8 (11)	2 (8)	1 (2)	8 (7)	
Total Adult Fatalities	62	20	37	114	6: South	7 (10)	3 (13)	6 (14)	6 (5)	
[†] Overlapping conditions and complications may total over 100% [‡] Data not available for all categories ^{††} Data taken from self-reported medical records					7: East	6 (9)	4 (17)	8 (19)	24 (20)	
					8: South Bay	7 (10)	4 (17)	4 (9)	8 (7)	
					Total Fatalities	70	24	43	127	

[†] 2009-10 season is missing race data for n=12 and SPA data for n=4
[‡] Service Planning Areas in LA County, <http://publichealth.lacounty.gov/chs/SPAMain/ServicePlanningAreas.htm>

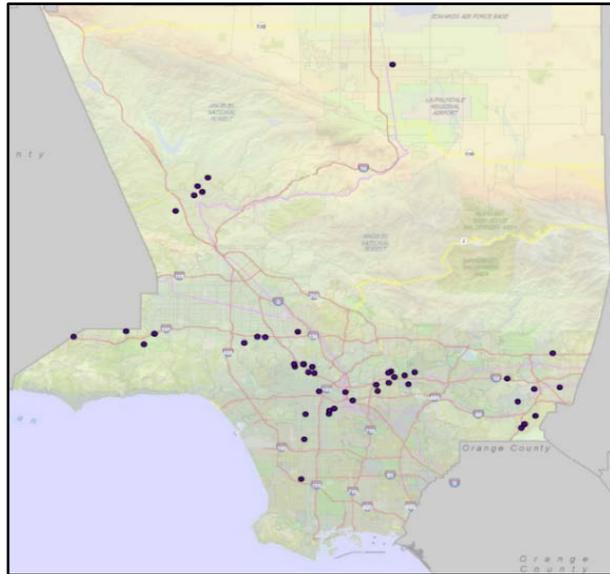
Community Respiratory Outbreaks

A total of 50 respiratory outbreaks were confirmed, of those 9 were attributed to influenza with at least 2 positive lab tests (3 Flu A, 4 Flu B, and 2 Flu A& B mixed). Consistent with previous flu seasons, the majority (over 80%) of 2012-13 outbreaks in LAC were school based (Table 3). This steady trend emphasizes the continued need to monitor flu activity in school settings and encourage parents to vaccinate their children. Outbreak location was mapped across service planning areas with most occurring in the San Fernando, Metro, and San Gabriel areas (Figure 4).

Table 3. Characteristics of Confirmed Community Respiratory Disease Outbreaks LA County 2012-2013

Figure 4. Geographic Distribution of Community Respiratory Disease Outbreaks Across SPAs LA County 2012-2013

Characteristics of Confirmed Community Respiratory Outbreaks in LA County 2009-2013				
Characteristic	2012-13 N (%)	2011-12 N (%)	2010-11 N (%)	2009-10 N (%)
Total†	50	27	53	432
Location				
School or Pre-School	41 (82)	22 (81)	46 (87)	376 (87)
Assisted Living	6 (12)	2 (7)	3 (6)	20 (5)
Daycare/child care	3 (6)	3 (11)	3 (6)	6 (1)
Juvenile Detention/Jail	0	0	0	13 (3)
Hospital	0	0	0	8 (2)
Other	0	0	1 (1)	9 (2)
Etiology				
Influenza††	9 (18)	3 (11)	14 (26)	82 (19)
Streptococcal	1 (2)	5 (19)	3 (6)	0
Other respiratory	40 (80)	19 (70)	36 (68)	350 (81)



†Totals from previous seasons have been updated
 ††Confirmed influenza outbreaks must include at least 2 positive lab tests

Preparing for the 2013-2014 Season: Trivalent and Quadrivalent Vaccine Components

The vast majority of the seasonal flu vaccines offered for the 2013-2014 season will be the usual trivalent (3 components) form; but for the first time ever, quadrivalent (4 components) vaccine will be available. The 2013-14 trivalent vaccine will include: A/California/7/2009 (H1N1)pdm09, A/Victoria/361/2011 (H3N2), B/Massachusetts/2/2012 (Yamagata lineage); the same A viral components as last season and a new B. The quadrivalent will include an additional B virus, Brisbane/60/2008 (Victoria lineage). Despite these two types of vaccine, the CDC is not promoting one over the other; instead, urging all eligible individuals to get vaccinated. A recent study published by the CDC estimated that over six influenza seasons from 2005-2011, 13.6 million illnesses, 3.8 million medical visits and 112,900 influenza related hospitalizations were avoided as a benefit of vaccination (1).

For more information go to <http://www.cdc.gov/flu/about/season/flu-season-2013-2014.htm>

1. Influenza illness and hospitalizations averted by influenza vaccination in the United States, 2005-2011. Kostova, D. et al. 2013).

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