

## 2013-2014 Influenza Season Summary

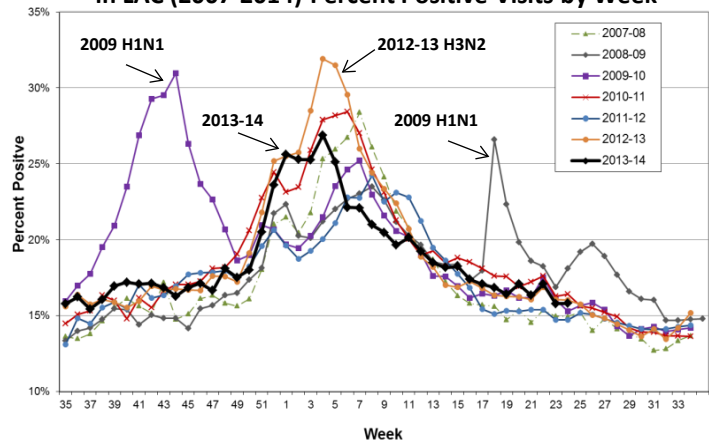
The 2013-2014 influenza season was dominated by type A pandemic 2009 H1N1 strain (pH1N1), resulting in moderately severe activity both locally and nationally. This season pH1N1 caused the greatest impact on morbidity and mortality since its initial emergence despite circulating as a seasonal strain and being included in the vaccine each season since the pandemic. A total of 105 influenza-associated deaths were confirmed in Los Angeles County (LAC), with the 18-64 years age group accounting for 68% of those. The disproportionate effect on younger adults is similar to what was seen during the 2009 pandemic when pH1N1 first appeared ([MMWR Update: Influenza Activity](#)). In addition, 22 of 30 reported Intensive Care Unit (ICU) hospitalized influenza cases\* in LAC were in those younger than 65 years old. Overall influenza activity reached peak levels during the last week of January (Table 1) where the highest percent positive visits to emergency departments for influenza-like-illness (ILI) were reported (Figure 1), the most number of flu tests from sentinel sites were performed, and the greatest number of influenza-associated deaths occurred (community respiratory outbreaks peaked the previous week). A total of 17 community respiratory outbreaks were confirmed, with 2 definitively attributed to influenza verified by positive lab tests.

Flu death counts updated throughout report 9/24/14

	Peak Week 4 1/19/14-1/25/14	2013-14 Season 9/1/13-7/26/14
Positive Flu Tests/Total Tests† (Percent Positive Flu Tests)	681/2,853 (23.9%)	3,953/41,032 (9.6%)
Percent Flu A/B	97/3	92/8
Community Respiratory Outbreaks Influenza confirmed outbreaks††	2 0	17 2
Pediatric Flu Deaths	0	4
Adult Flu Deaths, confirmed†††	22	101
<b>Total</b>	<b>22</b>	<b>105</b>

†Sentinel sites (9 participating) ††Associated with at least one positive influenza lab test  
 †††Confirmed influenza death is defined by a positive lab test, compatible symptoms, and clear progression from illness to death  
 Note: LA County tracks flu deaths of all ages, CA State reports on those <65 years only

Figure 1. Respiratory Illness Emergency Department Visits in LAC (2007-2014) Percent Positive Visits by Week

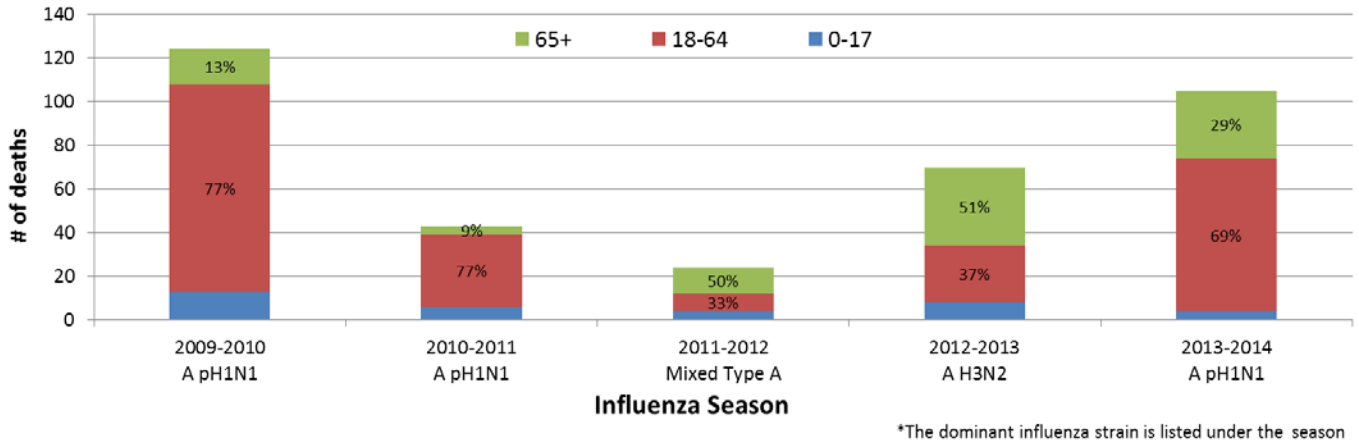


### Highest Reported Influenza-Associated Deaths Since the 2009 Pandemic

LAC has tracked influenza related deaths across the age spectrum since the 2009 pandemic which allows for a more comprehensive overview of the true burden of morbidity caused by the disease (Figure 2). During the 2013-2014 influenza season, the highest number of influenza-associated deaths were reported since the 2009 pandemic. In LAC a total of 105 deaths were attributed to influenza; 4 pediatric and 101 adult. Both nationally and locally, the majority of influenza burden was focused on the 18-64 year old age group which accounted for 68% of influenza-associated deaths in Los Angeles County. During this season, one influenza-associated death of a pregnant woman was reported. This fatality highlights the importance of vaccination during pregnancy and the postpartum period. Influenza-associated deaths are underreported, and therefore, the numbers documented here are a vast underestimate of the true morbidity influenza causes. Despite the limitation of assessing the true impact of disease burden, this measure is useful in comparing seasons as well as aiding in identifying new risk factors for severe influenza outcomes.

\*Hospitalized reports of severe influenza cases are **NOT** required by the Los Angeles County Department of Public Health, however some hospitals do so on a voluntary basis. Therefore our data on ICU influenza cases is not all inclusive and should be interpreted as an estimate of overall hospitalized cases of influenza in our county.

**Figure 2. Influenza-Associated Fatalities by Age Group Los Angeles County 2009-2014**



\*The dominant influenza strain is listed under the season

**Table 2. Demographic Characteristics of Influenza Fatalities LAC 2009-2014**

		2013-14 N (%)	2012-13 N (%)	2011-12 N (%)	2010-11 N (%)	2009-10† N (%)
Age (years)	Median	56	68	64	45	48
	Range	0-89	0-100	0-104	0-92	0-94
	0-5	1 (1)	5 (7)	2 (8)	4 (9)	3 (2)
	6-17	3 (3)	3 (4)	2 (8)	2 (5)	10 (8)
	18-40	13 (12)	4 (6)	2 (8)	14 (33)	37 (29)
	41-64	59 (56)	22 (31)	6 (25)	19 (44)	60 (47)
Gender	65+	30 (28)	36 (52)	12 (50)	4 (9)	17 (13)
	Male	67 (64)	35 (50)	10 (42)	20 (47)	57 (45)
Race	Female	38 (36)	35 (50)	14 (58)	23 (53)	70 (55)
	Hispanic	48 (46)	29 (42)	12 (50)	26 (60)	56 (49)
	White Non-Hispanic	41 (39)	25 (37)	5 (21)	9 (21)	39 (34)
	Black	9 (8)	8 (12)	4 (17)	4 (9)	11 (9)
Total Fatalities	Asian/Pacific Islander	7 (7)	6 (9)	3 (12)	4 (9)	9 (8)
		105	70	24	43	127

†2009-10 season is missing race data for n=12

### Being Overweight or Obese Contributes to Severe Influenza Outcomes

Comorbidities associated with fatal influenza cases remain similar to previous seasons: the top three underlying conditions were: hypertension, being overweight or obese, and heart disease (Table 3). Being overweight or obese was identified as a stand-alone risk factor for severe influenza outcomes, identified in 11% of adult flu-related deaths in LAC. In addition, 4 of 26 (15%) adult flu ICU hospitalizations were found to have no additional underlying medical conditions besides obesity. Healthcare providers should encourage influenza vaccination for their overweight patients even if they have no other underlying medical conditions and advise them to consider seeking medical attention if they do experience ILI since severe outcomes are a possibility. Image 1 is an example of free influenza health education materials available at: <http://publichealth.lacounty.gov/acd/HealthEdFlu.htm>

**Table 3. Top 10 Underlying Medical Conditions, Adult Influenza Fatalities LAC 2009-2014**

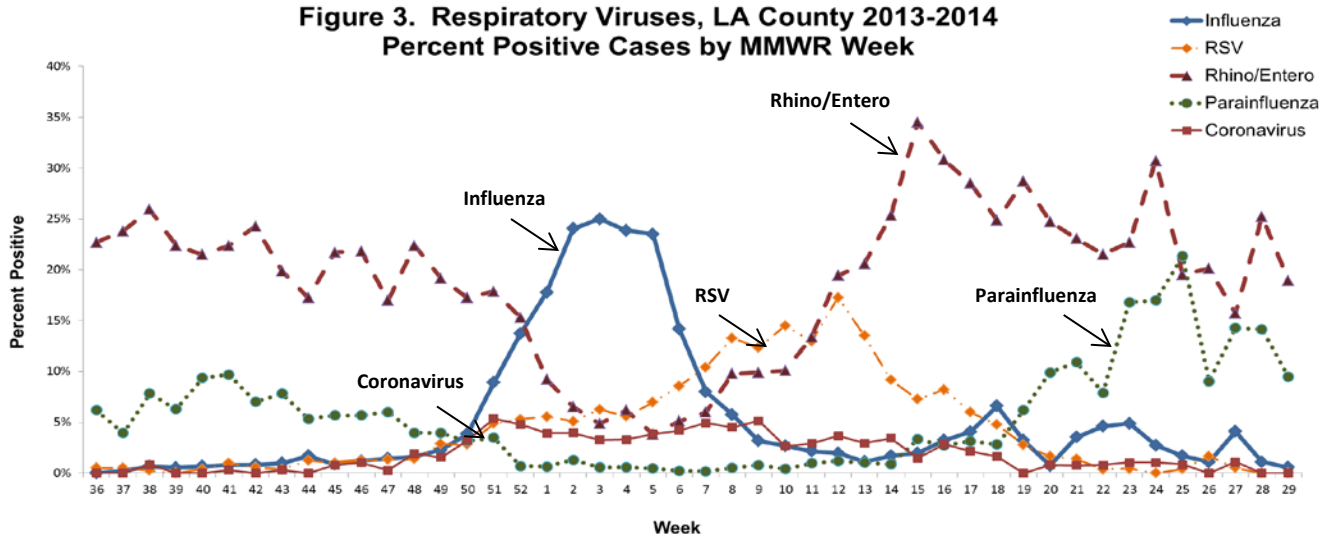
	2013-14* N (%)	2012-13 N (%)	2011-12 N (%)	2010-11 N (%)	2009-10 N (%)
Hypertension	46 (46)	32 (52)	13 (65)	17 (47)	34 (27)
Overweight or obese	40 (40)	26 (42)	9 (45)	31 (86)	69 (54)
History of tobacco use	35 (35)	8 (13)	8 (40)	9 (25)	12 (9)
Heart Disease	33 (33)	23 (38)	12 (60)	6 (17)	40 (31)
Diabetes	32 (32)	19 (31)	7 (35)	10 (28)	44 (35)
Lung Disease	17 (18)	11 (18)	3 (15)	6 (17)	42 (33)
Immunosuppression	19 (20)	9 (15)	7 (35)	5 (14)	30 (24)
History of drug or alcohol abuse	17 (17)	5 (8)	4 (20)	3 (8)	7 (5)
Asthma	10 (10)	5 (8)	3 (15)	3 (8)	9 (7)
Pregnancy	1 (1)	0	0	1 (3)	4 (3)
<b>Total Adult Fatalities</b>	<b>101</b>	<b>62</b>	<b>20</b>	<b>37</b>	<b>114</b>

\* Ordered for the 2013-14 season † Due to overlapping conditions and complications, total will exceed 100%

‡ Data not available for all categories †† Data taken from self-reported medical records



**Figure 3. Respiratory Viruses, LA County 2013-2014  
Percent Positive Cases by MMWR Week**



### Additional Circulating Respiratory Pathogens

In addition to laboratory reports on influenza virus, sentinel labs also submit data on a variety of respiratory pathogens. Figure 3 shows the peak of percent positive influenza tests that occurred at the beginning of January and continued for several weeks until flu started to decrease. The vast majority of influenza type was A pH1N1, however flu B was responsible for a greater portion of later season flu activity. Concurrently, other respiratory pathogens such as rsv, rhinovirus, coronavirus, and parainfluenza circulated at very low background levels. However once influenza activity began to decrease, rsv and rhinovirus, which cause symptoms of the common cold, increased sharply and persisted throughout the Spring. LAC conducts year round influenza surveillance as the virus perseveres even through the summer months. In other respiratory disease news, pertussis activity and outbreaks dramatically increased this season prompting the California Department of Public Health to declare a statewide epidemic. For more information see: [Pertussis](#)

**Table 4. Characteristics of Confirmed Community Respiratory Outbreaks in LA County 2009-2014**

Characteristic	2013-14	2012-13	2011-12	2010-11	2009-10
	N (%)	N (%)	N (%)	N (%)	N (%)
<b>Total†</b>	<b>17</b>	<b>50</b>	<b>27</b>	<b>53</b>	<b>432</b>
<b>Location</b>					
School or Pre-School	11 (65)	41 (82)	22 (81)	46 (87)	376 (87)
Assisted Living	3 (17)	6 (12)	2 (7)	3 (6)	20 (5)
Daycare/child care	1 (6)	3 (6)	3 (11)	3 (6)	6 (1)
Juvenile Detention/Jail	0	0	0	0	13 (3)
Hospital		0	0	0	8 (2)
Other	2† (12)	0	0	1 (1)	9 (2)
<b>Etiology</b>					
Influenza††	2 (12)	9 (18)	3 (11)	14 (26)	82 (19)
Streptococcal	0	1 (2)	5 (19)	3 (6)	0
Other respiratory	15 (88)	40 (80)	19 (70)	36 (68)	350 (81)

†Home for pregnant women and children

††Confirmed influenza outbreaks must include at least 1 positive lab tests

## Overweight?

Extra Weight = Extra Risk for Flu Complications

Are you overweight? Hoping to lose weight?

Did you know that being overweight or obese increases your chance of serious complications from the flu?

In the 2010-11 flu season, 80% of adults in LA that died from flu-related complications were overweight or obese. **Don't be a statistic.**

Make flu vaccination your first step to good health.

**Get vaccinated!**

If you don't have a regular health care provider, call 2-1-1 or visit [www.publichealth.lacounty.gov](http://www.publichealth.lacounty.gov) to find free or low-cost vaccinations near you.

Los Angeles County Department of Public Health 12/2/13  
www.publichealth.lacounty.gov 231-English

**Image 1. Los Angeles County Influenza Health Education Materials**

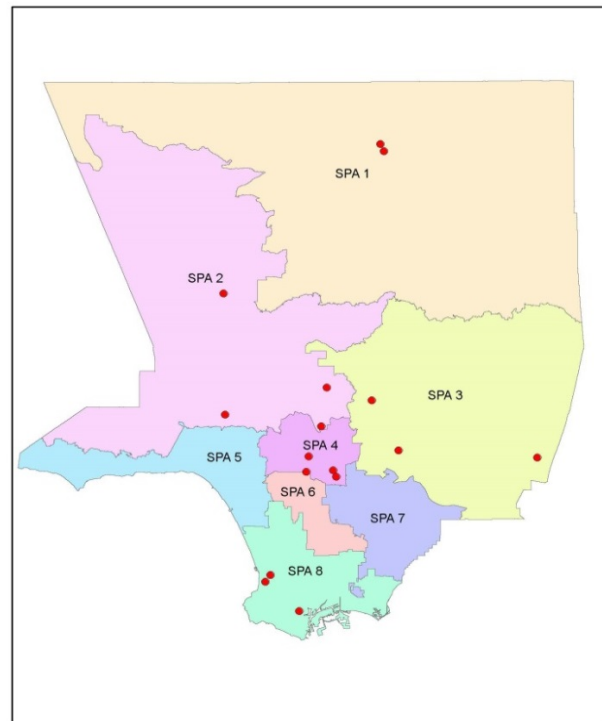
## Respiratory Outbreaks

The number of community related respiratory outbreaks was down from the number reported last year, as well as previous seasons. Only 17 community respiratory outbreaks were confirmed with 2 of those attributed to laboratory confirmed influenza. Consistent with previous seasons, the majority of outbreaks occurred in schools or assisted living residences and were evenly distributed throughout the county (Table 4 & Figure 4). Reasons for the discordance of reported respiratory outbreaks and the high level of influenza activity this season are unknown. General underreporting of community respiratory outbreaks may be one explanation.

## Vaccine Match and Efficacy

The CDC reports that the 2013-14 seasonal influenza vaccine was a good match to circulating strains, however only 34% of adults aged 18-64 years had received their vaccine by mid-November. Midseason estimates for vaccine effectiveness for the 2013-14 seasonal influenza vaccine showed an overall effectiveness of 61% which suggest significant benefits from preventing medical visits associated with ILI. [Interim Estimates of 2013-14 Seasonal Influenza Vaccine Effectiveness](#)

**Figure 4. Geographic Distribution of Community Respiratory Outbreaks By SPA, LA County 2013-2014**



## Looking Forward

The influenza vaccine for the 2014-2015 season has already been developed and is currently in production. The components are the same as the 2013-2014 vaccine and will include:

- A/California/7/2009 (H1N1) pdm09-like virus;
- A/Texas/50/2012/(H3N2)-like virus;
- B/Massachusetts/2/2012-like virus.
- B/Brisbane/60/2009-like virus (Quadrivalent formulation only)

The Advisory Committee on Immunization Practices has recommended a preference for the nasal spray flu vaccine (live attenuated influenza vaccine) over the traditional flu shot (inactivated influenza vaccine) for children 2-8 years old. This recommendation is based on a review of studies that suggest the nasal spray can provide better protection than the flu shot among children in this age group. All nasal spray flu vaccines for the 2014-15 season are a quadrivalent composition which include protection against two of each A and B strains. As a reminder, flu vaccines are recommended for everyone 6 months of age and older unless contraindications are identified. Since the nasal spray does not make up the majority of flu vaccine offered each year, if the spray is not immediately available the flu shot should be given without delay. The Centers for Disease Control and Prevention recommends getting the flu vaccine as soon as it becomes available as it can take up to two weeks for antibodies to develop that protect against influenza infection. For more information from the CDC about the 2014-2015 influenza season see: [What You Should Know for the 2014-2015 Influenza Season | Seasonal Influenza \(Flu\)](#)

**Acknowledgments:** The Los Angeles County Department of Public Health Acute Communicable Disease Control Program would like to thank all of the laboratorians, infection preventionists, school personnel, Community Health Services staff, medical examiners, medical records personnel, nurses and physicians, and others who report cases, obtain information, control outbreaks, provide vaccine, and are an integral part in the surveillance and control of influenza, and other respiratory diseases, in Los Angeles County. Without these individuals, our work would not be possible.