

# **INFLUENZA SUMMARY REPORT 2005-2006 SEASON UTAH DEPARTMENT OF HEALTH**

## **Report Purpose and Acknowledgements**

The purpose of this document is to provide Utah influenza partners a concise summary of this season's major results. Information displayed in this report has been compiled by the Utah Department of Health Bureau of Epidemiology (UDOH-Epid), but reflects information obtained from concerted joint efforts. All activities related to influenza during the 2005-2006 season involved major contributions from many different entities. These include as follows: local health departments (LHDs), the Utah Public Health Laboratory (UPHL), UDOH-Immunization Program, UDOH-Public Information Office, private health care providers participating in the sentinel site system, and schools across the state collecting absenteeism data. The intent of this report is to document the results of the efforts put forth by these entities during the 2005-2006 season.

## **Introduction to Influenza Surveillance in Utah**

Influenza surveillance in Utah involves multiple components. These include case reports of influenza-associated hospitalizations (IAHs), reports of patient visits for influenza-like illness (ILI) from sentinel clinics, reports of student absences from schools, reports of pediatric mortality due to influenza, and collection and review of syndromic surveillance data for respiratory and constitutional categories using the Real-time Outbreak and Disease Surveillance (RODS).

Collection of information related to hospitalized case reports, sentinel visits, and student absenteeism, occur primarily through LHDs. This information is traditionally collected at the local level and sent to UDOH-Epid for compilation and further analysis. Weekly web postings allow analyzed results to be disseminated to involved partners, media entities, and the general public. Additionally, statistics depicting IAHs trends were distributed to an internal audience during active circulation.

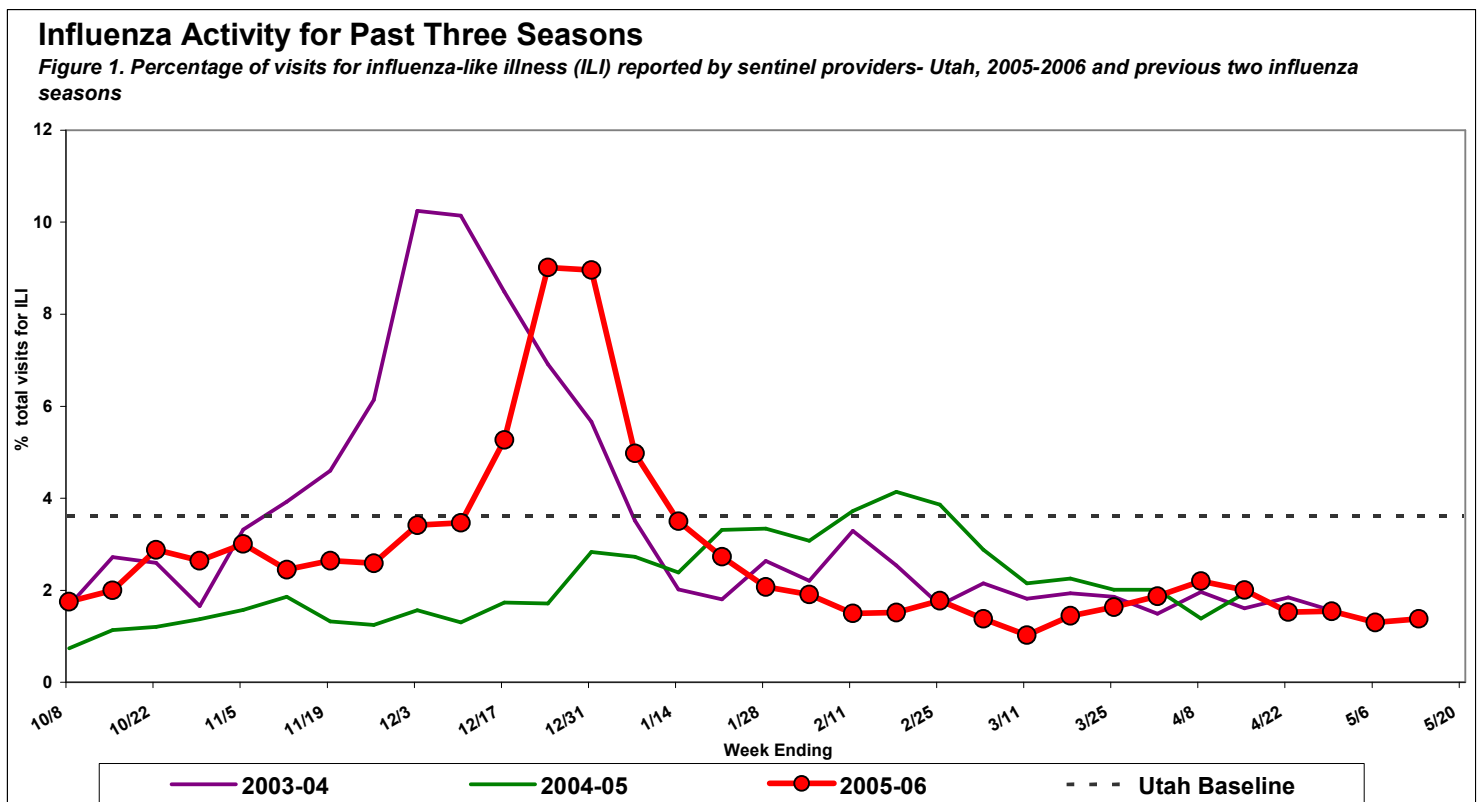
## **2005-2006 Influenza Season, National Highlights**

Influenza activity during the 2005-2006 season was moderate in the United States. Activity increased December as influenza began to actively circulate in western states, including Utah. After this initial increase, national activity then decreased and did not begin to increase again until February. The percentage of visits for ILI then remained above national baselines until early April. In contrast, ILI levels in Utah remained below baselines since mid-January. Among the influenza viruses identified by WHO and NREVSS laboratories 83.4% were influenza A viruses and 16.6% were influenza B viruses. Among the 5480 (40.6%) of the 13,486 influenza A viruses subtyped: 5,093 (92.9%) were influenza A (H3N2) viruses and 387 (7.1%) were influenza A (H1N1) viruses.

## 2005-2006 Influenza Season, Utah Highlights

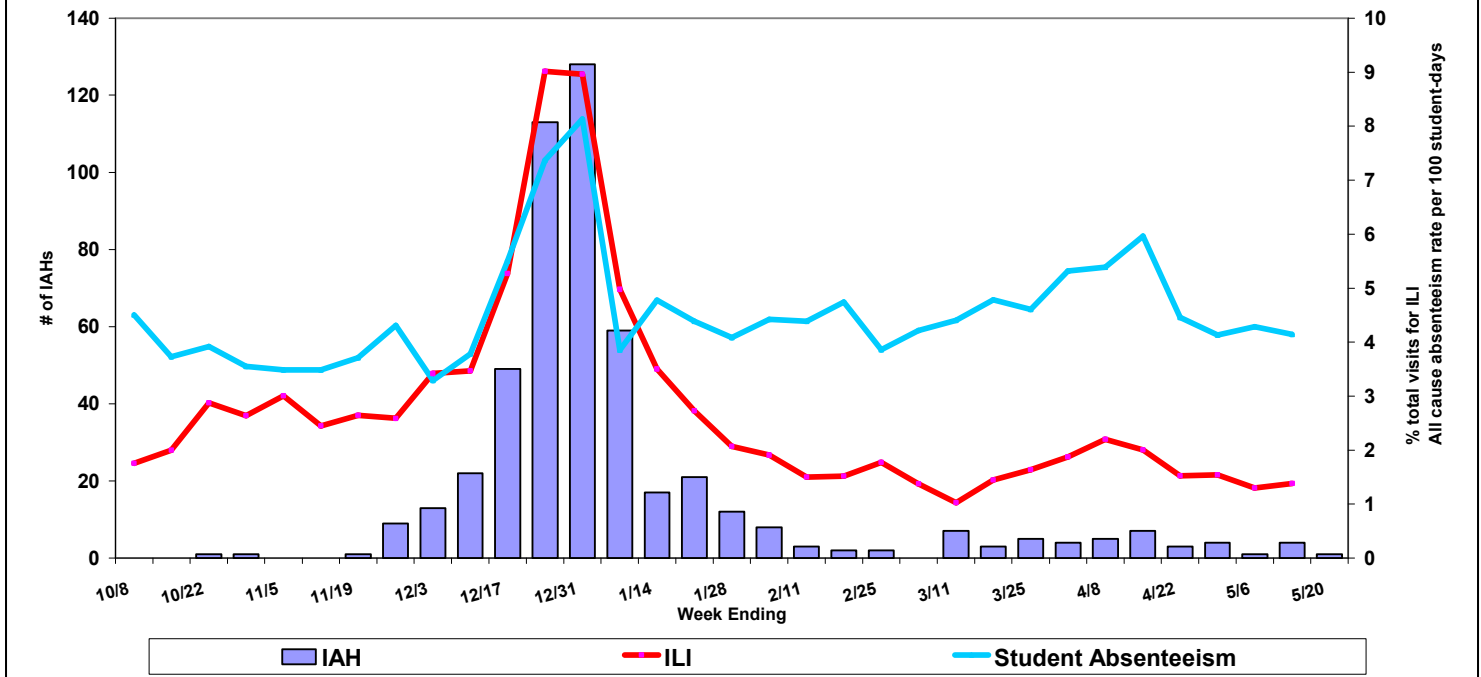
Influenza activity in Utah during the 2005-2006 season was moderate compared to past seasons such as the 2003-2004 season, although overall activity levels were above those from the previous, mild 2004-2005 season. Activity rapidly increased during December, peaking by week 51 (December 18- 24). Activity slightly increased during March as influenza B viruses began to circulate, but remained below baseline levels. In contrast to the 2004-2005 season, influenza created significant morbidity (as measured by hospitalizations) in the elderly ( $\geq 65$  years) this season. Age-specific ILI data, however, suggested that influenza circulated heavily in the 5-24 year age group, though did not cause severe disease.

Only lab-confirmed influenza-associated hospitalized cases were reportable during the 2005-2006 influenza season in Utah. Non-hospitalized, lab-confirmed cases were reportable during the 2003-2004 and 2004-2005 influenza seasons, but the reporting burden created by increasing use of rapid tests led to removal of this condition from the reportable disease list prior to the 2005-2006 season. Therefore, laboratory data was systematically collected on hospitalized cases only. 400 (98%) of the reported 435 (90%) IAH with known type were identified as influenza A viruses.



## Comprehensive Influenza Activity Measures

Figure 2. Influenza activity summary: Percentage of visits for influenza-like illness (ILI) reported by sentinel providers, rates for absences due to all causes, and laboratory-confirmed, influenza-associated hospitalizations, (IAHs), by week - Utah, 2005-2006 influenza season



### Case Reporting: Hospitalized Cases

502 total IAHs were reported in Utah for the 2005-06 season as of June 1, 2006. This total is approximately twice that of the 2004-2005 season (253 IAHs reported). The majority of hospitalizations occurred during the weeks immediately preceding and succeeding the season peak; 67% of all hospitalizations occurred by the end of week 52 (December 25-31). In accordance with other surveillance measurements, IAHs displayed a dramatic increase, then steep decline during this time period. The majority of IAHs were reported from hospitals along the Wasatch Front.

Hospitalizations are expected to occur in high-risk individuals each season. Individuals can be high-risk due to age (< 2 years, ≥ 65 years) and/or comorbidities such as metabolic, cardiovascular, and respiratory diseases. 400 (98%) of the reported 435 IAHs with known risk status were identified as high-risk. 46% of those individuals not identified as high-risk due to age were identified as due to comorbidities alone. 39% of those high-risk due to age also were identified with significant comorbidities. Common comorbidities identified include were respiratory and metabolic conditions such as diabetes. Many individuals were identified with multiple comorbidities.

Influenza A viruses predominated in the hospitalized population. 83% of all hospitalizations were associated with influenza A viruses. Excluding those cases with unknown type, 90% of the remaining cases were identified with influenza A viruses. Influenza B viruses circulated mainly during March and were identified primarily in the pediatric population. Approximately half (47%) of all cases associated with influenza B viruses were aged 0-4 years. In contrast, 47% of all cases associated with influenza A

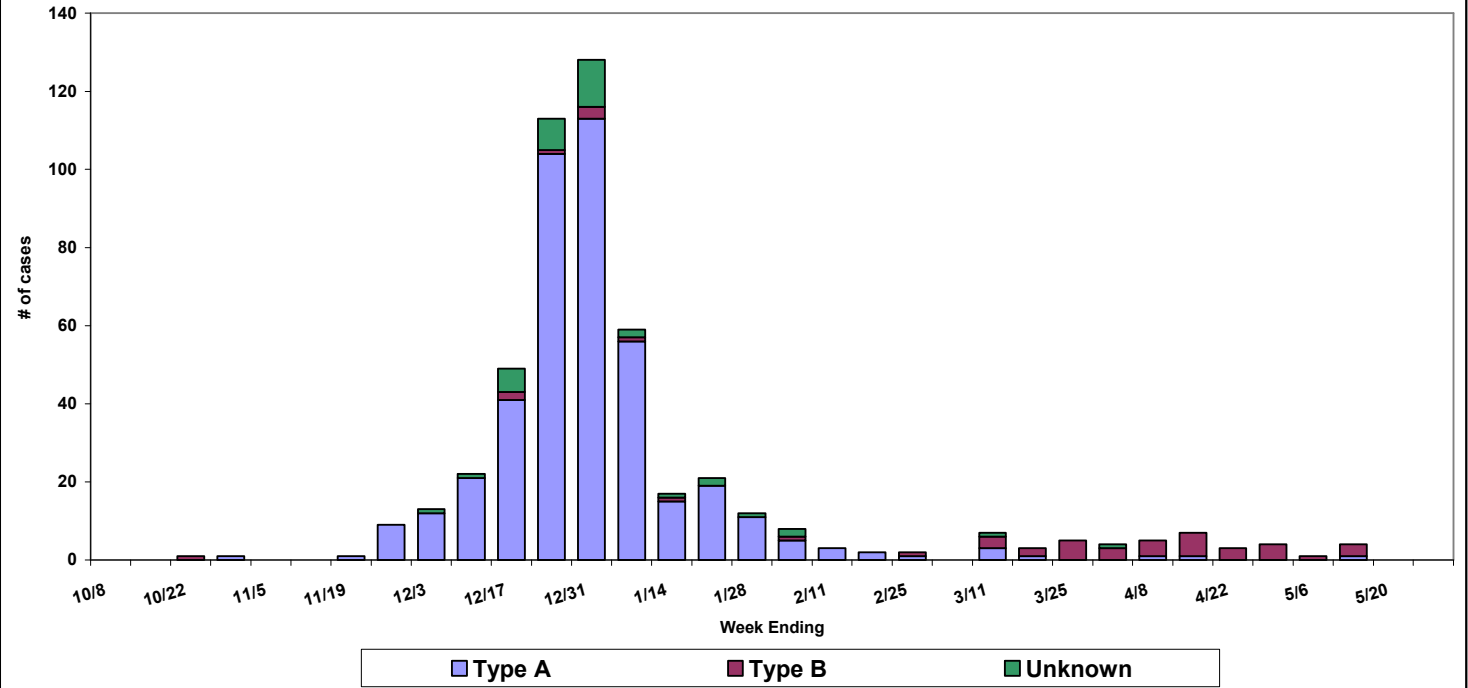
viruses were elderly. The vast majority of cases (69%) were identified using rapid tests. Culture (7%), DFA (21%) and serology (0.6%) were also used/

Basic demographic data were also collected for identified IAHs. 56% were identified as female, 44% as male. In contrast to the 2004-2005 season, influenza created significant morbidity in the elderly ( $\geq 65$  years) this season. 43% of IAHs were aged  $\geq 65$  years, 27% aged 0-4, 19% 25-64, and 11% aged 5-24. Race was determined for 87% of all cases. In terms of these cases with known race, 93% were identified as white, 5% Asian/Pacific Islander, 2% black/African-American, and 1% Native American/Alaskan. Ethnicity was determined for 83% of all cases. In terms of these cases with known ethnicity, 10% were Hispanic. Racial and/or minorities were more likely to be in the pediatric population. This trend was also viewed during the 2004-2005 and may be indicative of larger issues relayed to health disparities.

Although the IAH surveillance system is not meant to measure vaccine efficacy, vaccination status remains a data point collected. Vaccination status was determined for 80% of all cases. 48% of those with known status reported receiving the vaccine for the 2005-2006 season. This includes 53% of high-risk individuals. Reports of vaccination increased with age. 28% of the 0-4 age group (excluding those  $< 6$  months) reported being vaccinated, 33% 5-24, 39% 24-64, and 73%  $\geq 65$  years.

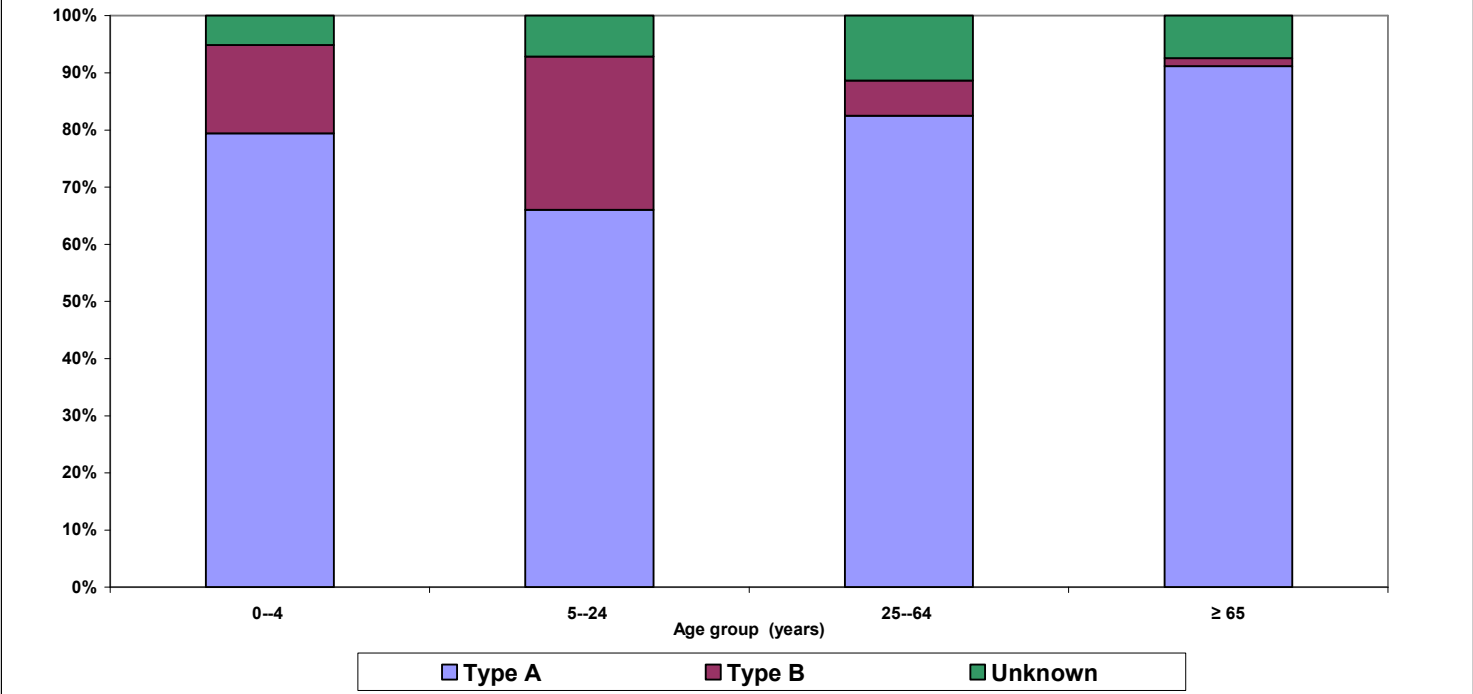
### Hospitalizations by Virus Type and Week

Figure 3. Number of laboratory-confirmed, influenza-associated hospitalizations, by influenza virus type and week of event - Utah, 2005-2006 influenza season



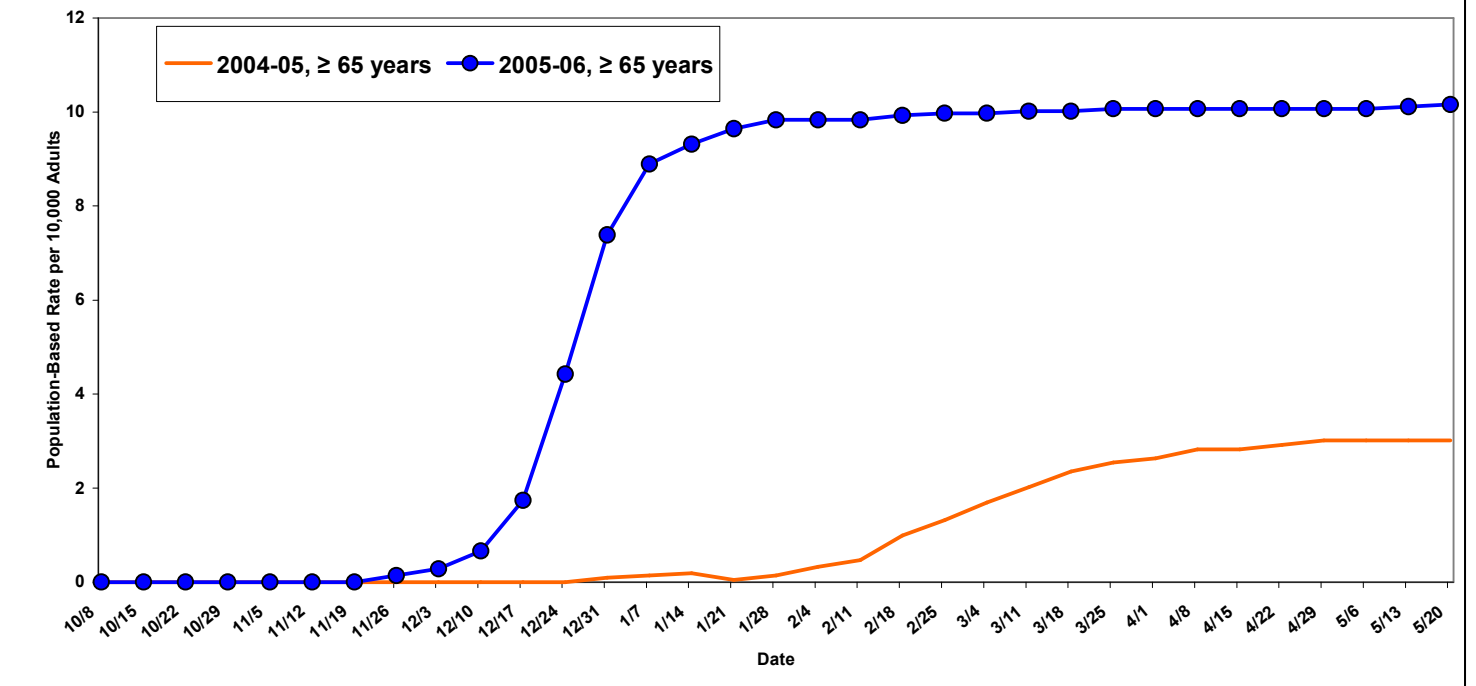
### Influenza Virus Type by Age Group

Figure 4. Percentage distribution of laboratory-confirmed, influenza-associated hospitalizations, by influenza virus type and age group - Utah, 2005-2006 influenza season



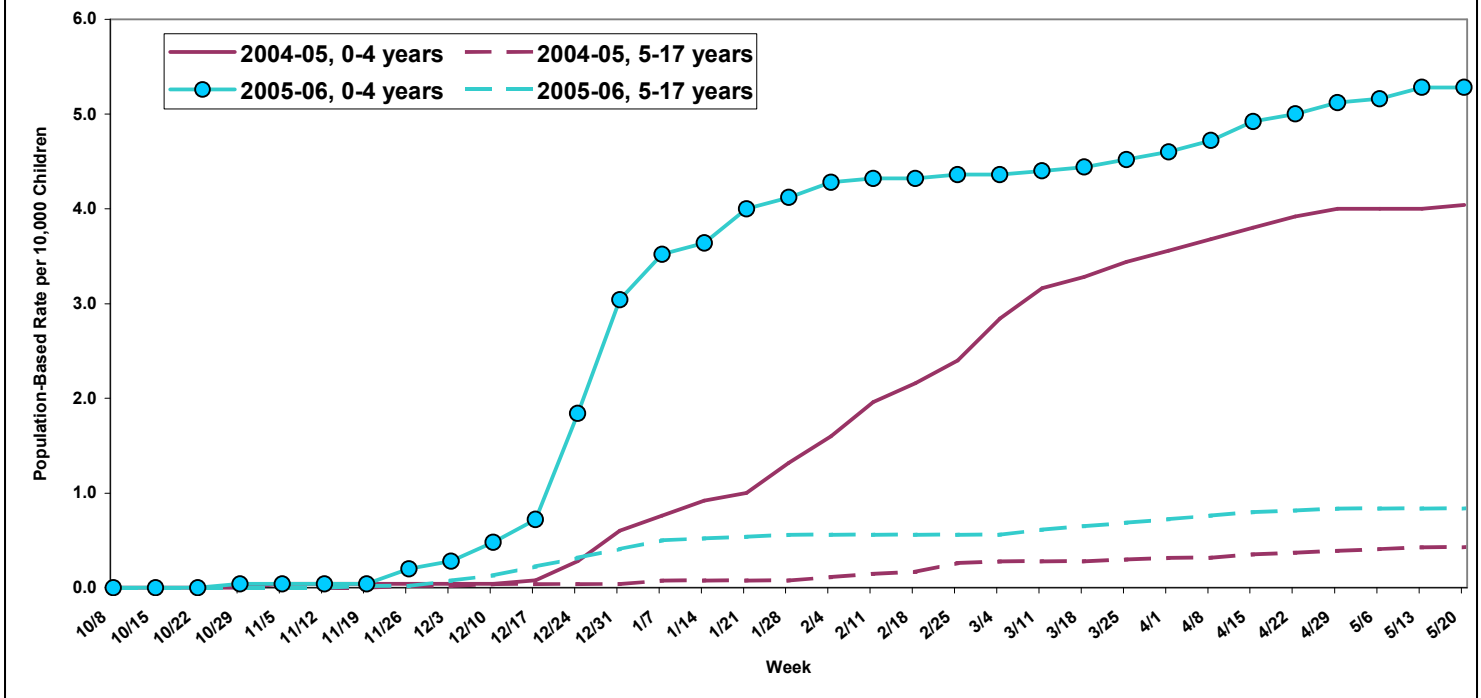
### Influenza Hospitalizations in the Elderly

Figure 5. Influenza laboratory confirmed cumulative hospitalization rates for adults ≥ 65 years- Utah, 2005-2006 previous influenza season



## Influenza Hospitalizations in Children

Figure 6. Influenza laboratory confirmed cumulative hospitalization rates for children 0-4 and 5-17 years-Utah, 2005-2006 and previous influenza season



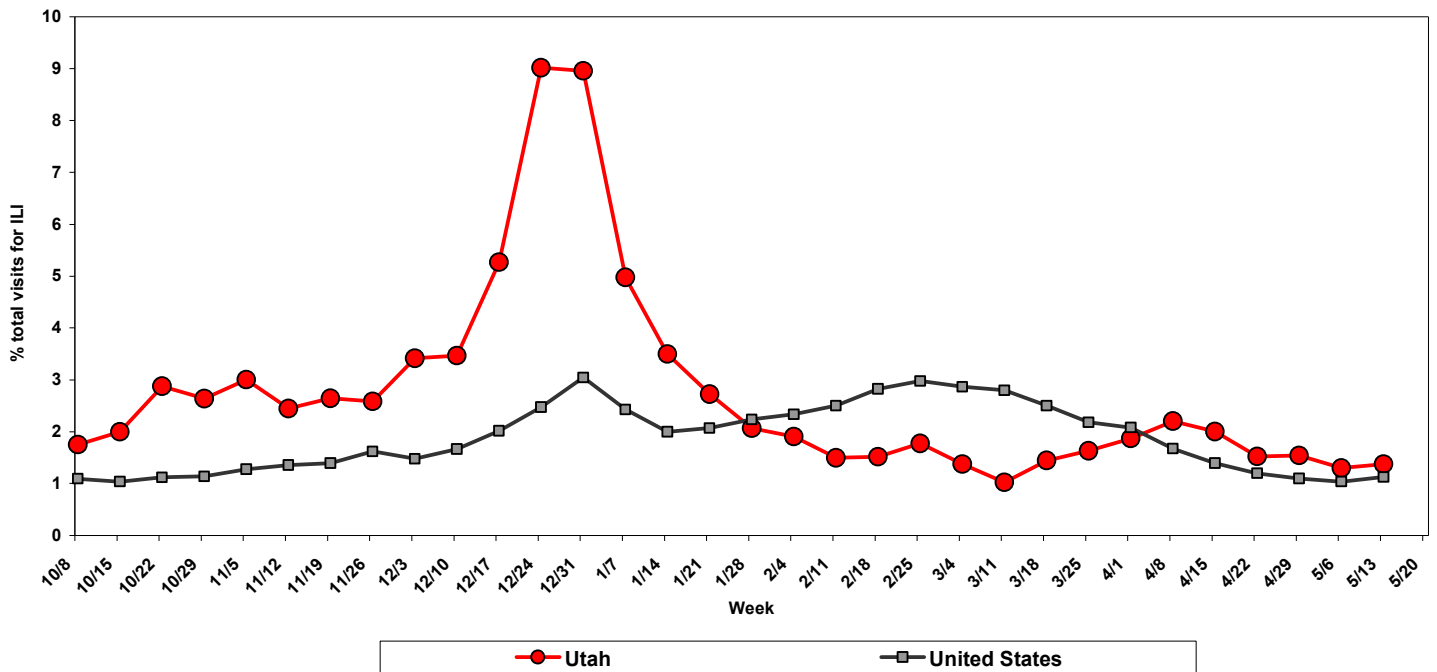
## Sentinel Site Surveillance

Utah sentinel influenza sites are part of a 1,600-member, nationwide network of sentinel surveillance sites sponsored by the Centers for Disease Control and Prevention (CDC). ILI is typically defined as the presence of fever ( $>100^{\circ}$  F) and cough or sore throat in the absence of a known cause. Sites begin reporting during early October and typically continue through May, and sometimes beyond if year-round reporting is feasible. Sites are asked to tally and report ILI visits at their clinics weekly, classifying counts into four age groups: 0-4 years, 5-24 years, 25-64 years, and  $\geq 65$  years. Data collection was expanded during the 2005-2006 season as certain sentinel sites also provided age-specific total case counts, allowing for the calculation of age-specific ILI percentages.

On average, 14 sentinel clinic sites regularly reported data during the season. Over 7,000 ILI visits were reported during the season (2.0% of all visits). Reports of ILI visits peaked during late December, consistent with other influenza surveillance components in Utah. Age-specific ILI percentages were higher on average for younger age-groups (0-4 years (4.9%), and 5-24 years (3.7%)) than older age groups. During the season peak, the highest ILI percentages occurred in the 5-24 year age group. Although the elderly comprised approximately half of all IAHs, this age group displayed the lowest ILI average percentages (0.8).

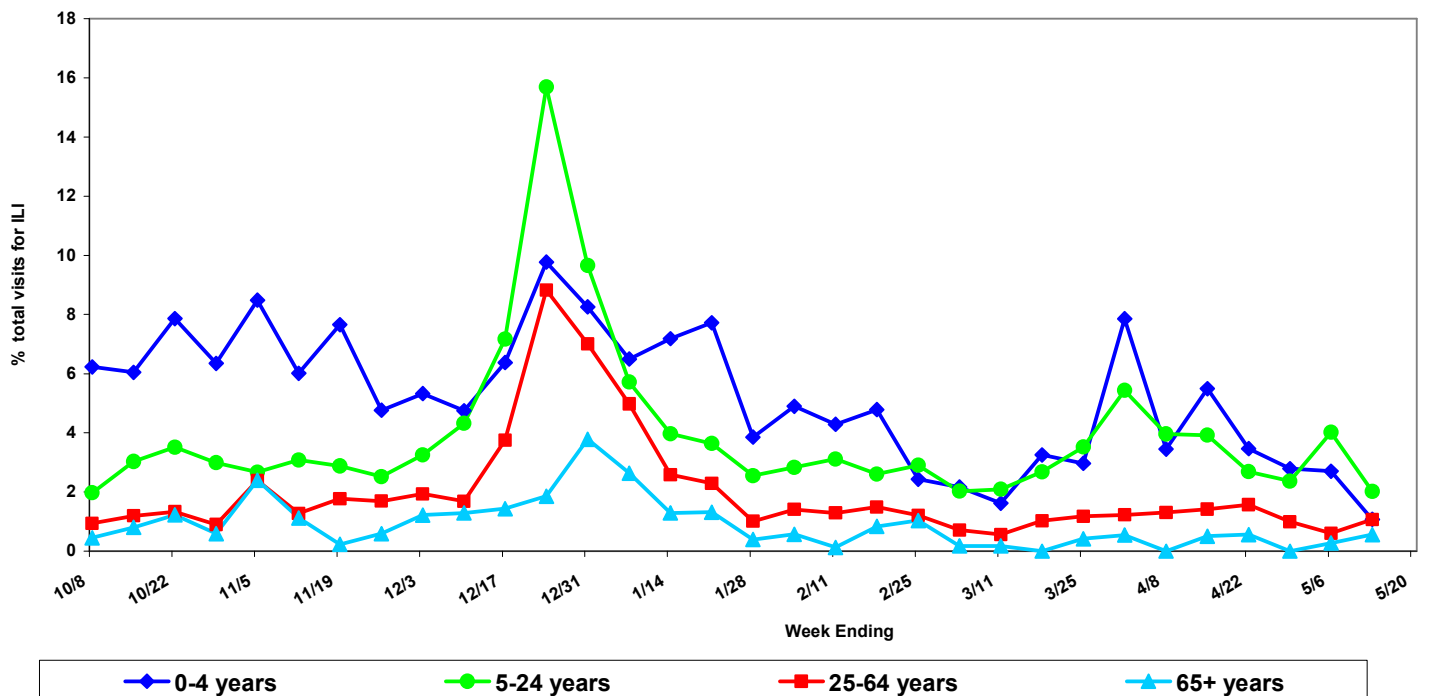
## Influenza Activity- Utah vs. United States

Figure 7. Percentage of visits for influenza-like illness (ILI) reported by sentinel providers, Utah and United States- 2005-2006 influenza season



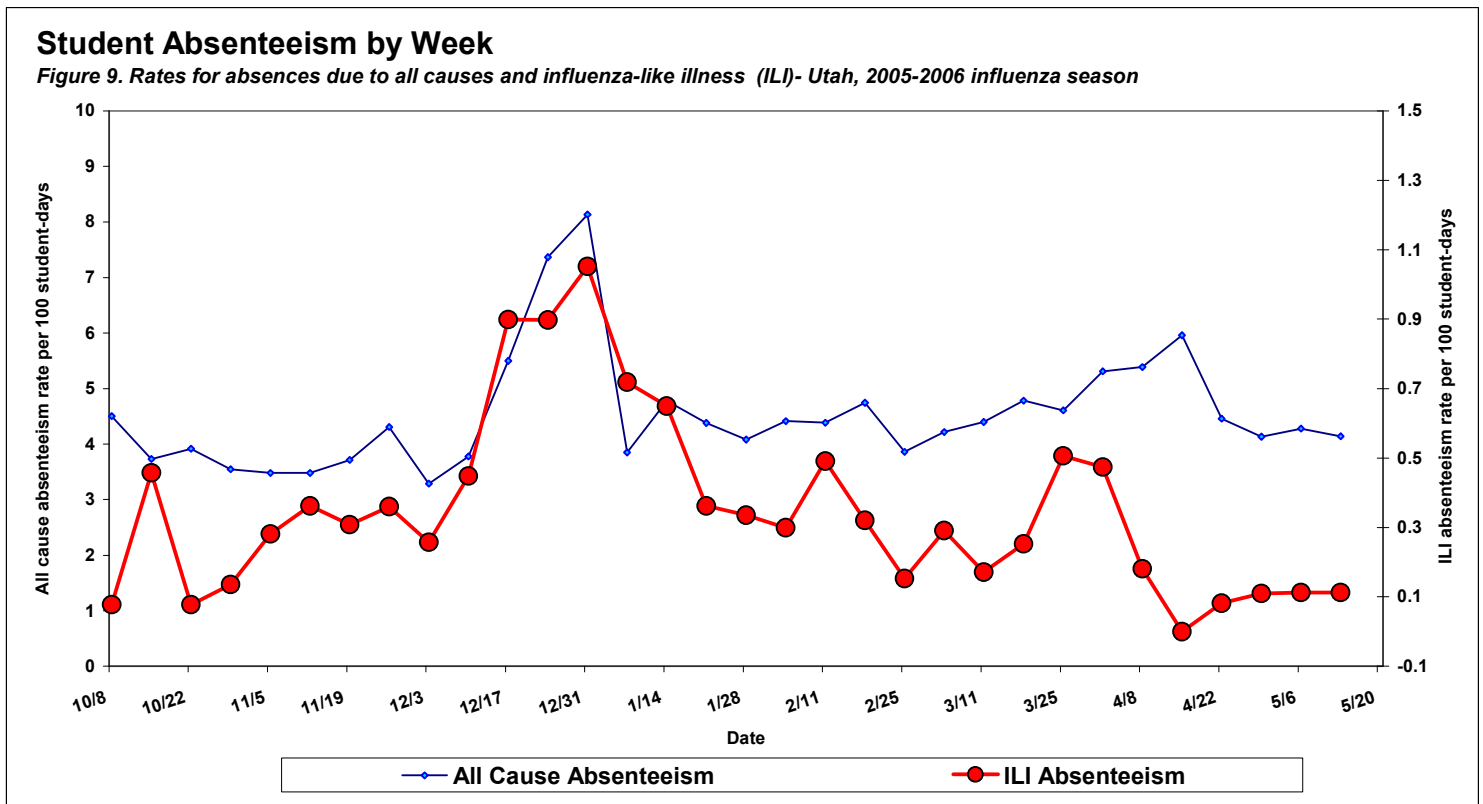
## Influenza-Like Illness (ILI) by Age Group

Figure 8. Percentage of visits for ILI reported by sentinel providers, by age group, Utah- 2005-2006 influenza season



## Student Absenteeism

Since influenza activity often begins circulating among school-aged children, reports of student absenteeism are also collected during each influenza season. Approximately 16 schools regularly reported data during the 2005-06 season. The majority of reporting schools are elementary. Schools are asked to report total enrollment, number of days in the school week, and total numbers of students absent for any reason on a weekly basis throughout the season. Additionally, select schools also report absences identified due to any illness and/or ILI specifically. Reports of student absences peaked at the end of December, consistent with both the holiday break and also with intense influenza circulation at that time. Absenteeism also slightly increased during March as influenza B viruses began to circulate.





## **Pediatric Mortality**

Beginning October 1, 2004, the CDC added influenza-associated pediatric mortality (< 18 years) to the list of conditions reportable to the National Notifiable Diseases Surveillance System. The goals of surveillance are as follows: (1) monitor and describe the incidence, distribution, and basic epidemiologic characteristics of deaths among children related to influenza virus infection; (2) provide data to guide future influenza immunization policy; and (3) rapidly recognize influenza seasons in which the impact of influenza appears to be unusually severe among children.

An influenza-associated death is defined for surveillance purposes as a death resulting from a clinically compatible illness that was confirmed to be influenza by an appropriate laboratory or rapid diagnostic test. There should be no period of complete recovery between the illness and death. Influenza-associated deaths in all persons aged <18 years are to be reported.

During the 2005-06 season, one (1) confirmed influenza-associated death in an individual aged < 18 years was reported to UDOH-Epid.