



Wrong Time, Wrong Place - A Hospital-Associated Outbreak of Influenza A in the Summer

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Abstract

In the United States, influenza outbreaks typically occur in the fall and winter. We detected a hospital-associated outbreak beginning July 1, 2015 linked to patient movement within the hospital wards. Sixteen patients with influenza A (most were A H3) were identified and offered treatment. Their contacts were offered prophylaxis. The outbreak concluded July 15. Provider and staff contacts were either administered prophylaxis or, if symptomatic with an influenza-like illness (ILI), treated and sent home. A total of 37 nursing, 15 health-care providers, and 11 other (residents, students, administrative, and case management) staff were evaluated by Occupational Health from July 8-13. Some were seen by their private physicians and not captured. Fifty individuals received prophylaxis; 6 were treated for infection. Influenza may cause an outbreak situation if not considered year-round in US communities, as low-level infection can occur.

Introduction

Influenza occurs in distinct outbreaks of varying extent every year. In the United States, influenza outbreaks typically occur in the fall and winter. The peak of the flu season has occurred anywhere from November through March. We report the occurrence of an influenza A outbreak in our hospital in the summer.

Materials & Methods

We note the occasional occurrence of influenza in our community during non-traditional influenza season and screen ILI patients year-round. The index patient in this outbreak was admitted for management of a foot infection and discovered to have an ILI. He reported that his household roommate had an ILI. The patient was tested for influenza using the Cepheid Xpert Flu system (Cepheid, Sunnyvale, California) and found to have influenza A; further testing using the Genmark eSensor XT8 system determined the influenza strain to be A (H3). An outbreak of influenza was determined on 7/6/2015 after 3 patients were found to be positive with influenza A within 24 hours. Contacts of patients with influenza were offered oseltamivir. Additional prophylaxis could not be offered as what remained of our influenza vaccination stock had expired on 6/30/2015.

Patient	Age (Yrs)	Sex	Ward	Admit/Transfer	Sx Onset	Flu test date	Flu test result	Prior IIV Date	Comments
A	46	M	7N	7/1/15	7/1/15	7/2/15	7/5/15 Flu A H3	10/1/14	
B	34	M	ARC-1	7/2/15	7/6/15	7/6/15	7/6/15 screen Flu A	None since 2013	
C	62	M	5SM	6/22/15	7/3/15	7/3/15	7/5/15 Flu A H3	1/12/15	
D	51	M	5SM*	7/2/15	7/4-5/15	7/7/15	7/7/15 Flu A H3	None since 2013	
E	69	M	5SM	6/24/15	7/7/15	7/7/15	7/8/15 Flu A H3	None since 2012	
F	52	M	4N	7/8/15	7/8/15	7/8/15	7/8/15 Flu A H3	None since 2013	
G	80	M	REHAB-3 7N REHAB-3 5SM*	7/13/15 7/8/15 7/7/15 7/1/15	7/7/15	7/7/15	7/8/15 Flu A H3	10/23/14	
H	56	M	7N	7/9/15	7/7/15	7/8/15	7/9/15 Flu A H3	12/17/2014	
I	42	F	7N	7/3/15	7/4/15	7/9/15 7/8/15	7/10/15 Flu A H3	None	
J	63	M	7N 5SM MICU	6/27/15 7/5/15 7/9/15	7/7/15	7/7/15	7/10/15 Flu A H3	10/12/14	
K	63	M	4S ARC-1	6/24/15 7/1/15	7/9/15	7/9/15	7/10/15 Flu A OSH	None since 2004	Patient exposed during admission, diagnosed with Flu A at another hospital with ILI
L	48	M	5SM* ARC-1	7/5/15 7/7/15	7/8-9/15	7/10/15	7/10/15 Flu screen negative	3/6/15	Had ILI, Flu PCR cancelled mistakenly
M	79	M	7N 5SM	7/10/15 6/23/15	7/10/15	7/10/15	7/10/15 Flu A H3	3/3/15	
N	61	M	CCU 6SC CCU 6SC	6/30/15 7/6/15 7/11/15 7/19/15	7/10/15	7/11/15	7/11/15 Flu A H3	None since 2013	Two admissions; exposure during first admission –second with ILI
O	70	M	5SM*	7/4/15	7/9/15	7/9/15	7/13/15 Flu A H3	None since 2010	
P	60	M	ARC-1 7N	7/8/15 7/13/15	7/12/15	7/13/15	7/13/15	9/17/15	Had ILI symptoms

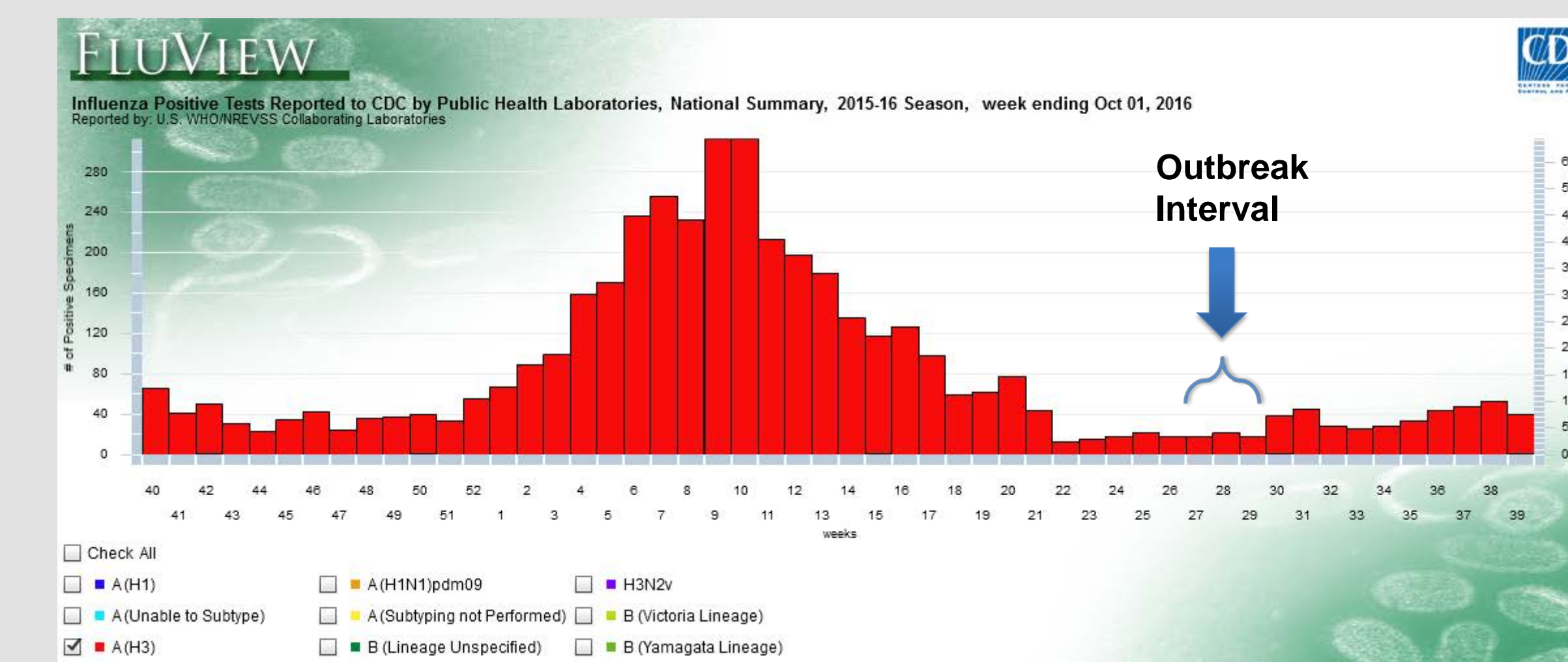
* indicates a four-bed room

Materials & Methods (cont.)

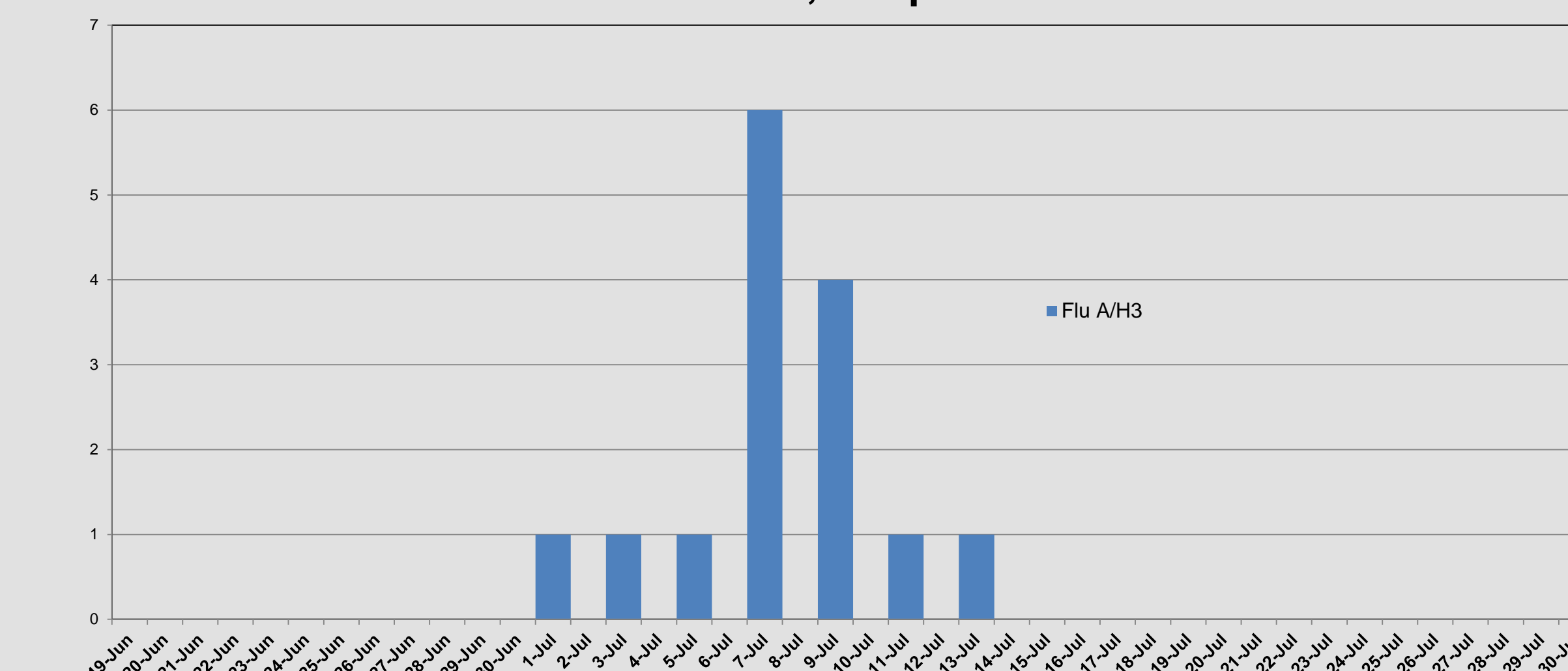
Discussion with our county Health Department epidemiologist revealed no significant flu activity in the county. During 6/1/2015 through 7/1/2015, they received 1066 flu screen negatives and 123 positives (approximately 66% flu A, 33% flu B) from area Emergency Departments. Hospital-wide discussion with providers and staff regarding the outbreak began on 7/7/2015 with patient locations collected, roommates identified (some two- and four-bed rooms are still used), and infected/contact patient movement being tracked. Environmental Management Service (EMS) heightened standard infection cleaning services in involved patient care and public areas. After investigation revealed the initial case, several patients were temporarily transferred to other rooms during EMS cleaning of four- bed rooms. Patient transfers also were felt to have facilitated transmission, with inpatient psychiatry, medical and cardiology floors being common areas for transfers in and out of the units. Several of the 16 flu patients were on these floors, and several were in congregate rooms prior to or until diagnosis. All confirmed or suspected cases and their contacts were offered oseltamivir (Tamiflu®) for either treatment or prophylaxis.

This was also the beginning of a new training year for our hospital, a 415 bed tertiary-care teaching institution classified as a Clinical Referral Level 1 Facility. A total of 37 nursing, 15 health-care providers, and 11 other (residents, students, administrative, and case management) staff were evaluated by Occupational Health from 7/8-13/2015. Some exposed persons were seen by their private physicians and not captured. Fifty individuals received prophylaxis; 6 were treated for infection. The number of nursing and allied individuals taking sick leave due to ILI was inaccurate as the recording of leave reason was inconsistent.

2014-15 U.S. Influenza A (H3) Activity by Week



Influenza Cases, Hospital Outbreak



Conclusion

Although low-level influenza infection can be present year-round in the community, summertime outbreaks are relatively rare. This outbreak occurred following a remarkable 2014-2015 flu season in which influenza A (H3N2) viruses predominated, flu activity peaked early, and significant antigenic drift among virus strains occurred, making vaccination efforts less successful. Rapid consideration of any patient or staff with an ILI for influenza testing and treatment with prophylaxis is warranted especially in close environments, particularly healthcare settings. The diagnosis and management of a summertime flu outbreak can be hampered by lack of awareness, expiration of influenza vaccine products, and even seasonal shortages of effective antivirals.

References

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