

# Influenza C virus in U.S. Children with Acute Respiratory Infection 2016-2019

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## Introduction

- Influenza C virus (ICV) is associated with acute respiratory infection (ARI), specifically cold-like symptoms in children <2 years of age<sup>1</sup>
- ICV seropositivity as high as 90% by 7–10 years of age, suggesting common infection at least once during childhood<sup>2,3</sup>
- Epidemiology and clinical characteristics of ICV are not well-described

## Purpose:

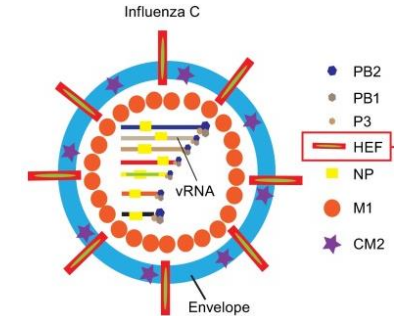
- Determine burden and characteristics of ICV in a prospective, population-based pediatric cohort

## Methods

- The study was conducted within the New Vaccine Surveillance Network (NVSN), a CDC-led, seven-site network that performs population-based surveillance for ARI in children <5 years
- Nasal/throat swabs collected from children with ARI or healthy controls 12/2016-10/2019
- Testing: real-time RT-PCR for ICV and other respiratory viruses
- Preliminary data extracted and demographic/clinical features of ICV+ cases analyzed
- Hemagglutinin-esterase (HE) gene was sequenced from ICV+ Pittsburgh samples

## Results

- Among 19,321 children with ARI or healthy controls, 115/17,668 (0.7%) ARI cases and 8/1653 (0.5%) healthy controls tested positive for ICV



Wang M, Veit M. Hemagglutinin-esterase-fusion (HEF) protein of influenza C virus. Protein Cell. 2016;7(1):28-45. doi:10.1007/s13238-015-0193-x

### N= 115 ICV ARI Cases

<b>Median age</b>	19 months (IQR 10, 46)
<b>Age &lt; 36 months</b>	81 (70%)
<b>RACE/Ethnicity:</b>	White 49 (42.6%) Black 39 (33.9%) Hispanic 19 (16.5%)
<b>Daycare</b>	62 (56.5%)
<b>ED only</b>	46 (40%)
<b>Hospitalization</b>	69 (60%)
• <b>Median LOS</b>	2 days (IQR, 1-3)
• <b>ICU CARE</b>	15/69 (21.7%)

### SYMPTOMS

• <b>Fever</b>	78 (67.8%)
• <b>Cough</b>	109 (94.8%)
• <b>Wheezing</b>	70 (60.8%)

### Co-Infections (1-2)

• <b>ANY</b>	78 (67.8%)
• <b>Rhinovirus</b>	26
• <b>RSV</b>	26
• <b>Adenovirus</b>	14
• <b>Other</b>	??

### ICV+ cases per study site per year

Year	Site				Total
	Vanderbilt	Rochester	Houston	Pittsburgh	
<b>2016-2017</b>	12	8	5	27	52
<b>2017-2018</b>	1	0	2	5	8
<b>2018-2019</b>	20	5	5	25	55
<b>Total</b>	33	13	12	57	

## Results

- No significant difference in ARI symptoms ICV alone vs coinfection
- HE sequences were in the two currently circulating Kanagawa and Sao Paulo lineages

## Conclusions

- ICV: uncommon cause of ED or hospitalization for ARI in young children
- ICV rare in healthy controls
- Most children infected with ICV were ≤3 years and had co-detected pathogens.
- The prevalence varied year-to-year and between different geographic regions

## References

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