

Year	Site #				Total
	1	2	5	8	
2016-2017	12	8	5	27	52
2017-2018	1	0	2	5	8
2018-2019	20	5	5	25	55
Total	33	13	12	57	

Conclusion: ICV was an uncommon cause of ARI symptoms leading to healthcare encounters in young children. The prevalence varied year-to-year and between different geographic regions. Most children infected with ICV were ≤ 3 years old and had co-detected pathogens. ICV was similarly rarely detected in healthy controls.

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1715. Influenza-like Illness (ILI) Experience Among Healthcare Workers in Military Treatment Facilities: An Offshoot of the Pragmatic Assessment of Influenza Vaccine Effectiveness in the DoD (PAIVED) Study

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Session: P-75. Virology: Studies of the Epidemiology of Viral Infections

Background. Healthcare workers (HCWs) are at heightened risk of exposure to respiratory pathogens. There are limited published data on influenza-like illness (ILI) experience among HCWs, and the few available studies were hampered by incomplete vaccination histories. PAIVED, a multicenter, multiservice study assessing influenza vaccine effectiveness in the Department of Defense, provides a unique opportunity to describe ILI experience among vaccinated HCWs compared to vaccinated non-HCWs.

Methods. PAIVED participants were randomized to receive either egg-based, cell-based, or recombinant-derived influenza vaccine then surveyed weekly for ILI. At enrollment, participants provided key demographic data including whether they were HCWs with direct patient contact. ILI was defined *a priori* as 1) having cough or sore throat plus 2) feeling feverish/having chills or having body aches/fatigue. Participants with ILI completed a daily symptom diary for seven days and submitted a nasal swab for pathogen detection.

Results. Of 4433 eligible participants enrolled during the 2019-20 influenza season, 1551 (35%) were HCWs. A higher percentage of HCWs experienced an ILI than non-HCWs (34% vs 26%, $p < 0.001$). Overall, HCWs were more likely to be female (42% vs 32%), age 25-34 years (39% vs 28%), active-duty military (81% vs 62%), non-smokers (88% vs 75%), and physically active (92% vs 85%). Self-reported race differed between HCWs and non-HCWs; a higher proportion of HCWs identified as White (63% vs 56%) or Asian (8% vs 5%). Similar demographic differences existed among HCWs and non-HCWs with ILI. HCWs were more likely to respond to at least 50% of weekly surveillance messages, irrespective of ILI status. HCWs with ILI had less severe lower respiratory symptoms ($p < 0.001$) and a shorter duration of illness (12.4 ± 8.1 days vs 13.7 ± 9.0 , $p = 0.005$) than non-HCWs. Pathogen data is pending.

Conclusion. HCWs in PAIVED were more likely to report ILI than their non-HCW counterparts yet tended to have lower illness severity, possibly reflecting a higher level of baseline health or enhanced awareness of early ILI symptoms. The important epidemiologic position HCWs occupy for ILI has been apparent in the COVID-19 pandemic. Exploring ways to mitigate ILI risk in HCWs beyond influenza vaccination is warranted.

Disclaimer

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The investigators have adhered to the policies for protection of human subjects as prescribed in 45 CFR 46.

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1716. Prospective Multicenter Observational Cohort Study to Assess the Burden of Herpes Zoster Disease in the Eye: Baseline Results of Initial Patients

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Session: P-75. Virology: Studies of the Epidemiology of Viral Infections

Background. Herpes Zoster Ophthalmicus (HZO) affects 10-20% of adults with herpes zoster; $\geq 50\%$ of these cases manifest as serious ocular diseases. This 1-year prospective observational cohort study aims to determine patient-reported HZO symptoms as well as economic and quality of life burden among 300 HZO patients from 6 major US ophthalmology practices. Here, we report baseline data from 13 initial enrollees.

Methods. Inclusion criteria were: participants ≥ 18 years, diagnosis of clinically active HZO, English or Spanish speaking, be willing and able to respond to study assessments, not be enrolled in a concurrent interventional HZO trial. Information are collected via 1) a clinical assessment form completed by the practice (baseline) and 2) patient questionnaires (baseline, 3, 6, and 12 months) on symptoms, medications, healthcare use, vision function, depression, and work productivity impact. Baseline results are presented for patients recruited during the first 6 months of enrollment from the first 4 sites to go live: diagnoses, and patient-reported symptoms and outcomes (eight-item Patient Health Questionnaire [PHQ-8] for depressive symptoms, National Eye Institute 25-item Visual Function Questionnaire [NEI-VFQ-25] for vision-related quality of life, and Zoster Brief Pain Inventory [ZBPI] for pain).

Results. The mean age of participants is 71 years; 11 are female and 9 are retired. Seven participants are college graduates or hold other degrees. All have health insurance coverage, with most (10) having primary insurance through Medicare. HZO diagnoses (Table 1) were: keratitis (4), iridocyclitis (4), conjunctivitis (1), other HZO diagnosis (3), other ocular diagnosis (6). Patient-reported symptoms (Table 2) were: pain above the eye, sensitivity to light, redness, feeling of sand/grit in the eye (9 each). The mean overall PHQ-8 and NEI-VFQ-25 scores were 5.9 (Standard Deviation [SD]:4.5) and 74.6 (SD:13.9), respectively; the mean ZBPI score for worst pain severity was 3.3 (SD:3.8) (Table 3).

Table 1. HZO Diagnosis at Baseline based on Clinical Assessment Form (N=13)

Table 1. HZO Diagnosis at Baseline based on Clinical Assessment Form (N=13)^a

Diagnosis	n
Herpes zoster iridocyclitis	4
Herpes zoster keratitis	4
Herpes zoster conjunctivitis	1
Other HZO disease	3
Other ocular diagnosis	6

^aParticipants may have more than one diagnosis. HZO, Herpes Zoster Ophthalmicus

Table 2. Patient-reported Symptoms in the HZO-Affected Eye at Baseline (N=13)

Symptom	n	%
Pain		
Above the eye	9	69.2
Behind the eye	8	61.5
To the left or right of the eye	6	46.2
Below the eye	4	30.8
Sensitivity to light	9	69.2
Redness in the eye	9	69.2
Feeling of sand or grit in the eye	9	69.2
Dryness in the eye	8	61.5
Eye lid that is lower or droopy compared to healthy eye	6	46.2
Tearing	6	46.2
Other ocular problem(s) ^a	9	69.2

^aOther problems included visual disturbance (double vision, blurriness), swelling, headache, and skin sensitivity. HZO, Herpes Zoster Ophthalmicus

Table 3. Patient-reported Outcomes: Depressive Symptoms, Vision-Related Quality of Life, and Herpes Zoster Pain at Baseline (N=13)

Table 3. Patient-reported Outcomes: Depressive Symptoms, Vision-Related Quality of Life, and Herpes Zoster Pain at Baseline (N=13)

	Mean (SD)	(min, max)
Depressive Symptoms (PHQ-8)^a		
PHQ-8 score	5.9 (4.5)	(0.0, 15.0)
Vision-Related Quality of Life (NEI-VFQ-25)^b		
Overall score	74.6 (13.9)	(58.7, 96.7)
Driving	55.3 (30.8)	(0.0, 91.7)
General health	55.8 (18.1)	(25.0, 75.0)
Ocular pain	62.5 (22.2)	(25.0, 100.0)
Vision-specific mental health	63.5 (23.2)	(31.3, 100.0)
Vision-specific role difficulties	64.4 (29.3)	(12.5, 100.0)
General vision	67.7 (13.0)	(40.0, 80.0)
Near activities	74.4 (21.4)	(33.3, 100.0)
Peripheral vision	76.9 (27.9)	(25.0, 100.0)
Vision-specific dependency	79.5 (27.1)	(8.3, 100.0)
Distant activities	80.5 (15.1)	(58.3, 100.0)
Vision-specific social functioning	94.2 (9.7)	(75.0, 100.0)
Color vision	100.0 (0.0)	(100.0, 100.0)
Pain (ZBPI)^c		
Worst pain severity	3.3 (3.8)	(0.0, 10.0)
Average pain severity	2.4 (2.7)	(0.0, 9.0)
Overall pain severity	2.4 (2.7)	(0.0, 8.3)

^aPHQ-8 scores range from 0-24; scores of 5, 10, 15, and 20 represent cutpoints for mild, moderate, moderately severe, and severe depression, respectively.
^bNEI-VFQ-25 scores range from 0-100; a high score represents better functioning. The scores interpreted as an achieved percentage of total possible score. Domain scores are ordered from lowest to highest.
^cZBPI scores range from 0-10; a high score represents worse pain severity from 0=no pain to 10=pain as bad as you can imagine.
 PHQ-8, eight-item Patient Health Questionnaire depression scale; NEI-VFQ-25, National Eye Institute 25-item Visual Function Questionnaire; ZBPI, Zoster Brief Pain Inventory; SD: Standard Deviation

Conclusion: This study represents the first large scale effort to quantify HZO burden. Findings will inform development of a formal patient-reported symptom scale for use in research and clinical practice.

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1717. Relationship between Neighborhood Census-tract Level Poverty and Respiratory Syncytial Virus (RSV)-associated Hospitalizations in U.S. adults, 2015-2017

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Session: P-75. Virology: Studies of the Epidemiology of Viral Infections

Background. In the U.S., RSV is increasingly recognized as a cause of hospitalization for adults with respiratory illness. In adults > 50 years of age, it accounts for up to 12% of medically-attended acute respiratory illnesses and has a case fatality proportion of ~ 6-8%. Poverty can have important influences on health on both the individual level as well as the community level. Few studies have evaluated the relationship of RSV and poverty level, and no identified studies have evaluated this relationship among adults. We evaluated the incidence of RSV-associated hospitalizations in adults across multiple sites in the U.S. by census-tract (CT) level poverty.

Methods. Medical record data abstraction was conducted for all adults with a laboratory-confirmed RSV infection admitted to a hospital within the Centers for Disease Control and Prevention's Emerging Infections Program catchment areas within California, Georgia, Maryland, Minnesota, New York, and Tennessee during the 2015-2017 RSV seasons (October-April). Patient addresses were geocoded to their corresponding CT. CTs were divided into four levels of poverty, as selected in prior publications, based on American Community Survey data of percentage of people living below the poverty level: 0-4.9%, 5-9.9%, 10-19.9%, and ≥20%. Incidence rates were calculated by dividing the number of RSV cases in each CT poverty-level (numerator) by the number of adults living in each CT poverty level (denominator), as determined from the 2010 US census, and standardized for age.

Results. There were 1713 RSV case-patients with demographic characteristics (Table 1). The incidence of RSV-associated hospitalizations of adults increased with increasing CT level poverty (Figure 1 and Table 2). The risk of RSV-associated hospitalization was 2.58 times higher in census tracts with the highest (20%) versus the lowest (< 5%) percentages of individuals living below the poverty level.

Table 1: Demographic characteristics of adults with an RSV-associated hospitalization, 2015-2017.

Patient age (years)	Percent of individuals living below the poverty level within a census tract				Total (n=1713)
	0-4.9% (n=397)	5-9.9% (n=535)	10-19.9% (n=438)	≥20% (n=343)	
18-<49	49 (12)	59 (11)	70 (16)	73 (21)	251 (15)
50-64	76 (19)	132 (25)	109 (25)	115 (34)	432 (25)
65-79	137 (35)	167 (31)	123 (28)	112 (33)	539 (31)
>80	135 (34)	177 (33)	136 (31)	43 (13)	491 (29)
Sex					
Male	180 (45)	196 (37)	183 (42)	141 (41)	700 (41)
Female	217 (55)	339 (63)	255 (58)	202 (59)	1013 (59)
Race/Ethnicity					
White	306 (77)	358 (67)	247 (56)	123 (36)	1034 (60)
Black	34 (9)	78 (15)	116 (26)	171 (50)	399 (23)
Asian/Pacific Islander	33 (8)	58 (11)	38 (9)	13 (4)	142 (8)
Other/not-reported	4 (1)	5 (1)	3 (1)	3 (1)	15 (1)
Hispanic	15 (4)	31 (6)	25 (6)	30 (9)	101 (6)
Insurance type					
Medicare	234 (59)	321 (60)	248 (57)	176 (51)	979 (57)
Medicaid	48 (12)	81 (15)	95 (22)	153 (45)	377 (22)
Private insurance	229 (58)	248 (46)	188 (43)	115 (34)	780 (46)
Uninsured	5 (1)	2 (0)	10 (2)	5 (1)	22 (1)
Other/not-reported	11 (3)	8 (1)	9 (2)	5 (1)	33 (2)
State					
California	123 (31)	199 (37)	143 (33)	57 (17)	522 (30)
Georgia	36 (9)	39 (7)	66 (15)	45 (13)	186 (11)
Maryland	94 (24)	100 (19)	86 (20)	61 (18)	341 (20)
Minnesota	43 (11)	45 (8)	28 (6)	21 (6)	137 (8)
New York	89 (22)	101 (19)	81 (18)	124 (36)	395 (23)
Tennessee	12 (3)	51 (10)	34 (8)	35 (10)	132 (8)

Figure 1. Age-adjusted incidence rate of RSV-associated hospitalizations of adults by census-tract poverty level, 2015-2017

Poverty levels (all sites)	Relative Risk	95% Confidence Interval
0-4.9%	---	---
5-9.9%	1.12	0.98, 1.28
10-19.9%	1.38	1.20, 1.58
≥20%	2.58	2.23, 2.98