

cooler cleaning), including violation of design heuristics and the presence of ambiguity. Frequently violated human-factors design principles included appearance and/or visibility (ie, visual display of content), visualization (ie, providing illustrative examples), and method ambiguity (ie, lack of clarity on how to complete a task). Figure 1 provides a sample of the human-factors problems identified and suggested solutions. Only minor modifications (ie, clarification of criteria definitions) were needed on the final tool. **Conclusions:** The human-factors-based tool developed in this study can be used both to develop new IPC protocols and to evaluate and improve existing protocols.

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#### Presentation Type:

Poster Presentation - Poster Presentation

**Subject Category:** Respiratory Viruses

#### Healthcare-associated respiratory syncytial virus infections in children's hospitals

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**Background:** Little is known about the impact of healthcare-associated respiratory syncytial virus (HA-RSV) in hospitalized children. To address this gap, we assessed the epidemiology and clinical impact associated with HA-RSV in a multiseason, multicenter study. **Methods:** During respiratory viral seasons 2016–2017, 2017–2018, and 2018–2019, we retrospectively identified HA-RSV cases in hospitalized children 72 hours after admission or within 48 hours of discharge in readmitted patients. Due to reduced availability of testing for non-SARS-CoV-2 viruses during the first year of the COVID-19 pandemic, the 2019–2020 season was excluded. We initiated prospective HA-RSV surveillance during the 2020–2021 season and continued surveillance through November 2021 due to the unusual inter-seasonal RSV community outbreak. We determined demographic and clinical characteristics of HA-RSV cases and explored possible outcomes associated with RSV including transfer to the pediatric ICU and escalation of respiratory support from day –2 to day +4 (day 0 was the day of RSV detection). We explored the timeframe of day –2 to day +4 because events during this timeframe could be attributed to RSV infection. Respiratory support escalation was defined as change from room air to supplemental oxygen, increase in fraction of inspired oxygen (FiO<sub>2</sub>) on same respiratory support modality, or change from noninvasive to invasive support. **Results:** Were identified 86 HA-RSV cases: 20 (23.3%) from 2016–2017, 26 (30.2%) from 2017–2018, 34 (39.5%) from 2018–2019, and 6 (7%) from October 2020–November 2021. HA-RSV was diagnosed a median of 14 days (IQR, 8–45) after admission. Moreover, 29 (33.7%), 31 (36.0%), and 26 (30.2%) cases were aged 60 months during these, respective seasons. Also, 33 (38.4%) had >3 comorbid conditions, most commonly gastrointestinal (n = 33, 38.4%), respiratory (n = 28, 32.6%), and/or congenital-genetic disorders (n = 28, 32.6%). However, 9 (10.5%) had no comorbid conditions. From day –2 to day +4, 15 children (17.4%) were transferred to the PICU and 38 (49.3%) of 77 evaluable cases required respiratory support escalation, most commonly supplemental oxygen delivered by nasal cannula (n = 15, 19.5%). Furthermore, 11 patients (14.3%) required invasive support. **Conclusions:** HA-RSV was associated with use of healthcare resources, including the need for respiratory support escalation and/or transfer to intensive care. From October 2020 to November 2021, lower numbers of HA-RSV were observed. The reasons for this are unknown, but potentially occurred in parallel to markedly reduced RSV in the

community and may have resulted from visitor restrictions, which included no siblings and/or universal masking by hospital staff and visitors.

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#### Presentation Type:

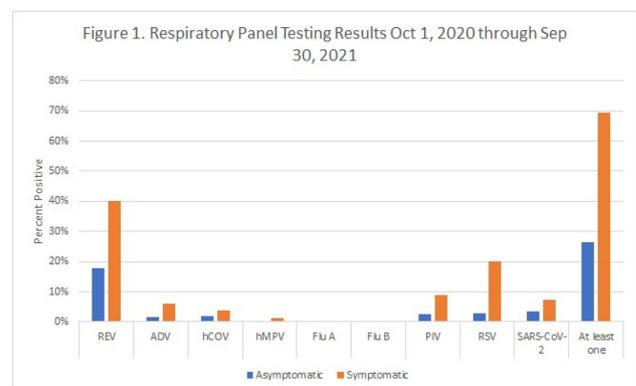
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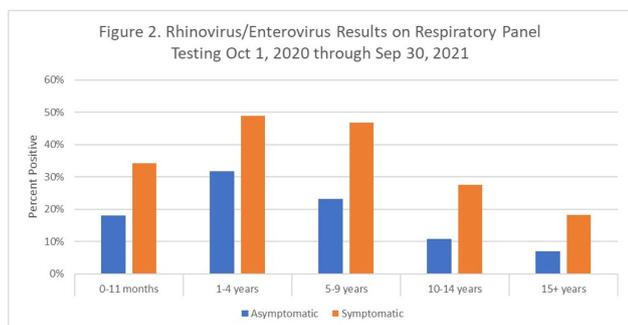
**Subject Category:** Respiratory Viruses

#### Respiratory Virus infections in symptomatic and asymptomatic children: Results of one year of hospital admission screening

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**Background:** Respiratory viral infections are very common among children. Transmission-based precautions are frequently used with patients who test positive for a respiratory virus in pediatric hospitals to prevent transmission of infections, regardless of whether the patient has symptoms of a respiratory infection or not (asymptomatic). However, few data are available on the prevalence of respiratory viral infections in symptomatic and asymptomatic children who are admitted to a pediatric hospital. The study was conducted in 3 hospitals that combine for a 601-bed pediatric healthcare system in northern Texas. **Methods:** From July 7, 2020, to the present, all patients admitted to the hospital had a nasopharyngeal swab collected and tested with a multiplex PCR panel including SARS-CoV-2 and 8 other common respiratory viruses. Over a 1-year period from October 1, 2020, to September 30, 2021, the prevalences of infection with each of the 9 respiratory viruses were calculated and stratified by respiratory infection symptom status (determined by the ordering provider in an electronic order set) and age group. **Results:** During this 1-year period, 28,421 PCR panels were collected on patients admitted to the hospital. The median age was 5 years (IQR, 1–12 years), and 15,105 patients were male (53.2%). Overall, 12,792 panels were positive for at least 1 virus (45.0%). Among 26,688 panels on individuals with known symptom status, 26.3% of asymptomatic patients and 69.4% of symptomatic patients tested positive for at least 1 virus. The most common virus was rhinovirus or enterovirus (17.7% asymptomatic positive and 40.2% symptomatic positive) (Fig. 1). Asymptomatic rhinovirus or enterovirus prevalence varied by age group and was greatest in children aged 1–4 years (31.7%) and those aged 5–9 years (23.1%). It was lowest in adolescents aged 15–21 years (7.1%) (Fig. 2). Over time, the prevalence of asymptomatic infections fluctuated with local outbreaks. For SARS-CoV-2, in the resolution phase of an outbreak the prevalence of asymptomatic infections tended to overlap or surpass symptomatic infections. **Conclusions:** Asymptomatic respiratory viral infections, and in particular rhinovirus or enterovirus infections, were common among pediatric patients admitted to the hospital during the COVID-19 pandemic and were most common among children aged 1–9 years. However, symptomatic patients were still more likely to test positive for a respiratory virus compared to asymptomatic patients. Prolonged





shedding of SARS-CoV-2 may explain why asymptomatic prevalence surpasses symptomatic prevalence in the resolution phase after outbreaks.

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**Presentation Type:**

Poster Presentation - Poster Presentation

**Subject Category:** Respiratory Viruses Other than SARS-CoV-2

**Relevance of RSV in hospitalized adults and the need for continued testing**

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**Background:** RSV is underrecognized in hospitalized adults. A better understanding of RSV in this population could help prioritize targeted viral-testing resources. Hospitalization and in-hospital outcomes are widely accepted as markers of clinical severity with respect to acute respiratory illness (ARI). We compared characteristics and clinical outcomes between adults hospitalized with ARI from October 2016 through May 2019. **Methods:** All hospitalized adults ( $\geq 18$  years) who met a standardized case definition of ARI were prospectively enrolled across 3 respiratory seasons from 9 hospitals participating in the US Hospitalized Adult Influenza Vaccine Effectiveness Network (HAIVEN). Demographic data were collected during enrollment interviews, and electronic medical records (EMRs) were reviewed to extract comorbidity data. Throat and nasal swabs collected at enrollment were tested for ARI pathogens using real-time PCR assays at respective HAIVEN research laboratory sites. Characteristics and clinical outcomes of participants were compared using  $\chi^2$  or nonparametric tests where appropriate. Multivariable logistic regression models were used to test associations between infection status, characteristics, and clinical outcomes, adjusting for age, sex, race, Charlson comorbidity index

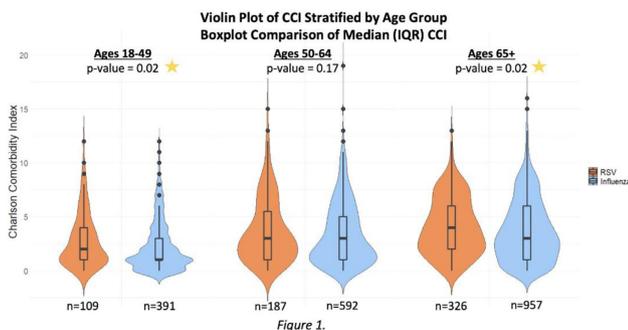


Fig. 1.

(CCI), body mass index (BMI), site, season, and days to admission. **Results:** In total, 10,311 adults were included, 22.3% (n = 2,300) were aged 18–49 years, 33.2% (n = 3,423) were aged 50–64 years, and 44.5% (n = 4,588) were aged  $\geq 65$  years. Moreover, 6% of adults tested positive for RSV (n = 622), 18.8% positive for influenza (n = 1,940), and 75.1% negative for both (n = 7,749). Obesity and age  $\geq 65$  years were significantly associated with RSV detection when compared with participants negative for both RSV and influenza. Patients aged 18–49 years and  $\geq 65$  years with RSV had significantly higher median CCI scores compared to patients with influenza (Fig. 1). The proportion of adults with CHF or COPD was significantly (p-value **Conclusions:** Severe RSV illness may differ from severe influenza illness, and those infected with RSV may have different characteristics than those infected with influenza. Hospitalized adults with RSV infection were more likely to have underlying cardiopulmonary comorbidities and higher CCI scores as well as experience an extended length of hospital stay and need for mechanical ventilation. These data highlight the importance of retaining testing for RSV in older adults hospitalized with ARI.

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**Subject Category:** SSI

**Feasibility and acceptability of intranasal povidone iodine decolonization among orthopedic trauma surgery patients**

Marin Schweizer; Loreen Herwaldt; Linda Boyken; Jean Pottinger; Rachel Quinn; Daniel Diekema; Fiona Armstrong Pavlik; Melissa Ward; Poorani Sekar and Michael Willey

**Background:** Nasal decolonization significantly decreases the incidence of *Staphylococcus aureus* surgical-site infections (SSIs). Patient adherence with self-administration of a decolonization ointment (ie, mupirocin) is low, especially among patients having urgent surgery. Povidone-iodine decolonization may overcome patient adherence challenges because povidone-iodine needs to be applied only on the day of surgery. We assessed the effectiveness and acceptability of povidone-iodine decolonization given on the day of surgery among patients having orthopedic trauma surgery. **Methods:** Adult patients who underwent operative fixation of traumatic lower extremity fractures were consented to receive 10% intranasal povidone-iodine solution. Povidone-iodine was applied  $\sim 1$  hour before surgical incision and was reapplied the evening after surgery. Patients were tested for *S. aureus* nasal colonization before surgery, the evening after surgery (before povidone-iodine reapplication), and the day after surgery. Swabs were inoculated into Dey-Engley neutralizer and processed in a vortexer. A series of dilutions were performed and plated on mannitol salt agar plates. *S. aureus* cultures were quantitatively assessed to determine the reduction in *S. aureus* after povidone-iodine use. Reductions in *S. aureus* nasal growth were evaluated using the Skillings-Mack test. SSIs manifesting within 30 and 90 days of surgery were identified using NHSN definitions. A survey was administered the morning after surgery to determine the acceptability of intranasal povidone-iodine. **Results:** In total, 51 patients participated in this pilot study between February 2020 and June 2021. Nasal samples from 12 participants (23.5%) grew *S. aureus*. The *S. aureus* concentration decreased significantly across the time points ( $P = .03$ ) (Fig. 1). No SSIs were identified within 30 days of surgery. One SSI occurred within 90 days of surgery; this patient did not carry *S. aureus*, and cultures from the infected site were negative. Also, 31% of patients reported at least 1 mild side effect while using povidone-iodine: dripping (n = 7), itching (n = 6), dryness (n = 4), stinging (n = 4), staining (n = 3), unpleasant taste (n = 3), runny nose (n = 2), burning (n = 1), sneezing (n = 1), sore throat (n = 1), tickling (n = 1), and/or cough (n = 1). Also, 86% of patients stated that povidone-iodine felt neutral, pleasant, or very pleasant, and only 14% stated that it felt unpleasant or very unpleasant. **Discussion:** In this pilot study, 2 applications of nasal povidone-iodine