

796. Burden of Healthcare-associated (HA) Respiratory Syncytial Virus (RSV) in Hospitalized Adults

Alexandra C. Hill-Ricciuti, MPH¹; Edward E. Walsh, MD²; William G. Greendyke, MD¹; Angela Barrett, BA¹; Luis Alba, BS¹; Angela Branche, MD²; Ann Falsey, MD³; Matthew R. Phillips, MPH⁴; Yoonyoung Choi, PhD, MS, RPh²; Lyn Finelli, DrPH, MS¹; Lisa Saiman, MD, MPH¹; ¹Columbia University Irving Medical Center, Torrington, Connecticut; ²University of Rochester, Rochester, New York; ³Rochester General Hospital, Rochester, New York; ⁴Merck & Co., Inc., North Wales, PA; ⁵Merck, Philadelphia, Pennsylvania

Session: P-41. HAI: Non-Bacterial (Fungal, Viral)

Background. Little is known about the burden of HA-RSV in hospitalized adults. We assessed risk factors and clinical outcomes in hospitalized adults diagnosed with HA-RSV.

Methods. A retrospective case-control study was performed from 2017-2020 in two academic hospital systems. HA-RSV cases were >18 years of age, hospitalized >4 days, and developed new or worsening respiratory signs and symptoms that prompted clinicians to test for respiratory pathogens; cases were RSV-positive by PCR assays. Two community-onset (CO) RSV-positive controls (admitted with >2 acute respiratory symptoms), were matched to each HA-RSV case by age, sex, and RSV season. We compared risk factors and outcomes in cases vs. controls. We assessed escalation of respiratory support in HA-RSV cases, defined as new or increased respiratory support from Day -2 to Day +4 of their RSV-positive test. Exact conditional logistic regression compared outcomes of HA-RSV vs. CO-RSV subjects, adjusting for demographic and clinical characteristics.

Results. 84 cases and 160 controls (both median 64 years) were included; 87% had ≥1 comorbidity. HA-RSV cases were hospitalized for a median of 10 (IQR: 5-17) days prior to their RSV-positive test. CO-RSV controls were more likely to have pulmonary comorbidities than HA-RSV cases (46% vs. 31%, p=0.02). 38% of HA-RSV vs. 15% of CO-RSV subjects were hospitalized ≥15 days after their RSV-positive test (p=0.047). 14% of HA-RSV and 6% of CO-RSV subjects died (p=0.25). Among patients who survived, HA-RSV cases were more likely discharged to a skilled nursing or rehabilitation facility than CO-RSV controls (46% vs. 17%, p=0.04). Of the 44 HA-RSV cases assessed thus far, 25% required escalation of respiratory support; none required initiation of mechanical ventilation.

Conclusion. HA-RSV was associated with increased morbidity and increased health care resource use during and after hospitalization. RSV vaccines could prevent CO- and HA-RSV infections in adults.

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797. Infection Prevention and Control Training Needs and Preferences Among Frontline Health Professionals

Sarah Stream, MPH, CDA, FADAA¹; M. Salman Ashraf, MBBS²; Nada Fadul, MD²; Dan K. German, MBA¹; Mounica Soma, MHA, MSPM¹; Kate Tyner, BSN, RN, CIC¹; Nicolas W. Cortes-Penfield, MD²; Nicolas W. Cortes-Penfield, MD²; ¹Nebraska Medicine, Omaha, Nebraska; ²University of Nebraska Medical Center, Omaha, NE

Session: P-42. HAI: Occupational Infection Prevention

Background. In 2020, the Nebraska Infection Control Assessment and Promotion program began collaborating with the Nebraska Department of Health and Human Services (NE DHHS) and the CDC to distribute infection prevention and control (IPC) training to frontline healthcare professionals (HCPs), focusing on nursing assistants (NAs), dentists, and other groups not traditionally targeted by IPC training. We conducted a learning needs assessment of these workers to plan high-yield curricula for each group.

Methods. We distributed an online survey to Nebraska's frontline HCPs via local professional society email lists and the NE DHHS's weekly newsletter. The survey asked respondents to identify their professional role, practice setting (urban vs suburban vs rural), preferred sources and formats of training, and perceived need for additional training across multiple IPC topics.

Results. 456 HCPs completed our survey, including 177 NAs, 72 nurses, and 59 dentists; most HCPs practiced in a rural setting (62%). HCPs viewed the CDC as the most trustworthy source of IPC training (92% trusted, vs 71% for local health authorities, 64% for professional societies, and 43% for academic institutions); versus other respondents, NAs had substantially lower trust in all groups except the CDC. Respondents were more often interested in self-paced learning (63%) or interactive discussion with experts (53%) versus peer discussions (40%) or lectures (34%). Compared with other respondents, dentists were least interested in peer discussions (27%) and NAs in lectures (15%). Triage and screening was the only IPC training topic a majority of all respondents (51%) requested, though majorities of nurses (58%) and dentists (51%) also wanted training on environmental cleaning. Hand hygiene (12%) and personal protective equipment use (27%) were the least requested IPC topics, especially among NAs (5% and 18%).

Conclusion. Nebraska's frontline healthcare workers express high confidence in the CDC as a source of IPC training and prefer self-paced and expert discussion learning modalities. Key between-group differences indicate that individualizing curricula for NAs, dentists, and other HCPs may improve IPC training quality.

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798. Incomplete Contact Investigation and Risk of Developing Tuberculosis Among Healthcare Professionals After Tuberculosis Exposure

Thana Khawcharoenporn, MD, MSc¹; Kongporn Noisang, n/a¹; ¹Thammasat University, Bangkok, Krung Thep, Thailand

Session: P-42. HAI: Occupational Infection Prevention

Background. Tuberculosis (TB) contact investigation is recommended for healthcare professionals (HCPs) after TB exposure. However, association between no participation in or incomplete contact investigation and subsequent TB development has not been well-described. This study aims to determine TB incidences and factors associated with TB development among HCPs requiring contact investigations.

Methods. We conducted a prospective cohort study among Thai HCPs with TB exposure from January 2013 to December 2017. Contact investigations, including baseline TB and latent tuberculosis infection (LTBI) screening and follow-up at 3 months after TB exposure, were recommended to all HCPs. The two-step tuberculin skin test (TST) was used for LTBI testing. All HCPs were followed for 2 years for TB development.

Results. Of the 342 HCPs with TB exposure included in the study, 311 (91%) participated in the contact investigations and 252 (74%) completed baseline TB and LTBI screening. Among the 210 HCPs with negative baseline TST, 45 (21%) completed the follow-up tests. The overall incidence of TB was 2.92/100 person-years. HCPs who did not complete follow-up TST had significantly higher TB incidence than those completed baseline and follow-up TST (3.55 vs. 0/100 person-years; P=0.01). No participation in the contact investigation and no chest radiograph performed at baseline were the independent factors associated with TB development among the HCPs [adjusted odds ratio (aOR) 6.69; P< 0.001 and aOR 8.85; P=0.01, respectively]. Contact with an index patient with concomitant TB at extrapulmonary sites (aOR 49.76, 10.03-246.99; P< 0.001) and with negative sputum AFB but positive sputum GeneXpert MTB/RIF (aOR 3.18, 1.35-7.50; P=0.008) were independently associated with no participation in the contact investigation.

Conclusion. The findings indicate the risk of TB development among the HCPs who did not undergo or complete contact investigations and underscore the need for interventions to improve contact investigation participation and completeness.

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799. A Pseudo-Outbreak of *Pseudomonas fluorescens* Infections

Tariq Jaber, MD¹; Vikram Saini, MD²; Laura Morris, BS²; James D. Como, MD²; Nitin Bhanot, MD, MPH, FIDSA³; Zaw Min, MD²; ¹Allegheny General Hospital, Pittsburgh, Pennsylvania; ²Allegheny Health Network, Pittsburgh, Pennsylvania; ³Infectious Disease, Allegheny General Hospital, pittsburgh, Pennsylvania

Session: P-42. HAI: Occupational Infection Prevention

Background. *Pseudomonas fluorescens* is a water-borne pathogen that has been associated with outbreaks from transfusion of contaminated blood products or medical equipment. Our institution had a cluster of cultures that grew an uncommonly encountered microbe *P. fluorescens* within a period of one week. This prompted an internal investigation. We summarize the investigational process that led to the resolution of this pseudo-outbreak.

Methods. We conducted a retrospective chart review of surgical and non-surgical patients with cultures positive for *P. fluorescens* from July 2nd to July 8th 2020. Baseline patient characteristics, clinical course, laboratory data, use of blood-associated products, and microbiology cultures were analyzed.

Results. Eight patients were identified with positive tissue cultures for *P. fluorescens*. Among those, 5 specimens (62.5%) were from osteoarticular sites (1 prosthetic hip, 1 prosthetic knee, 1 right foot, 1 sternum, and 1 vertebral source). One culture (12.5%) was obtained from a sacral soft tissue wound. Two tissue specimens (25%) were collected from respiratory sites (1 lung tissue and 1 bronchoalveolar lavage). No association with specific surgical personnel or operating room was identified. During routine specimen processing, a small amount of sterile normal saline is added to the conical grinder prior to culture preparation. It was discovered that a non-sterile normal saline had been inadvertently utilized during that step. These eight tissue specimens were subsequently reprocessed with sterile solution; *P. fluorescens* was not re-isolated. Specimen processing protocols were reinforced. Adjustment of antimicrobial therapy was made accordingly without reported subsequent adverse clinical outcomes.

Conclusion. A multi-faceted team approach in collaboration with Infection Prevention, Infectious Diseases, Surgery, operating room personnel, and Microbiology identified an unintended breakdown in sterile laboratory protocols which resulted in a cluster of falsely positive cultures. An increased incidence of infection with an uncommon pathogen initiated a prompt investigation that resulted in the identification of a pseudo-outbreak event.

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