

ASPR TRACIE Technical Assistance Request

Request Receipt Date (by ASPR TRACIE): 1 September 2020

Response Date: 15 September 2020

Type of TA Request: Complex

Request:

ASPR TRACIE received a request to conduct a literature search on pediatric surge of infectious disease at long-term care (LTC) facilities.

Response:

The ASPR TRACIE Team reached out to members of our Subject Matter Expert (SME) Cadre for more information. We also conducted a search online and reviewed existing ASPR TRACIE resources for relevant materials (namely the [Long-term Care Facilities](#) and [Pediatric/ Children Topic Collections](#), and the [Infectious Diseases](#) resources page).

Materials gathered can be found in the following sections of this document. Please note that several articles are not immediately accessible without access request, subscription, or purchase. These resources are indicated with an “Abstract only” in the citation.

I. Resources Related to Pediatric LTC Facilities and Infectious Diseases

Abdolahi, A., Fisher, S.G., Aquino, C., et al. (2012). [Nosocomial Infections in a Pediatric Residential Care Facility](#). (Abstract only.) *American Journal of Infection Control*. 40(6):502-506.

The authors conducted a retrospective study of a pediatric residential care facility over a one-year period. The authors evaluated the frequency and risk factors associated with infectious diseases in these facilities compared to other extended care centers. Results include incidence rate, infection type, and frequency of each.

Gerber, S.I., Erdman, D.D., Pur, S.L., et al. (2001). [Outbreak of Adenovirus Genome Type 7d2 Infection in a Pediatric Chronic-Care Facility and Tertiary-Care Hospital](#). *Clinical Infectious Diseases*. 32(5):694-700.

The authors conducted a retrospective study of an outbreak of adenovirus (Ad7d2) that infected residents of a pediatric chronic-care facility and subsequently spread to staff at a tertiary care hospital, with one nosocomial case. The study aimed to understand the

geographic and temporal transmission of the outbreak; the associated morbidity and mortality; as well as the cost and impact to the facilities.

Harris, J.S. (2016). [Infection Control in Pediatric Extended Care Facilities](#). *Infection Control and Hospital Epidemiology*. (Abstract only.) 27(6):598-603.

This article reviewed nosocomial infections, infection control programs, and antimicrobial resistance characteristics at pediatric extended care facilities. The author notes the inapplicability of elderly nursing home infection control practices for pediatric LTC patients.

Hsu, K., and Harris, J. (2001). [Control of Infections in Nonacute Care Pediatric Settings](#). (Abstract only.) *Seminars in Pediatric Infectious Diseases*. 12(2):92-99.

This article discusses the need for more systematic investigations of infection control guidelines in pediatric nonacute care settings. The authors discuss the existence of such guidelines for adult facilities that may not be appropriate for pediatric environments due to differences in underlying comorbidities.

James, L., Vernon, M.O., Jones, R.C., et al. (2007). [Outbreak of Human Adenovirus Type 3 Infection in a Pediatric Long-Term Care Facility—Illinois, 2005](#). *Clinical Infectious Diseases*. 45(4):416-420.

The authors studied an outbreak of human adenovirus type 3 (HAdV-3) in a pediatric LTC facility housing 63 residents. The review includes details of laboratory diagnostics, surveillance results of healthcare workers and residents, epidemiological data, and control measures to understand attack rate and transmission modes of the infection.

Johnson, C.L., Hill-Ricciuti, A., Grohs, E., et al. (2020). [Infection Prevention and Control and Antibiotic Stewardship Practices in Pediatric Long-term care Facilities](#). (Abstract only.) *Infection Control and Hospital Epidemiology*. 41(1):116-119.

The authors of this study surveyed infection control and antimicrobial stewardship practices at pediatric LTC facilities. Among the practices, adherence to Centers of Medicare and Medicaid Services (CMS) policies was reviewed.

Johnson, C.L., Jain, M., Saiman, L., et al. (2018). [Antimicrobial Stewardship in Pediatric Post-Acute Care Facilities](#). (Abstract only.) *American Journal of Infection Control*. 46(4):468-470.

The authors surveyed providers at a pediatric post-acute care facility about antimicrobial stewardship practices and barriers to implementation. Study results found that less than

half of the facilities observed had stewardship protocol in place, and that the most common impediment was lack of treatment guidelines.

Larson, E.L., Murray, M.T., Cohen, B., et al. (2017). [Pediatric Long-term Care Facilities: The Keep It Clean for Kids Trial](#). (Abstract only.) *Journal of Behavioral Medicine*. 44(2):141-150.

This large-scale trial evaluated the impact of behavioral interventions on infection control practices at three pediatric LTC facilities in the New York metropolitan area. Over a four-year span, the study assessed correlations between changes in infection intervention practices and reduced rates of infection, hospitalization, and overall number of outbreaks and infectious disease cases.

Lidsky, K., Hoyen, C., Salvator, A., et al. (2002). [Antibiotic-Resistant Gram-Negative Organisms in Pediatric Chronic-Care Facilities](#). *Clinical Infectious Diseases*. 34(6):760-766.

The authors studied the prevalence of antibiotic-resistant gram-negative bacilli among pediatric residents at two extended-care facilities. Results of the study aimed to outline prevalence of colonization among pediatric chronic-care residents prior to admission; risk factors associated with colonization; and whether acquisition within the facility was manageable by specific infection control measures.

Loyland, B., Wilmont, S., Hessels, A.J., et al. (2016). [Staff Knowledge, Awareness, Perceptions, and Beliefs About Infection Prevention in Pediatric Long-term Care Facilities](#). (Abstract only.) *Nursing Research*. 65(2):132-141.

This study surveyed providers at three pediatric LTC facilities to evaluate their knowledge of infection control measures and hand hygiene, as well as their suggestions for improving infection prevention efforts.

McPherson, T.D., Walblay, K.A., Roop, E., et al. (2020). [Notes from the Field: Candida auris and Carbapenemase-Producing Organism Prevalence in a Pediatric Hospital Providing Long-Term Transitional Care — Chicago, Illinois, 2019](#). *CDC Morbidity and Mortality Weekly Report*. 69(34):1180–1181.

The Chicago Department of Health conducted a point prevalence survey (PPS) of a 49-bed pediatric long-term transitional care hospital (for patients leaving intensive care unit), to evaluate presence of *C. auris* and carbapenemase-producing organisms (CPOs) in the patient population. This was the first documented *C. auris* prevalence screening conducted in a transitional LTC pediatric facility.

Murray, M.T., Jackson, O., Cohen, B., et al. (2016). [Impact of Infection Prevention and Control Initiatives on Acute Respiratory Infections in a Pediatric Long-Term Care Facility](#). National Library of Medicine. 37(7):859-862.

The authors assessed infection control and prevention methods at one pediatric LTC facility over a six-year period for acute respiratory infections. They provide a table of the evaluated infection control policies and procedures and the resulting impact of the policies on decreasing overall rate of infections.

Murray, M.T., Johnson, C.L., Cohen, B., et al. (2018). [Use of Antibiotics in Paediatric Long-term Care Facilities](#). (Abstract only.) The Journal of Hospital Infection. 99(2):139-144.

This retrospective study evaluated antimicrobial use in three pediatric LTC facilities over a three-year period. The authors reviewed medical records for demographic information; healthcare-associated infection data and antimicrobial use and diagnostic testing information. Results aimed to assess the correlation between misuse of antibiotics and prevalence of resistant organisms in these settings.

Murray, M.T., Pavia, M., Jackson, O., et al. (2015). [Health Care-associated Infection Outbreaks in Pediatric Long-term Care Facilities](#). American Journal of Infection Control. 43(7):756-8.

The authors conducted a three-year retrospective study of hospital acquired infections occurring at three pediatric LTC facilities. They summarize the causative pathogens in detail and subsequent infection control measures taken.

Neu, N., Plaskett, T., Hutcheon, G., et al. (2015). [Epidemiology of Human Metapneumovirus in a Pediatric Long-Term Care Facility](#). (Abstract only.) Infection Control and Hospital Epidemiology. 33(6):545-550.

This paper outlines a retrospective study of influenza-like-illness (ILI) in a 136-bed pediatric LTC facility over a four-month period. The authors utilize viral diagnostic testing to identify the causative pathogens of respiratory illness to understand the epidemiology of human metapneumovirus.

Saiman, L., Maykowski, P., Murray, M., et al. (2017). [Incidence, Risks, and Types of Infections in Pediatric Long-term Care Facilities](#). Jama Pediatrics. 171(9):872-878.

This study, part of a larger trial called “Keep it Clean for Kids” (also cited in this document), was conducted over a three-year period at three pediatric LTC facilities. This specific study aimed to identify the types of infections diagnosed, the rate of infection, and the associated risk-factors identified for respiratory tract infections.

Saiman, L., Wilmont, S., Hill-Ricciuti, A., et al. (2019). [Knowledge, Attitudes, and Practices of Pediatric Long-term Care Facility Staff Regarding Infection Control for Acute Respiratory Infections and Influenza Vaccination](#). Journal of the Pediatric Infectious Disease Society.

The authors of this study conducted a survey of clinical staff and on-site teachers at three pediatric LTC facilities over a five-month period. The knowledge, attitude, and practice (KAP) survey assessed prevention and control measures for acute respiratory infections and influenza; the study identified gaps and areas for targeted education and training in future infection control efforts.

Viau, R.A., Hujer, A.M., Marshall, S.H., et al. (2012). [“Silent” Dissemination of Klebsiella pneumoniae Isolates Bearing K. pneumoniae Carbapenemase in a Long-term Care Facility for Children and Young Adults in Northeast Ohio](#). Clinical Infectious Diseases. 54(9):1314-1321.

The investigation, extracted from a larger study, aimed to understand colonization of pediatric residents in LTC facilities with resistant bacteria. Specifically, the authors assessed changes in gastrointestinal flora and antimicrobial susceptibility that resulted from residency at the pediatric facility; and it identified patterns of spread that were important in understanding dissemination dynamics.

II. Other Possible Resources of Interest

NOTE: While still relevant, these sources were deemed dated or not as highly focused on pediatric infection control at LTC facilities as the other resources identified in Section I.

Buet, A., Cohen, B., Marine, M., et al. (2012). [Hand Hygiene Opportunities in Pediatric Extended Care Facilities](#). (Abstract only.) American Journal of Infection Control. 40(5):E78-E79.

The purpose of this study was to understand the frequency of hand hygiene opportunities in pediatric extended care facilities, and adherence to these procedures.

Carter, E.J., Cohen, B., Murray, M.T., et al. (2015). [Using Workflow Diagrams to Address Hand Hygiene in Pediatric Long-Term Care Facilities](#). (Abstract only.) Journal of Pediatric Nursing. 30(4):e17-e21.

The authors observed and validated staff-developed workflow diagrams to improve hand hygiene in three pediatric LTC facilities. The results outlined the complexities of implementing hand hygiene protocol and infection control measures in these facilities.

Lake, J.G., Weiner, L.M., Milstone, A.M., et al. (2018). [Pathogen Distribution and Antimicrobial Resistance Among Pediatric Healthcare-Associated Infections Reported to the National Healthcare Safety Network, 2011–2014](#). (Abstract only.) *Infection Control and Hospital Epidemiology*. 39(1):1-11.

This study describes the distribution of pathogens, antimicrobial resistance, and healthcare-associated infections that were reported to the National Healthcare Safety Network from 2011-2014. The study was not solely concentrated on long-term pediatric facilities but included device-associated infection data from these facilities.

Mannheimer, S.B., Riley, S.W., Roberts, R.B. (1996). [Association of Penicillin-Resistant Pneumococci with Residence in a Pediatric Chronic Care Facility](#). *The Journal of Infectious Diseases*. 174(3):513-519.

The authors investigated the incidence of penicillin-resistant pneumococci (PRP) colonization in children at one chronic care facility. They assessed other associated resistance types to understand sources of PRP transmission.

Stover, B.H., Duff, H., Adams, G., et al. (1992). [Emergence and Control of Methicillin-resistant Staphylococcus Aureus in a Children's Hospital and Pediatric Long-term Care Facility](#). (Abstract only.) *American Journal of Infection Control*. 20(5):248-255.

The authors reviewed the records of 30 patients previously studied in the late 1980's for methicillin-resistant *Staphylococcus aureus* (MRSA) infection. The study evaluated patient response to treatment, implementation and efficacy of infection control measures, and associated nosocomial infections.

Thomson, J., Shah, S.S., (2017). [Is Pediatric Long-term Care the Next Frontier in Infection Prevention and Control?](#) (Abstract only.) *JAMA Pediatrics*. 171(9):835-836.

This editorial discusses the increase in pediatric patients that require long-term skilled nursing or extended care support due to complex medical conditions and the subsequent infection control measures of these facilities.

Vermaat, J.H., Rosebrugh, E., Ford-Jones, E.L., et al. (1993). [An Epidemiologic Study of Nosocomial Infections in a Pediatric Long-term Care Facility](#). (Abstract only.) *American Journal of Infection Control*. 21(4):183-188.

The authors conducted a study at one 87-bed pediatric LTC facility to determine the incidence rate of hospital-acquired infections. Results indicated the difference between these types of infections in LTC facilities versus acute-care facilities and the need for compliance with implemented infection control measures.