Background. Parechovirus-A3 (PeV-A3) is an emerging pathogen causing sepsis and meningoencephalitis in neonates and young infants. We previously reported that maternal antibodies against PeV-A3 are important to protect neonates and young infants from the infection. We showed that all neonates and infants who developed PeV-A3-related diseases had low neutralizing antibody titers (NATs) against PeV-A3 at the onset of disease, subsequently developed high NATs at 3 and 6 months of age. Subsequent changes in NATs against PeV-A3 in children who suffered from PeV-A3-related diseases are currently unknown. Additionally, their long-term neurological outcome is not well described in such population.

Methods. Subjects were PeV-A3-infected infants less than 4 months in Niigata, Japan during 2013–2014, and follow-up serum samples were obtained longitudinally from the patients at 3, 6 months, 1 and 3 years after the infection. NATs against PeV-A3 were measured using LLC-MK2 cells. Neurological outcomes of the patients were evaluated by their pediatricians at their study visits.

Results. We evaluated 45, 34, 33, 26, and 16 serum samples at onset, 3, 6 months, 1 and, 3 years after the infection, respectively. All 45 serum samples at onset had low NATs against PeV-A3 less than 1:32 which was regarded as a cutoff to prevent PeV-A3 infection. Subsequently, the NATs had elevated to the high level (≥1:512) after the infection in all patients. Three years after the infection, all patients except one achieved normal neurodevelopmental milestones. Only one patient who was diagnosed as severe status epileptics due to meningoencephalitis had developmental delay with difficulties in sitting and walking with support.

Conclusion. This study showed that NATs against PeV-A3 sustained high levels in patients who had severe PeV-A3-related diseases in their neonatal or young infantile periods. Neurological outcomes of the patients who suffered from PeV-A3-related diseases seem to be excellent, except for the case with complicated clinical course.

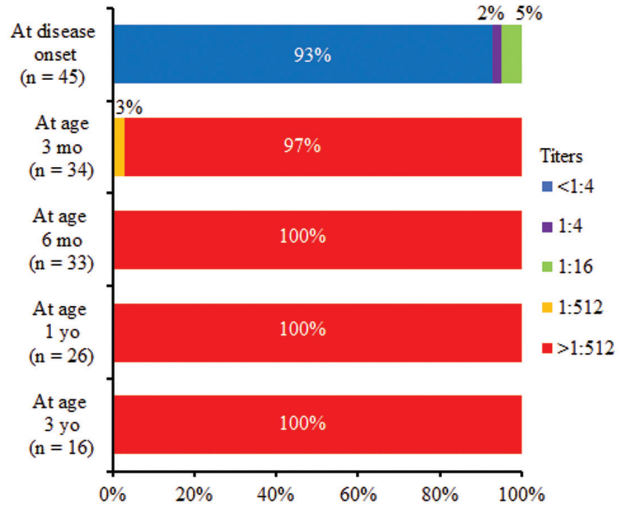

Figure Changes in neutralizing antibodies against parechovirus-A3 (PeV-A3) during the 3 years after the infection in neonatal or young infantile periods.

Disclosures. **All authors:** No reported disclosures.

2350. Parainfluenza Virus Infection Factors: 18 Years' Active Surveillance in a Pediatric Hospital

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Background. Paranfluenza virus (PIV) is an important cause of acute lower respiratory tract infection (ALRI), hospitalization and mortality in children. The aims of this study were to describe the clinical-epidemiologic pattern and infection factors associated with PIV.

Methods. Prospective, cross-sectional study of patients admitted for ALRI 2000–2017, diagnosed with respiratory syncytial virus, adenovirus, influenza or parainfluenza by fluorescent antibody (FA) or real-time polymerase chain reaction (RT-PCR) assay of nasopharyngeal aspirates.

Results. From a total of 15,451 patients included, 13,033 were tested and 45%(5831) had positive samples; RSV was predominant (81.3%,4738) all through the study period, followed by IF: 7.6% (440), PIF 6.9% (402) and AV: 4.3%(251). PIV followed a seasonal epidemic pattern predominantly during spring months (September– October). The median age of cases was 8 months (IQR: 4–13 months); 54% of cases were males. The most frequent clinical presentation was bronchiolitis (61%); 53% had previous admissions for respiratory causes, 9% were readmissions. Comorbidity was found in 59.4%: recurrent respiratory disease (47.8%), congenital heart disease (5.7%), chronic neurological disease (6.5%); 8.5% were malnourished, 23% born preterm and 3.3% immunosuppressed; 23.5% had complications, 10.6% hospital-acquired infections. Lethality was 3.5% (14/396).

The following were independent predictors for PIF infection: recurrent respiratory disease odds ratio (OR): 1.65 (95% CI: 1.32–2.08); $P < 0.001$; readmissions, OR 1.95 (95% CI: 1.34–2.83); $P < 0.001$; born preterm, OR: 1.58 (95% CI: 1.19–2.10); $P = 0.001$.

Conclusion. Parainfluenza infection showed an epidemic seasonal pattern (September-October), with higher risk in children with recurrent respiratory disease, prematurity and previous admissions for respiratory causes.

Disclosures. **A. Gentile**, Sanofi Pasteur: Consultant, Speaker honorarium.

2351. Epidemiology and Clinical Characteristics of Parainfluenza Virus Type 4 in Korean Children, 2015–2017

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Background. Human parainfluenza viruses (HPIVs) are one of common causes of respiratory tract infections in children. Among the four serotypes (HPIVs 1–4), little is known about the epidemiology and clinical characteristics of HPIV-4. The aim of this study was to identify the epidemiology and the characteristics of HPIV-4 compared with HPIVs 1–3 in Korean children.

Methods. We reviewed medical records of children with HPIV who had been admitted at Seoul National University Children's Hospital during 2015–2017. Detection of respiratory viruses in nasopharyngeal aspirates was performed using multiplex reverse transcription polymerase chain reaction. Patients who had underlying medical conditions such as chronic respiratory disease, immunodeficiency, congenital heart disease, or concurrent viral infections were excluded.

Results. Of 12,539 samples, 586 (8.1%) were positive for HPIV. By the exclusion criteria, 137 (23.4%) were finally included: 46 (33.6%) for HPIV-3, 34 (24.8%) for HPIV-1 and -4 respectively, 23 (16.8%) for HPIV-2. During the study period, two seasonal outbreaks were observed in each serotype. HPIV-1 was prevalent in September 2015 and August 2016, while HPIV-2 in August 2015 and July 2017. The peak of HPIV-3 infection occurred in July 2016 and May 2017. HPIV-4 was mostly infected from August to September in 2015 and in June 2017. Regardless of serotypes, HPIV was predominantly observed in boys and among children less than 5 years of age (70%); the median age in HPIV-4 was 3.1 (0–18) years. The most common clinical presentation was cough in all serotypes (78.7–88.2%). Sore throat was mainly presented in HPIV-4 infected patients compared with other serotypes (11.8%; $P = 0.029$). HPIV-4 infection was more often diagnosed as bronchiolitis (32.4%) compared with HPIV-1 (8.8%; $P = 0.016$) and -2 (8.7%; $P = 0.037$). Croup was most frequently diagnosed in children with HPIV-2 (21.7%), but no patients with HPIV-4 had croup ($P = 0.008$).

Conclusion. We observed seasonal peak in HPIV-4 from late spring to autumn. Lower respiratory tract infection was main clinical manifestation in HPIV-4 among hospitalized patients and HPIV-4 is a common respiratory pathogen causing significant morbidity in Korean children during 2015–2017.

Disclosures. **All authors:** No reported disclosures.

2352. Increased on Childhood Recurrent Wheezing and Asthma After Respiratory Syncytial Viral (RSV) Infection in Full-Term Infants

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Background. Studies suggest that RSV infection early in life is associated with the development of recurrent wheezing, yet, information on large population-based studies among US full-term healthy infants is incomplete. The objective of this study was to evaluate the risk of developing post-RSV recurrent wheezing/asthma during childhood among full-term infants in a US commercially insured population.

Methods. Retrospective, observational study used data from Truven MarketScan Commercial Claims and Encounters Database (January 1,