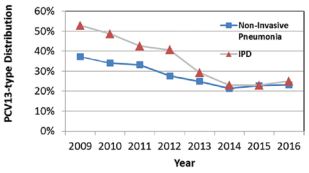
IPD cases in adults ≥18 years; PCV13 serotypes accounted for 53% in 2009 and 25% of IPD in 2016. The correlations between IPD (ABC) with INV pneumonia (SENTRY) and N-INV pneumonia (SENTRY) were: 0.937 and 0.973 (both $P < 0.01$), respectively (Table 1). The proportion of IPD and N-INV pneumonia due to vaccine serotypes decreased consistently and monotonically until 2014 and then plateaued (Figure 1).

Conclusion. We found a strong correlation between databases (SENTRY and ABC) and between INV and N-INV pneumococcal disease in the proportion of disease due to PCV13 types. Our findings would need to be confirmed at the individual serotype level. The observed decrease in PCV13-type disease through 2014 is compatible with herd effect from PCV13 vaccination in children. The plateau suggests remaining disease that may be addressed by direct vaccination of adults. Surveillance of IPD alone could guide some policy on PCV13-type pneumococcal pneumonia.

Table 1. Correlation of PCV13-type Grouping Pneumococcal Disease. United States, 2009-2016

	Invasive Pneumococcal D. (ABC Surveillance)	Invasive Pneumonia (SENTRY)	Non-Invasive Pneumonia (SENTRY)
Invasive Pneumococcal D. (ABC Surveillance)	1.000	0.937 (p<0.002)	0.973 (p<0.001)
Invasive Pneumonia (SENTRY)	0.937 (p<0.002)	1.000	0.9481 (p=0.001)

Figure 1. Trends in PCV13-type Grouping Distribution



Disclosures. **J. A. Suaya**, **A. G. Arguedas**, **D. L. Swerdlow**, Pfizer Inc.: Employee and Shareholder, Salary. **R. E. Mendes**, Merck: Research Contractor, Research support. **J. Vojicic**, Pfizer: Employee and Shareholder, Benefits and stock and Salary. **R. E. Isturiz**, Pfizer, Inc: Employee and Shareholder, Salary and Stock & Stock Options. **B. D. Gessner**, Pfizer Inc.: Employee and Shareholder, Salary.

1447. Molecular Epidemiology, Serotype Distribution, Antimicrobial Sensitivity, and Clinical Findings of adult Pneumococcal Pneumonia Patients in Japan: Hospital-Based Study

Satoshi Kakiuchi, MD[1,2]; Motoi Suzuki, MD, PhD[1,2]; Christopher M. Parry, MD, PhD[1,3]; Michio Yasunami, MD, PhD[1,4]; Konosuke Morimoto, MD, PhD[1,2] and Adult Pneumonia Study-Group Japan; [1]Department of Clinical Medicine, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan, [2]Adult Pneumonia Study Group-Japan, Nagasaki, Japan, [3]Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, UK, [4]Department of Medical Genomics, Life Science Institute, Saga-ken Medical Centre Koseikan, Saga, Japan

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. *S. pneumoniae* (SP) is one of the most important bacteria for pneumonia among adults. We investigated hospital-based proportion of antimicrobial resistance, distribution of serotypes, sequence types (STs) and clinical findings among adult pneumococcal pneumonia patients, and compared microbiological results with the previous study that was reported 10 years ago in Japan.

Methods. A multicenter prospective surveillance for adult pneumonia was conducted from September 2011 to August 2014 in Japan. We enrolled aged over 15 years, community-acquired or healthcare-associated pneumonia patients, and obtained clinical information and sputum samples. Sputum samples were cultured quantitatively or qualitatively at each study sites. Identified SP strains were transported to our laboratory for serotyping by the Quellung reaction. We also extracted DNA from SP strains for multilocus sequence typing. Antimicrobial sensitivity tests for penicillin (PCG), ceftriaxone (CTRX), and meropenem (MEPM) were conducted using agar dilution method. Differences of clinical findings were analyzed using the chi-square test.

Results. We enrolled 200 cases and obtained 205 SP strains. Most dominant serotype was three (24.4%) and ST was 180 (22.9%). Those results were same as the previous report. The proportion of 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine serotypes was 58.5 and 75.6%, respectively. Most of SP strains were sensitive for antibiotics (96.1% for PCG, 94.1% for CTRX, and 81.5% for MEPM) and the antimicrobial sensitivity also did not greatly have a change with the previous study reported 10 years ago. Pneumococcal pneumonia patients due to serotype 3 was higher hospitalization rate and CURB-65 score than other serotypes (hospitalization rate was 73.5 and 60.3%, respectively; $P = 0.095$, and proportion of 3 or more CURB-65 score was 36.4 and 20.7%, respectively; $P = 0.039$).

Conclusion. In Japan, SP sensitivity for antibiotics, dominant serotype and ST were not changed so much from 10 years ago. Serotype 3 SP contributed to the disease severity of adult pneumococcal pneumonia in Japan.

Disclosures. **K. Morimoto**, Pfizer: speaker, Speaker honorarium.

1448. Impact of Mental Illness on Outcomes of Outpatients with Community-Acquired Pneumonia

Kari Mergenhagen, PharmD, BCPS AQ-ID[1]; Megan Skelly, PharmD[2]; Bethany Wattengel, PharmD[3]; Randal Napierala, PharmD[3]; John Sellick, DO, MS, FIDSA, FSHEA[4] and Jennifer Schroeck, PharmD[5]; [1]Department of Infectious Diseases, VA Western New York Healthcare System, Buffalo, New York, [2]Psychiatry, VA WNY Healthcare System, Buffalo, New York, [3]Pharmacy, VA WNY Healthcare System, Buffalo, New York, [4]Department of Medicine, VA Western New York Healthcare System, Buffalo, New York, [5]Department of Pharmacy, VA Western New York Healthcare System, Buffalo, New York

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. According to the National Alliance on Mental Illness, one in five American adults experiences a mental health condition every year. CAP is often treated with antibiotics that can prolong the QTc interval. The primary outcome was to assess whether those with a psychiatric disorder were more likely to experience treatment failure and have poor outcomes in the treatment of community acquired pneumonia (CAP).

Methods. A retrospective chart review was performed using ICD-9/10 codes for CAP between January 1, 2008 and January 31, 2018. Patients were included if they were seen at the Western New York VA Healthcare System, emergency room, primary or rural care clinics. Data were analyzed via the Student's *t*-test or chi-squared test.

Results. A total of 518 patients met criteria and 49% had a psychiatric disorder. Compared with patients without psychiatric disorders, patients with psychiatric co-morbidity were more likely to receive an appropriate dose of antibiotics (99.4% vs. 93.6% $P = 0.0004$) as well as an appropriate duration (78% vs. 68% $P = 0.03$). Patients with a psychiatric disorder were not more likely to experience failure or subsequent admission. There was no statically significant difference in early or late CAP treatment failure in those with a psychiatric disorder compared with those without ($P = 0.3383$; $P = 0.116$). There was also no statistically significant difference in 30-day readmission rates, 30-day mortality, or 90-day mortality ($P = 0.4095$; $P = 0.3383$; $P = 0.3790$). They were more likely to be prescribed conditional risk QTc prolonging agents concomitantly (70.2% vs. 26.9% $P < 0.0001$); however, differences in prescribing rates of a QTc prolonging antibiotic, such as a fluoroquinolone or macrolide, were not statistically significant (85.3% vs. 83.4% $P = 0.5353$).

Conclusion. While mental illness is often associated with poor outcomes, this study emphasizes the need to continue to remove the stigma of mental illness when treating patients with common outpatient infections.

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

1449. Comparison of Emergency Department vs. Inpatient Pediatric Treatment for Empiric Community Acquired Pneumonia in Infants and Children over 3 Months of Age

Jan Fune, MD; Pediatrics, Jersey Shore University Medical Center, Neptune, New Jersey

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. The Infectious Diseases Society of America (IDSA) made guidelines for management of community acquired pneumonia (CAP) in healthy infants and children older than 3 months of age. These were made to assist clinicians in choosing appropriate antimicrobial therapy in order to decrease morbidity and mortality and minimize antimicrobial resistance. Accordingly, narrow-spectrum antibiotics as first-line treatment but inappropriate selection of broad-spectrum antibiotics remains high. Our study investigates the concordance between emergency department (ED) and in-patient prescribers in choosing appropriate antibiotic therapy for CAP.

Methods. This retrospective chart reviews the aforementioned population who were admitted to the inpatient pediatric service via the ED from January 1, 2015–December 1, 2017. Data collection included patient demographics, prior antibiotic use from an outside prescriber, the antimicrobial prescribed in the ED, and the antimicrobial used in the pediatric unit. The primary outcome determined the consistency between the prescribing pattern in the ED and the inpatient. A descriptive statistical analysis was conducted afterward.

Results. A total of 210 patients were admitted to the inpatient pediatric service. The ED prescribed an aminopenicillin to 2.9% of patients or a cephalosporin as monotherapy to 70.9%; 0.9% of patients were started on both types. Once under the hospitalist's service, the hospitalist continued the cephalosporin in 72.4%, switched to an aminopenicillin in 10.6%, switched to a macrolide in 5.4%, and 8.1% discontinued antimicrobrials altogether. If an aminopenicillin was started in the ED, it was continued by the hospitalist in 83.3% of the cases, with none switching to a cephalosporin, and one patient being switched to a macrolide.

Conclusion. At our local pediatric hospital, there is poor compliance with IDSA guidelines for CAP. There is high concordance between ED and in-patient prescribers since hospitalists were more likely to continue the antimicrobial started in the ED. Guideline adherence might be improved by focus on antibiotic stewardship and creating order sets that adhere to IDSA guidelines. Future studies could investigate if these suggestions improve overall adherence rates.

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

1450. Clinical Characteristics of Patients with Community-Acquired Pneumoniae due to *Moraxella catarrhalis* in Adults: A Retrospective Single-Center Study in Okinawa Miyako Island in Japan

Jun Hirai, MD; Takeshi Kinjo, MD, PhD; Shusaku Haranaga, MD, PhD and Jiro Fujita, MD, PhD; Department of Infectious Diseases, Respiratory, and Digestive Medicine, Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. Previous studies reported that *Moraxella catarrhalis* was one of the main pathogen in community-acquired pneumonia (CAP); however, only a few investigations describing CAP due to *M. catarrhalis* (MCAP) have been published until now. Therefore, the data regarding clinical features of MCAP is still unknown.

Methods. The primary objective of the present study was to determine the clinical characteristics of patients with MCAP. Pneumonia patients aged over 20 hospitalized

between April 2014 and March 2018 were enrolled. Differences on patients' background and clinical parameters between MCAP and CAP caused by *S. pneumoniae* (SCAP) were compared with elucidate the clinical characteristics of MCAP. Patients with bed-ridden status, residents in nursing home, more than two microorganisms were detected from sputum, were excluded.

Results. During the study period, 114 MCAP and 107 SCAP were identified. In two groups, general status was mild (score ≤2 was 65.7% vs. 64.4%) according to Japanese pneumonia severity scoring system (A-DROP), and the qSOFA score was also relatively low (score ≤2 was 95.6% vs. 91.5%). Although there was no difference in the ratio of sex in these groups, the age was significantly higher in MCAP cohort (the mean age; 77 vs. 68 years old, $P < 0.01$). Compared with SCAP, MCAP had significantly higher pulmonary underling diseases such as bronchiectasis ($P < 0.01$), asthma ($P < 0.05$), interstitial pneumonia ($P < 0.05$), and lung cancer ($P < 0.05$), home oxygen therapy ($P < 0.01$), and systemic disease ($P < 0.05$). Diagnostic concordance rate between sputum smear on Gram-stain and bacterial cultivation was lower in MCAP patients (78% vs. 87.8%; $P = 0.05$). In radiological findings, bronchopneumonia pattern was predominant in MCAP group than PCAP group (95.6% vs. 62.6%; $P < 0.01$). On the other hand, developing a chill and co-infection with Flu were common in PCAP patients ($P < 0.01$). There was no statistical significant difference on length of treatment and hospital stay in two groups ($P = 0.66$ and 0.55, respectively). All patients in both groups recovered.

Conclusion. In the present study, the characteristics of MCAP were as follows; (i) mainly occurred in elderly patients under pulmonary and systemic diseases, (ii) presented with relatively mild symptoms, (iii) bronchopneumonia pattern was predominant, and (iv) benign prognosis.

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

1451. Predictive Values of Methicillin-Resistant *Staphylococcus aureus* (MRSA) Nasal Swab PCR Assay for MRSA Pneumonia

Man Ting Chou, PharmD[1]; Romic Eskandarian, PharmD[1]; Hemi Jung, PharmD[1]; Ross Pineda, PharmD Candidate 2019[2]; Su Lee, PharmD[2] and Keitaro Kawaguchi, PharmD[1]; [1]Adventist Health Glendale, Glendale, California, [2]School of Pharmacy, West Coast University, Los Angeles, California

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. The Center for Disease Control (CDC) reports that methicillin-resistant *Staphylococcus aureus* (MRSA) has being linked to over 80,000 severe infections and 11,000 deaths per year. Due to this concern, patients are commonly and overly started on empiric MRSA-targeted antimicrobial agents. Antimicrobial stewardship encourages the rapid de-escalation of therapy to minimize the overuse of antibiotics and reduce resistance. In pneumonia, respiratory cultures are used to confirm organism(s) which may take days to result. Recent emerging literature suggests that the use of MRSA nasal swab PCR assay as a predictive diagnostic tool for MRSA pneumonia to shorten the duration of empiric therapy. The primary objective of this study was to assess both the positive and negative predicative values of the MRSA nasal swab for MRSA pneumonia.

Methods. We conducted a single-centered, retrospective chart review of all patients admitted from February 2017 to 2018 with a confirmed diagnosis of pneumonia. Patients who were screened for MRSA nares and had a respiratory culture within 48 hours of the screening were included in this study. Patients who failed to meet these criteria, they were excluded from the study. This study has been exempt from the Institutional Review Board (IRB).

Results. One hundred seventy-four patients met the inclusion criteria, 30 with positive MRSA nares and 144 with negative MRSA nares. No statistical differences were found between baseline characteristics between the two groups. The positive predictive value of the MRSA nasal swab for MRSA pneumonia was 0.3 and its negative predictive value was 0.97. The sensitivity was 64% and the specificity was 87%.

Table 1. Predictive Values of MRSA Nasal Swab for MRSA Pneumonia

	Respiratory Culture MRSA (+) ($N = 14$)	Respiratory Culture MRSA (-) ($N = 160$)	Predictive Value
MRSA Nares (+) ($N = 30$)	9	21	0.3
MRSA Nares (–) ($N = 144$)	5	139	0.97

Conclusion. MRSA nasal swab has a high negative predictive value to rule out MRSA pneumonia and reduces time to discontinuation of empiric MRSA-targeted antimicrobial agents. The positive predictive value was low and should not be used as a sole factor to initiate antimicrobial therapy.

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

1452. Non-invasive Pneumococcal Pneumonia in Adults in Portugal: Continued Decline of PCV13 Serotypes (2015–2017)

Catarina Silva-Costa, PhD; Elísia Lopes, MSc; Mario Ramirez, PhD; Jose Melo-Cristino, MD, PhD and Portuguese Group for the Study of Streptococcal Infections; Instituto De Microbiologia, Instituto De Medicina Molecular, Faculdade de Medicina, Universidade de Lisboa, Lisbon, Portugal

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. In 2015, PCV13 was introduced in the National Immunization Plan in Portugal for children, although it was not significantly used in adults. However, changes in the pneumococcal population causing non-invasive pneumococcal pneumonia (NIPP) in adults (≥18 years) can occur due to herd effects. To evaluate this, we monitored the serotypes and antimicrobial resistance of adult NIPP isolates in 2015–2017.

Methods. A total of 1,142 isolates were recovered, serotyped by Quellung and tested for susceptibility to antimicrobials by disk diffusion or Etest.

Results. Among the 1,142 isolates, 52 different serotypes were found and 59 isolates were nontypeable (5%). The most common were serotypes 3 (13%), 11A (8%), 19F, 9N and 23A (5% each), 23B, 16F and 6C (4% each). There were strong variations in the proportion of some serotypes, suggesting that factors other than vaccine pressure could also impact on serotype prevalence. Although a considerable number of isolates still expressed the additional serotypes included in PCV13 (addPCV13 = 200), the overall proportion of addPCV13 serotypes remained relatively stable in this time period. However, when comparing with the previous period (2012–2014), there was a significant decrease in the proportion of addPCV13 serotypes, from 22 to 17.7% ($P = 0.007$). Serotypes included in PCV7 (11%, $n = 122$) and the serotypes exclusively found in the 23-valent polysaccharide vaccine (30%, $n = 339$) did not change significantly in 2015–2017. Non-vaccine types were expressed by 42% of the isolates ($n = 481$) and their proportion was also stable throughout the study. Overall, resistance did not change relative to 2012–2014, with 22% erythromycin resistance and 18% penicillin nonsusceptibility.

Conclusion. After the introduction of PCV13 in the National Immunization Plan for children, a significant decrease in the proportion of PCV13 serotypes was noted in the adult population, although a considerable fraction of disease is still caused by vaccine serotypes. Moreover, nonvaccine serotypes are becoming important causes of NIPP, emphasizing the importance of continued surveillance studies.

Disclosures. **M. Ramirez**, Pfizer: Speaker's Bureau, Speaker honorarium; GlaxoSmithKline: Consultant, Consulting fee; Merck Sharp and Dohme: Consultant, Consulting fee. **J. Melo-Cristino**, Pfizer: Grant Investigator and Speaker's Bureau, Research grant and Speaker honorarium; Merck Sharp and Dohme.: Speaker's Bureau, Speaker honorarium.

1453. Ninety-One Day Quality of Life Post-Pneumonia Diagnosis in Adult Patients in Japan

Henry Glick, PhD[1]; Taiga Miyazaki, MD, PhD[2]; Katsuji Hirano, MD[3]; Jose Suaya, MD, PhD[4]; Elisa Gonzalez, MS[5]; Bradford D. Gessner, MD[5]; Raul E. Isturiz, MD[5]; Adriano G. Arguedas, MD[5] and Shigeru Kohno, MD[2]; [1]General Internal Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, [2]Second Department of Internal Medicine, Nagasaki University Hospital, Nagasaki, Japan, [3]Nagasaki University, Nagasaki, Japan, [4]Pneumococcal Vaccines, WW Medicines Development & Scientific Affairs, Pfizer Inc, New York, New York, [5]Pfizer, Inc., Collegeville, Pennsylvania,

Session: 147. Respiratory Infections: CAP
Friday, October 5, 2018: 12:30 PM

Background. Pneumonia is a serious illness with potentially long-lasting but poorly-characterized impact on quality of life. The Japanese Goto Epidemiology Study is a prospective, active, population-based surveillance study of adults with community-onset pneumonia (COP), that includes assessment of Quality Adjusted Life Years (QALYs).

Methods. Patients with X-ray/CT scan confirmed COP enrolled in the Goto study and consented to participate in QALY assessment responded to Japanese versions of EuroQol-5D-5L (EQ-5D-5L) health state classification (primary), EQ-5D visual analog scale, and SF-6D (secondary) instruments. This interim analysis reports 91-day QALYs based on Day 1 (diagnosis), 8, 16, 31, and 91 EQ-5D-5L responses of patients enrolled between June 1, 2017 and February 7, 2008. For comparison, we developed hypothetical QALYs had the patients not developed pneumonia (control) using the EQ-5D-5L scores from Day -30 (via recall) carried forward and adjusted by the natural decline in scores and death with age. QALYs were calculated as the area (trapezoidal method) under the survival weighted pneumonia and control EQ-5D-5L QALY score curves.

Results. The 234 patients were 55% male, 88% aged ≥64 years, 45% nursing home residents, and 65% initially hospitalized (35% initially outpatient) for COP. Compliance for interviews among survivors was 100%. EQ-5D-5L scores were 0.732 at Day −30, decreased to 0.590 at diagnosis, and rose to 0.675 by Day 91. The average scores at all time points remained below Day −30 (all P values <0.01). Compared with hypothetical controls, development of pneumonia on average resulted in a loss of 0.0292 QALYs ($P < 0.001$) during the first 91 days of follow-up.

Conclusion. Among residents of Goto Island, Japan, significant QALY losses were observed in association with a diagnosis of pneumonia and had not returned to baseline by 3 months after diagnosis. Scores and cumulative QALY losses during the first 3 months after pneumonia diagnosis were comparable to those experienced by US adults with chronic heart failure during a 3-month period.

Disclosures. **H. Glick**,**K. Hirano**, Pfizer Inc.: Consultant, Research support. **T. Miyazaki**, Pfizer Inc.: Collaborator, Research support and Speaker honorarium. . **J. Suaya**, **E. Gonzalez**, **B. D. Gessner**, **A. G. Arguedas**, Pfizer Inc.: Employee and Shareholder, Salary. **R. E. Isturiz**, Pfizer, Inc: Employee and Shareholder, Salary and Stock & Stock Options. . **S. Kohno**, Pfizer Inc.: Consultant, Research support and Speaker honorarium.