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

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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)

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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.

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

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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.

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1454. B-Hemolytic Non-Group A *Streptococcus* Pharyngitis in Children

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Background. Non-Group A *Streptococci* (NGAS) are common isolates from patients with pharyngitis. Few studies have assessed the epidemiology and clinical features of these infections in children.

Methods. The epidemiology, clinical features, and antibiotic prescribing patterns for NGAS among children with throat cultures obtained for pharyngitis were assessed at a large community-based health system over 10 years. Children with NGAS were compared with children with Group A *Streptococcus* (GAS) and negative cultures using uni- and multi-variate analysis. Antibiotic prescribing patterns were evaluated.

Results. A total of 224,328 rapid *Streptococcus* tests and 116, 578 throat cultures were performed. Clinical analysis was completed for 602 GAS patients, 535 NGAS patients, and 480 patients with negative cultures. Incidence of NGAS did not vary annually or by season, but increased with age from 2% at ≤ 5 years to 7% at 18 years. Patients with NGAS were more likely than those with negative cultures to have exudates (20.3% vs. 13.1%, $P = 0.003$) and enlarged tonsils (28.6% vs. 19.3%, $P < 0.001$). Modified Centor scores did not differ between groups (score>2, $P = 1.0$; score>3, $P = 0.50$). Patients with GAS were more likely than those with NGAS to have fever (32.6% vs. 24.5%, $P = 0.003$), petechiae (14.0% vs. 3.1%, $P < 0.001$) and modified Centor score >2 (47.8% vs. 27.1%; $P < 0.001$). Of patients with NGAS 65% were prescribed antibiotics.

Conclusion. NGAS likely exists in both a carriage and infectious state and the incidence increases with age. When NGAS causes infection the infection is milder than GAS and complications are rare. Laboratory reporting of NGAS results in high antibiotic use, despite current recommendations against treatment.

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This abstract has been withdrawn at the author's request.

1456. Biomarkes in Different Etiologies of Pneumonia in Pediatrics in Indonesia

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Background. Pneumonia remains the leading killer with an estimated of 922,000 fatalities or 15% of all deaths in <5-year-old children in 2013. Mortality can be reduced by providing appropriate treatment to the pathogens. The objectives of this study were to describe the causes of pneumonia that may change after the introduction of vaccines and to identify biomarkers to differentiate between bacterial and viral infection.

Methods. A 2-year multicenter cohort study of children between 2-month–5-year old with pneumonia has been conducted in three hospitals in Indonesia since July 2017. Demographics, clinical, laboratory, radiology, treatment data, have been recorded. Blood, urine, nasopharyngeal swab, sputum/induced sputum, specimens have been collected for biomarkers, culture, molecular and serological tests.

Results. Three-thirty from 99 pneumonia subjects screened were enrolled in this study since July 2017. 20 (60.6%) subjects had bacterial and viral coinfection, 10 (30.3%) subjects with bacterial infection, two (6.0%) subjects with viral infection, and one (3.0%) subject had unknown etiology. Demography, clinical signs and symptoms, disease and vaccination history, laboratory, and radiological evaluation are shown in Table 1. The etiologies of pneumonia are described in Figure 1.

Conclusion. Mixed viral and bacterial infection were predominant. Several atypical pathogens were identified. No significant different in biomarkers between viral, bacterial and mixed infection groups was found. This finding highlights the need to improve diagnostic capacity to aid clinicians in pneumonia management.

	Bacterial (n=10)	Mixed (n=20)	Viral (n=2)	Unknown (n=1)
Demography				
Age (month old), median (range)	7.5 (2-20)	15 (2-53)	2.5 (2-3)	2
Gender : Male , n(%)	8 (80)	13 (65)	2 (100)	1 (100)
Vital sign, Median (range)				
Temperature (°C)	37 (36-38)	38 (36-39)	37.8 (37-38.6)	37.6
Pulse (times/minute)	120 (78-152)	120 (100-186)	130 (128-132)	194
Respiratory rate (times/minute)	36 (26-50)	38 (24-64)	49 (46-52)	63
Severity, n				
Mild (chest indrawing neg)	1	1	2	0
Severe (chest indrawing pos)	9	19	0	1
Vaccination history, n				
Hep B	9	16	2	1
BCG	8	13	2	1
DPT	5	12	2	0
HIB	4	9	2	0
Breast-feeding history, n				
Breast-feeding ≥ 6 months	5	11	2	0
Underlying diseases, n				
Development delay	1	2	0	0
Congenital heart diseases	1	3	2	0
Asthma	1	0	0	0
Recurrent Pneumonia	1	5	2	0
Sign & symptom, n				
Diarrhea	3	9	0	1
Decrease of consciousness	1	3	0	0
Skin rash	1	3	0	1
Nasal Flaring	2	12	0	1
Retraction	9	19	0	1
Prolonged expiration	2	3	0	0
Ronchi	10	18	0	1
Wheezing	2	3	0	1
Sat O2	55.9 (41.7-79.7)	135 (45.1-200)	--	70.3
PaO2	82.6 (59.6-94.7)	96.9 (74-99.3)	--	94
Radiology, n				
Infiltrate	3	10	2	1
Cavity	0	2	0	1
Haematology*				
HB, median (range)	6.6 (7.2-12)	10.6 (7.3-12.7)	10.8 (9.6-12)	10.5
Leucocyte, median (range)	17200 (10800-36300)	12800 (3400-29200)	20745 (7690-33800)	13600
Leukopenia, n	0	2	0	0
Normal Leucocyte, n	6	15	1	1
Leucocytosis, n	4	7	1	0
Lymphocyte, median (range)	42.5 (12-51)	30 (8-50)	30	19
Lymphopenia, n	6	18	0	1
Normal Lymphocyte, n	4	5	1	0
PMN median (range)	46 (38-41)	64 (34-84)	58	75
Neutropenia, n	2	2	0	0
Neutrophilia, n	6	16	1	1
Biomarker , median (range)				
CRP	3.4 (0.3-343)	15 (0.16-300)	3.3 (0.19-6.4)	175.3
Procalcitonin	2.3(0.2-200)	5.3 (0.01-200)	0.8 (0.1-1.5)	6.9
Fatalities	2	1	0	1

Table 1. Demography and clinical evaluation of pneumonia patients
*** adjusted by age**