Results. Eighty patients with HAP were identified. Overall, 22/80 (27.5%) had therapy de-escalated and 47/80 (58.8%) continued empirical treatment. A total of 58 patients survived and were included in the analysis, 20 in de-escalation and 38 in continued empirical treatment. Length of stay was shorter in de-escalation by −7.2 (95% CI −12.2, −3.0) days, P < 0.01, with an adjusted difference of −3.2 (95% CI −8.3, 1.9) days, P = 0.21. The duration of treatment was shorter in de-escalation by −3.4 (95% CI −5.8, −0.9) days, P < 0.01, with an adjusted difference of −6.1 (95% CI −3.3, 5.0), P = 0.21.

Conclusion. In HAP, 27.5% of patients were de-escalated. There was no difference in LOS, duration of treatment, and cost of hospital stay between de-escalation and continued empirical treatment on adjustment for confounders. Future work should explore the relationship between de-escalation and antimicrobial resistance in HAP.

Disclosures. All authors: No reported disclosures.

This abstract has been withdrawn at the author’s request.

1474. Etiology of Pulmonary Granulomas: How Common is Unsuspected Infection?
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Background. Granulomatous inflammation of the lung may be due to mycobacterial or fungal infections, sarcoïdosis or vasculitis. When lung biopsy is performed due to suspicion of neoplasm, cultures may not always be done. In these cases, it is often not possible to order microbiologic testing when biopsy is performed for a suspected malignancy. Specimens should routinely be sent for mycobacterial and fungal cultures regardless of presumptive diagnosis.

Methods. We retrospectively reviewed the pathology reports of 36 patients from 2014 to 2015 who underwent lung biopsy of pulmonary nodules that showed granulomatous inflammation.

Results. Thirty-six patients underwent lung biopsy of pulmonary nodules. One patient was excluded because their pathology report did not reveal any granuloma, resulting in a final sample size of 35 patients. Of these, eight (22.9%) patients simultaneously had specimens sent for mycobacterial and fungal cultures while the other 27 (77.1%) did not. Of the 27 patients who did not have specimens simultaneously sent for mycobacterial and fungal cultures, 17 (48.6% of the sample size) were diagnosed with lung cancer. The remaining 10 (28.6% of the sample size) patients did not have a definitive diagnosis because cultures were not sent for testing (Figure 1). Of the eight patients with cultures sent for testing, two (25%) had pulmonary tuberculosis, four (50%) had nontuberculosis mycobacterium infections, and two (25%) had fungal infections (one was Cryptococcus and one had mixed Aspergillus and Penicillium) (Figure 2).

Conclusion. We conclude that pulmonary nodules may have an infectious etiology when biopsy is performed for a suspected malignancy. Specimens should routinely be sent for mycobacterial and fungal cultures regardless of presumptive diagnosis.

Figure 1:

Figure 2. (MTB, Mycobacterium tuberculosis; NTB, non-Mycobacterium tuberculosis)

Disclosures. All authors: No reported disclosures.

1475. Etiology and Outcome of Fever and Respiratory Distress in Adult Patients Presenting to Medical Emergency in a Tertiary Care Hospital in North India
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Background. To study the region-specific etiology and outcome in adult patients with acute febrile illness and ARDS.

Methods. Prospective observational study done among 102 adult patients admitted to medical emergency, PGIMER, during study interval of 18 months (January 2016 to June 2017), with acute febrile illness (oral temperature more 101°F for less than 14 days with no localising symptoms) and ARDS (acute onset respiratory distress within one week of fever or new/worsening respiratory symptoms with bilateral opacities on chest radiograph, symptoms not explained by cardiac failure or fluid overload with PaO₂/FiO₂ ratio <200 with PEEP or CPAP >5 cm H₂O). All patients were investigated for the etiology as per standard protocol for malaria, scrub typhus, Leptospirosis, enteric fever, dengue, H1N1 influenza. Patients were followed till discharge or 28th day whichever is longer.

Results. Among the 102 patients recruited in the study, 41.2% were males and 58.8% were females. Mean age of presentation was 38.06+/−17.26 years. 46% of patients admitted during post monsoon season. 26.5% patients had succumbed to their illness. Cough (61.8%), hepatomegaly (50%), myalgia (50%), splenomegaly (30.3%),
1476. Objective Surveillance Definitions for Hospital-Acquired Pneumonia in Non-Ventilated Patients

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Background. Pneumonia is the most common hospital-acquired infection; most cases occur in nonventilated patients, yet the majority of hospitals do not track nonventilator hospital-acquired pneumonia (NV-HAP) given the complexity and subjectivity of CDC’s current surveillance definition and large number of patients at risk. We sought to develop objective, electronically computable surveillance definitions for NV-HAP to facilitate routine surveillance.

Methods. We developed ten candidate definitions based on different combinations of 6 clinical indicators and applied them to 60,725 adult admissions of ≥3 days to Brigham and Women’s Hospital between July 2015 and June 2017. Potential indicators included worsening oxygenation, new antibiotics given for ≥3 days, fever, abnormal white blood cell count, chest imaging orders, and respiratory cultures on hospital day ≥3. Worsening oxygenation was defined as ≥2 days of decreased oxygen saturation or escalation of supplemental oxygen by ≥2 L/min or stable oxygenation. We calculated incidence and proportional rates for each definition. We then matched each case with up to four controls on the basis of clinical service and duration of hospitalization and measured associations between each definition and increased mortality and length of stay, adjusting for patients’ demographics, comorbidities, and severity of illness.

Results. The incidence of NV-HAP ranged from 7.6 events per 100 admissions with the least restrictive definition (worsening oxygenation alone), to 0.7 events per 100 admissions (worsening oxygenation, fever or leukocytosis, and new antibiotics), to 0.2 events per 100 admissions (all signs present). Crude mortality rates ranged from 17% to 30%. Odds ratios for days-until-discharge in cases vs. controls ranged from 1.7 (95% CI 1.5–1.9) to 2.1 (95% CI 2.0–2.2).

Conclusion. We demonstrate the feasibility of applying electronically computable surveillance definitions for NV-HAP. These definitions yield incidence and mortality rates comparable to existing estimates based on manual surveillance methods. Further work is needed to better understand the clinical correlates of these events and their potential preventability.

Disclosures. All authors: No reported disclosures.

1477. MUCOVIB Project: Concordance Between Upper and Lower Airway Microbiota in Children with Cystic Fibrosis

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Background. Inconsistent intra-individual microbiota between upper and lower respiratory niches has been reported among infants with Cystic Fibrosis (CF). We aimed to investigate the concordance between the bacterial community composition of 20 oropharyngeal (OP) samples and 20 corresponding sputa, collected from children with CF above one year of age.

Methods. As part of the “cystic fibrosis, respiratory viruses, intracellular bacteria and fastidious organisms” (MUCOVIB) project, all children under 18 years of age with diagnosed CF were recruited into a Swiss multicentric study. Respiratory samples included OP swabs collected from all children in addition to sputa collected from those able to expectorate. Sequencing and data analysis of amplicons of the V3–V4 variable region of the 16S rRNA-encoding gene were performed. Paired-read were assembled with Clark and submitted into operational taxonomic units (OTUs) using vegan package and assigned to taxonomical ranks using Qiime and the EzBioCloud database. Non-metric multidimensional scaling, ANOVA and PERMANOVA were used to analyze the bacterial diversity in upper and lower respiratory niches.

Results. Fifteen-eight children, of whom 29 (50%) provided 51 sputa samples. From these 29, 10 patients (40 samples) provided concomitant OP and sputa samples collected during the same visit. Equivalent species diversity (alpha-diversity; Shannon index) was documented from both upper and lower samples (P = 0.26). In most cases, hierarchical clustering based on OTU presence/absence clustered upper and lower samples from the same patient and during the same visit, thus suggesting a signature microbiota in most patients. A similar variance of bacterial microbiota was observed in upper and lower respiratory niches (P = 0.9422), with some differences in species composition.

Conclusion. Our preliminary findings conducted on a small subset of patients, suggested a good intra-individual concordance of the microbiota in upper and lower respiratory tract. Most sputum samples could be used as proxy to measure bacterial biodiversity among children with CF unable to expectorate.

Disclosures. All authors: No reported disclosures.

1478. A Retrospective Review of Pseudomonas aeruginosa Infection in a Quarterly Intensive Care Unit: Epidemiology, Outcomes, and Antimicrobial Resistances 2013–2016

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Background. Pseudomonas aeruginosa (PA) is known to cause infection in the intensive care unit (ICU) and contribute to substantial morbidity and mortality. The objectives of this study were to describe the epidemiology, antimicrobial resistance and outcomes in critically ill patients with pseudomonal infection.

Methods. Patients with PA isolated during ICU admission from 2013–2016 were identified using provincial microbiology data. Patients were classified as colonized or infected. Those with infection were reviewed for source of infection, patient characteristics, antimicrobial susceptibilities, appropriateness of empiric antimicrobial therapy and 30-day mortality. Independent predictors of mortality were identified using multivariate logistic regression.

Results. A total of 196 unique patients were culture-positive for PA. 140 (71%) were infected and included for analysis. Mean patient age was 55.4 years (18.4 SD) and 62% were male. Admission categories included medical (71%), surgical (20%), and trauma or neurological (9%). Mean APACHE II score at the time of ICU admission was 19.4 (9.8 SD). One hundred and twenty-six (60%) patients required invasive mechanical ventilation, 102 (73%) vasopressor support and 27 (19%) new initiation of renal replacement therapy. Thirty-two (23%) died within 30 days of ICU admission. The log rank test of length of stay in ICU (P = 0.057), the Kaplan–Meier survival rate at day 1 (P = 0.001) and day 7 (P = 0.001) is significantly lower in the ICU (9.7% and 27%) vs. controls (10% and 56%). Sources were respiratory (66%) followed by skin/soft tissue (11%), urinary (10%), and blood (5%). Twenty (14%) isolates were multi-drug resistant (MDR) and six (4%) were extensively drug resistant (XDR). There were no pan-resistant isolates. One hundred and one (52%) of infections were nosocomial. Empiric antimicrobial therapy was effective in 97 (69%) cases. On multivariable analysis liver disease (aOR 6.2, 95% CI 1.5–25.7, P = 0.01), malignancy (aOR 5.0, 95% CI 1.5–17.3, P = 0.01) and higher APACHE II score at the time of admission (aOR 1.1, 95% CI 1.0–1.1; P = 0.02), were independently associated with 30-day mortality.

Conclusion. PA in the ICU is associated with substantial mortality and is most commonly isolated from the respiratory tract. Existing malignancy, liver disease and higher APACHE II score at admission were independently associated with mortality.

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1479. Evaluating the Impact of Procalcitonin on Antibiotic Utilization in Chronic Obstructive Pulmonary Disease Exacerbations

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Background. Antibiotic prescription rates for treating exacerbations of chronic obstructive pulmonary disease (COPD) have been reported as high as 90% to the United States. Research has shown that over 50% of COPD exacerbations are due to viral etiologies. Elevations in procalcitonin (PCT) levels can be seen in bacterial infections and can help guide the need for antimicrobial therapy. The goal of this study is to evaluate the impact of PCT on antibiotic use in patients with COPD exacerbations.

Methods. We conducted a retrospective, pre- and post-intervention study. Patients at least 18 years of age, with a diagnosis of COPD exacerbation, and had a PCT level drawn within 24 hours of admission were included. Exclusion criteria included patients presenting with severe trauma, sepsis, bacterial pneumonia, patients who required invasive mechanical ventilation, and patients with an initial admission to the ICU. The primary outcome was antimicrobial duration of therapy. Secondary outcomes included hospital length of stay (LOS), respiratory-related 30-day readmissions rates, and mortality. Data were defined as ICU admission, requirement of invasive mechanical ventilation, or death.

Results. A total of 139 patients were evaluated with 64 and 75 patients in the pre- and post-intervention cohorts, respectively. PCT guidance was associated with a significant reduction in number of antibiotic days of therapy (7.1 days vs. 2.4 days, P < 0.001). A trend in decreasing LOS was observed but did not reach statistical significance.