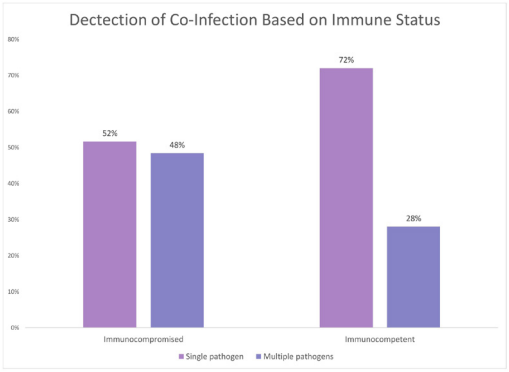

Disclosures. **All authors:** No reported disclosures.

2205. Clinical Burden of Pneumococcal Disease in US Adults Aged 65 Years and Above with Chronic or Immunocompromising Conditions

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Session: 244. Bacterial Respiratory Infections
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Background. The presence of chronic and immunocompromising conditions is associated with a disproportionately high risk of developing pneumococcal disease at older ages. The objective of this study was to quantify the risk of all-cause pneumonia (ACP) and invasive pneumococcal disease (IPD) in older US adults aged 65 years and older with underlying medical conditions.

Methods. A retrospective observational study was conducted using the Humana claims database. The study cohorts were identified at January 1 of each calendar year of observation from 2012 to 2017 and comprised adults aged 65 years and older with continuous enrollment for at least one year before and at least one year after January 1 of each year. For each yearly cohort, medical conditions were identified during the one year before each calendar year and episodes of ACP and IPD were identified during the corresponding 1-year follow-up period from January 1 to December 31. Individuals were stratified into 3 groups: those without any medical conditions of interests (healthy), those with chronic conditions (at-risk) and those with immunocompromising conditions (high-risk). Rate of ACP or IPD was expressed as the number of cases per 100,000 person-years and the rate ratio (RR) was expressed as the rate of pneumococcal disease of patients with medical conditions divided by the rate of pneumococcal disease in healthy adults.

Results. Of the 10,766,827 adults included in the study, 75% of adults had an underlying medical condition linked to an increased risk of pneumococcal disease. In adults with at-risk conditions, rates of ACP and IPD were 3.1 and 3.6 times the rate in healthy adults, respectively. In adults with high-risk conditions, rates of ACP and IPD were 4.1 and 5 times the rate in healthy adults, respectively. Rate of pneumococcal disease increased substantially with the addition of medical conditions: RR for ACP and IPD increased from 2.1 and 2.2, respectively, in adults with one at-risk conditions to 4.8 and 6.2, respectively, among adults with 2 or more at-risk conditions.

Conclusion. Despite recommendations of universal pneumococcal vaccination in older adults aged 65 years and above in the United States, the burden of pneumococcal disease remains high, particularly among those with chronic and immunocompromising conditions.

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

2206. Patterns of Care and Outcomes in Elderly Patients Hospitalized with Community-acquired Pneumonia in the United States

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Session: 244. Bacterial Respiratory Infections
Saturday, October 5, 2019: 12:15 PM

Background. Community-acquired pneumonia (CAP) is a common cause of morbidity and mortality in the elderly. Few studies compare the elderly (>65) and very elderly (≥85 years). We aimed to describe characteristics and patterns of care for very elderly patients hospitalized with CAP.

Methods. We conducted a retrospective cohort study using administrative data from 2010 to 2015 of about 660 US hospitals in the Premier database. Adults aged ≥65 years hospitalized with CAP, identified by either a principal ICD-9 code of pneumonia or a principal diagnosis of sepsis or respiratory failure coupled with a secondary code for pneumonia, were included. We compared demographics, insurance status, comorbidities, presentation characteristics and treatments among three age groups: 65–74, 75–84, and ≥ 85 years.

Results. The final sample included 488,382 patients aged ≥65 years, a third of whom were ≥85 years. Geriatricians cared for <1% of patients during hospitalization, regardless of patient age. Compared with those aged 65–74 years, the patients ≥85 were more likely to be female, of white race, have Medicare insurance, and a principal diagnosis of aspiration pneumonia (17.1% vs. 7%) (Table 1). The oldest group had higher rates of cardiac comorbidities, chronic kidney disease and dementia, but lower rates of diabetes, obesity, pulmonary disease, and smoking. On presentation, more of the very elderly had concomitant urinary tract infections. They were less likely to receive opiates and benzodiazepines, but more likely to receive foley catheters and antipsychotic medications. Antibiotics given in the first 2 days were similar across the groups. Fewer very elderly patients were admitted to the ICU or got ventilation compared with younger groups. More of the very elderly were discharged to hospice and fewer were discharged home. Compared with younger ages, the very elderly had similar lengths of stay but lower costs, and higher in-hospital mortality and 30-day readmission.

Conclusion. The very elderly represent a unique population with distinct clinical characteristics and outcomes from younger elderly patients. They have different co-morbidities and appear to receive less aggressive treatment with lower costs and higher mortality despite similar lengths of stay.

Table 1: Characteristics and Treatments by Age Group

Characteristic, %	65-74 y (N=152,309)	75-84 y (N=177,745)	≥85 y (N=158,328)
Demographics			
Female	48.3	49.9	58.1
White Race	76.2	78.0	79.8
Medicare Insurance	88.1	93.9	95.2
Comorbidities			
Congestive heart failure	28.2	34.6	40.1
Valvular disease	8.5	12.5	16.2
Dementia	7.8	19.6	30.4
Diabetes	40.9	36.2	36.2
Obesity	16.6	9.4	3.8
Smoker	18.4	7.8	2.5
Chronic Obstructive Pulmonary Disease	55.9	49.6	36.3
Concomitant Urinary Tract Infections on Presentation	12.7	17.1	21.9
Non-antibiotic Treatments			
Foley Catheter Use	9.6	10.8	11.9
Opiates	16.2	10.7	7.7
Benzodiazepines	3.7	2.5	1.8
Antipsychotics	4.7	4.8	5.7
Antibiotic Treatments			
Third generation cephalosporin	42.9	43.5	44.0
Respiratory quinolone	41.9	40.6	39.1
Macrolide	38.1	38.5	38.3
Anti-pseudomonal quinolone	40.9	39.5	38.4
Anti-MRSA agents	33.5	31.6	30.6
Piperacillin/tazobactam	23.0	23.1	24.0
Anti-pseudomonal cephalosporin	11.0	10.9	10.7
Hospital Course			
ICU	27.6	23.5	18.8
Invasive Mechanical Ventilation	9.7	7.3	5.0
Non-invasive Ventilation	10.8	9.1	7.5
Discharge Disposition			
Home	47.9	33.3	19.8
Home Health	15.7	17.4	15.9
Hospice	5.0	7.3	10.8
Outcomes			
Length of Stay (days), median [Q1, Q3]	5.0 [3.0,8.0]	5.0 [3.0,8.0]	5.0 [3.0,8.0]
Cost ($), median [Q1, Q3]	9,134 [5,452;16,842]	9,022 [5,539;15,664]	8,605 [5,537;13,987]
In hospital mortality	7.5	8.8	10.5
30-day readmission	4.3	5.1	5.5

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

2207. Narrowing Antibiotic Spectrum of Activity for Trauma-Associated Pneumonia Through the Use of a Disease-Specific Antibiogram

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Session: 244. Bacterial Respiratory Infections
Saturday, October 5, 2019: 12:15 PM

Background. Organism susceptibilities for trauma-associated pneumonia (TAP) differ from those in other groups of patients, including the critically ill. The purpose of this study was to identify common organisms and their susceptibilities in the respiratory isolates of trauma patients diagnosed with pneumonia within the first 7 days of hospital admission, and to create a disease-state antibiogram specific to TAP to guide empiric antibiotic therapy in this patient population.

Methods. This study was an IRB-approved, retrospective chart review of adult trauma patients with pneumonia admitted between September 1, 2015 and August 31, 2018 were evaluated. Patients included were diagnosed with and treated for pneumonia, with respiratory cultures drawn within the first 7 days of admission; both culture-positive and culture-negative patients were included. Subgroup antibiograms were made for a diagnosis made on days 1–3, 4–5, and 6–7.

Results. There were 131 patients included with a median age of 45; 85% were male, and 31% were illicit drug users. The majority of patients (63%) had ventilator-associated pneumonia, and most respiratory samples (77%) were obtained via bronchiolar lavage. Cultures were positive in 109 patients and negative in 22. There were 144 total isolates; 54% were Gram-negative bacteria. The most common Gram-negative pathogens were *Haemophilus influenzae* (16%) and *Klebsiella pneumoniae* (15%). The most common Gram-positive pathogen was *Staphylococcus aureus*; 9% of all patients grew methicillin-resistant *S. aureus*. With culture-negative patients counted as susceptible, ceftriaxone monotherapy and ceftriaxone + vancomycin susceptibility were 85% and 94% of patients, respectively. Susceptibilities to cefazolin, ampicillin/sulbactam, cefepime, piperacillin/tazobactam, and levofloxacin were 49%, 69%, 91%, 90%, and 92%, respectively. Illicit drug use and day of pneumonia diagnosis did not appreciably affect antibiotic susceptibilities.

Conclusion. For TAP diagnosed within the first 7 days of hospital admission, ceftriaxone monotherapy is adequate as empiric therapy, including in ventilated patients. The addition of vancomycin can be considered in patients with MRSA risk factors or who are critically ill.

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