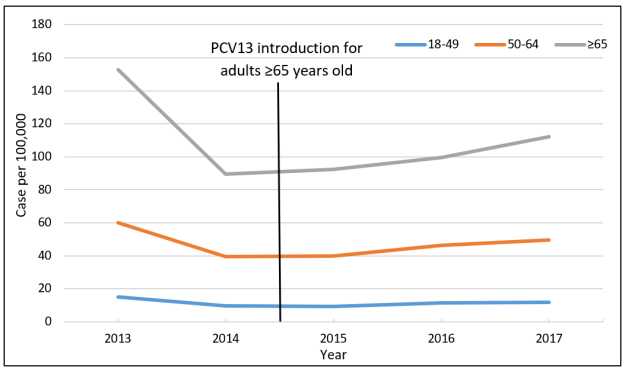
60 to 40 (34% reduction, 95%CI 22%, 45%) in 50-64 year-olds; and 15 to 10 (36% reduction, 95%CI 25%, 47%) in 18-49 year-olds. From 2014 to 2017, rates of NBPP increased in all ages, but remained below 2013 rates (Figure).

Figure. Estimated Annual Non-Bacteremic Pneumococcal Pneumonia Incidence by Age Group, 2013–2017



Conclusion. Reductions in NBPP among adults were primarily due to indirect effects of PCV13 use in children, with no additional declines following PCV13 introduction for adults aged ≥ 65 years.

Disclosures. **Lee Harrison, MD**, **GSK** (Consultant)**Merck** (Consultant)**Pfizer** (Consultant)**Sanofi Pasteur** (Consultant) **Nisha B. Alden, MPH**, **CDC** (Grant/Research Support)

1475. Impact of a Routine Infant PCV Program on the Serotype Distribution of Episodes of Invasive Pneumococcal Disease (IPD) and Non-bacteremic Pneumococcal Pneumonia in Adults

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Toronto Invasive Bacterial Diseases Network (TIBDN)

Session: P-67. Respiratory Infections - Bacterial

Background. Herd immunity from pediatric pneumococcal conjugate vaccine (PCV) programs has resulted in substantial reductions in IPD due to PCV serotypes (ST). We assessed whether similar changes in ST distribution occur in non-bacteremic pneumococcal pneumonia (NBPP).

Methods. The Toronto Invasive Bacterial Diseases Network performs population-based surveillance for IPD and hospitalized, culture-confirmed NBPP in Toronto/Peel Region, Canada (Pop 4.5M). Patient data are collected by interview/chart review; illness associated with respiratory isolates is categorized using Musher criteria.

Results. Since 2002, 6627 episodes of IPD, and 7323 non-bacteremic episodes with a respiratory isolate of *S. pneumoniae* (2180 meeting modified Musher criteria for NBPP) have occurred in adults. Distributions of vaccine-type serotypes in IPD and NBPP pre-PCV7 (2002-2004), post-PCV7 (2006-2009) and late post-PCV13 (2014-2019) are shown in the Figure. There were no significant changes in distribution of vaccine serotype groups from 2014-2019 in IPD or NBPP. From 2014-2019, serotypes included in PCV13 and PCV20 were associated with 33% and 59% of IPD cases, and 29% and 49% of NBPP cases in adults..

Figure. distribution of serotype groups included in different pneumococcal vaccines in cases of IPD and non-bacteremic pneumonia

Conclusion. Eight years post routine infant PCV13 implementation, PCV13 type IPD and NBPP persists in adults. The distribution of vaccine-type strains is similar in IPD and NBPP; although non-vaccine-type strains are more common in NBPP.

Disclosures. **Allison McGeer, MD, FRCPC**, **GlaxoSmithKline** (Advisor or Review Panel member, Research Grant or Support)**Merck** (Advisor or Review Panel member, Research Grant or Support)**Pfizer** (Research Grant or Support)

1476. Impact of an Educational Campaign on Rates of Sputum Culture Acquisition as an Opportunity for Antibiotic De-escalation

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Session: P-67. Respiratory Infections - Bacterial

Background. The 2019 community-acquired pneumonia (CAP) guidelines recommend obtaining a sputum culture in patients who are empirically treated for methicillin-resistant *Staphylococcus aureus* (MRSA) or *Pseudomonas aeruginosa* to assist clinicians in optimizing antimicrobial therapy. A previous study at our institution found respiratory cultures were rarely obtained in patients with CAP. As a result of these findings, an educational campaign was implemented to promote the use of an induced sputum protocol.

Methods. This was a multicenter, retrospective cohort study that included patients who were ≥18 years of age, had a diagnosis of CAP, and received ≥48 hours of anti-pseudomonal antibiotics. Patients were excluded if mechanically ventilated within 48 hours of admission or diagnosed with hospital-acquired or ventilator-associated pneumonia. Patients were grouped into pre- and post-intervention time periods. The intervention involved education on obtaining respiratory cultures including technique on induced sputums and updates to CAP order sets. The primary outcome was the rate of sputum culture acquisition. Secondary outcomes included duration of anti-pseudomonal and anti-MRSA therapy, in-hospital mortality, and length of stay.

Results. A total of 143 patients met inclusion criteria, 72 in the pre-implementation group and 71 in the post-implementation group. Baseline characteristics were similar between the two groups. More patients in the post-implementation group had a sputum culture obtained but the difference was not statistically significant (38.9% vs 53.5%; p=0.08). Anti-pseudomonal therapy was continued for an average of 5.6 days pre-implementation and 5.2 days post-implementation (p=0.499). There was also not a significant difference in anti-MRSA duration between the two groups (3.4 days vs 3.2 days; p=0.606). In-hospital mortality and length of stay were similar between the two groups.

Conclusion. An educational campaign focusing on the acquisition of induced sputums led to an increase in rates of sputum cultures collected. However, this did not correlate with a decrease in duration of anti-MRSA or anti-pseudomonal therapy. Further interventions should be made to optimize de-escalation of broad spectrum antibiotics based on sputum culture results.

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

1477. Impact Of Resistance Thresholds On Mortality In Hospital-Acquired And Ventilator-Associated Pneumonia

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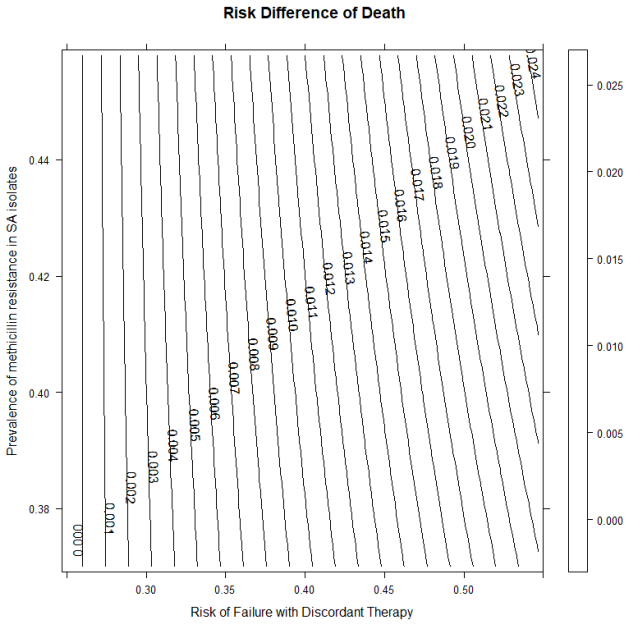
Session: P-67. Respiratory Infections - Bacterial

Background. Hospital-acquired (HAP) and ventilator-associated pneumonia (VAP) represent a significant source of morbidity and mortality in hospitalized patients. Numerous studies demonstrate mortality benefit with appropriate empiric therapy. Choosing the right empiric coverage is paramount; however, this decision becomes more challenging as rates of antibiotic resistance rise. Most recent HAP/VAP guidelines use an arbitrary population resistance rate of 20% to recommended methicillin-resistant *Staphylococcus aureus* (MRSA) coverage and double-coverage of resistant gram negative bacilli (GNB). Using this threshold has led to overuse of broad spectrum antimicrobials. The goal of this study is to mathematically explore the impact of this threshold on patient outcomes and link population resistance rates to individual mortality risk.

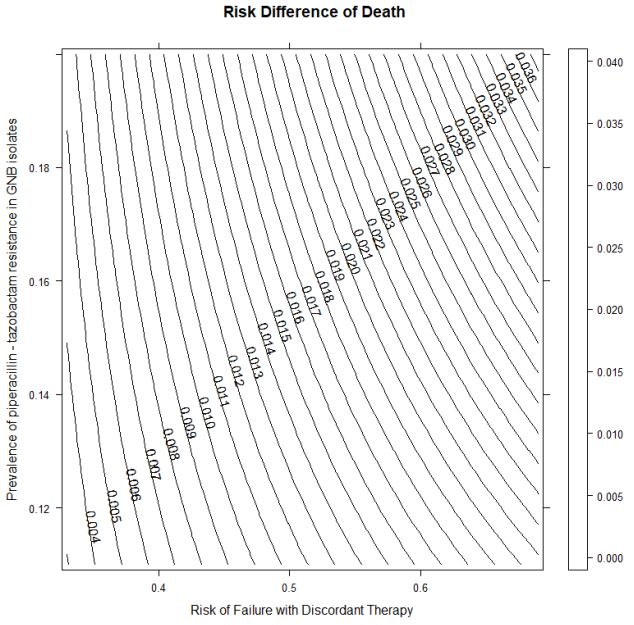
Methods. We used the concept of excess morality risk (EMR) to develop a theoretical simulation model based for HAP/VAP caused by GNB and MRSA empirically treated with piperacillin-tazobactam and vancomycin. EMR is the product of the proportion of HAP/VAP caused by GNB/MRSA, the rate of antibiotic (piperacillin-tazobactam/ methicillin) resistance in GNB and Staphylococcus aureus isolates and the difference in mortality between discordant and appropriate antibiotic therapy. Model parameters were obtained from large surveillance networks and published clinical trials.

Results. At the HAP/VAP guideline threshold of 20% methicillin resistance in SA isolates, the EMR was 0.3%; when the model included only culture positive patients, EMR was 0.6%. At a threshold of 20% resistance to piperacillin-tazobactam in GNB isolates, EMR was 1.9% and 3.1% when culture-negative patients were excluded. EMR increased as baseline risk of failure with discordant therapy increased (e.g. critically ill patients, ventilated HAP).

Risk Difference of Death for Staphylococcus aureus Isolates



Risk Difference of Death for Gram Negative Bacilli



Conclusion: This model offers a mathematical exploration of the individual excess risk for death in patients with HAP/VAP caused by GNB/MRSA because of discordant therapy. The objectivity of the model would better allow clinicians, guideline authors, and health policy makers to weigh excess risk versus possible harms of broad-spectrum therapy when developing population resistance thresholds cutoffs for empiric therapy recommendations.

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

1478. Impact of Short versus Long Treatment Durations for Respiratory Tract Infections Caused by Non-fermenting Gram-negative Bacilli in Lung Transplant Recipients

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Session: P-67. Respiratory Infections - Bacterial

Background. In lung transplant recipients, respiratory tract infections are associated with faster progression through stages of bronchiolitis obliterans syndrome and mortality. Common causative pathogens for respiratory tract infections (RTIs) include non-fermenting gram-negative bacilli (NFGNB). Data to guide optimal treatment durations for NFGNB RTIs in this population are limited.

Methods. This was a single-center, retrospective, cohort study of adult lung transplant recipients who received systemic antibiotic treatment for RTIs caused by NFNGB and had at least 28 days of post-treatment follow-up. Analyses were conducted for each patient's initial NFGNB RTI as well as all independent NFGNB RTIs episodes. Groups were divided into NFGNB RTIs treated for a short (≤ 10 days) versus long (> 10 days) duration of effective antibiotic therapy. The primary outcome was the incidence of recurrent NFGNB RTIs within 28 days post-treatment. Recurrence was defined as isolation of the same organism in a respiratory culture requiring treatment with systemic antibiotics as determined by the prescribing physician.

Results. We included 207 lung transplant recipients with 334 NFGNB RTIs (n=129 short; n=205 long) from a period of January 1, 2010 to July 1, 2019. The most common causative pathogen was *P. aeruginosa* (77% and 82%) and most NFGNB RTIs were treated inpatient (60% and 53%) in both groups. The median duration of therapy was 10 days and 14 days for the short and long treatment durations, respectively. The primary outcome occurred in 14/129 (11%) of the NFGNB RTIs treated for ≤ 10 days and 28/205 (14%) of those treated for > 10 days. No difference in recurrence within 28 days was detected in NFGNB RTIs treated for ≤ 10 days (aOR, 0.69; 95% CI, 0.34-1.4; p=0.149). Use of adjunctive inhaled antibiotics was associated with reduced recurrence (aOR, 0.38; 95% CI, 0.16-0.92; p=0.032).

Conclusion. In lung transplant recipients with NFGNB RTIs, no difference in infection recurrence was detected between treatment durations for ≤ 10 days compared to > 10 days. Further investigation analyzing treatment durations for respiratory tract infections as well as the utility of adjunctive inhaled antibiotics are warranted in this patient population.

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

1479. Incidence of Acute Otitis Media in Children in the United States before and after the introduction of Pneumococcal Conjugate Vaccines (PCV7 and PCV13) during 1998-2018

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Session: P-67. Respiratory Infections - Bacterial

Background. Acute otitis media (AOM) leads to considerable healthcare resource utilization in children. *Streptococcus pneumoniae* is an important cause of AOM. Merck is developing V114, an investigational 15-valent PCV that contains PCV13 serotypes as well as 22F and 33F. To demonstrate the potential value of V114, it is important to estimate the remaining clinical burden associated with AOM. This study estimated AOM incidence rates (IRs) before and after the introduction of 7-valent and 13-valent pneumococcal conjugate vaccines (PCV7 and PCV13) in the US.

Methods. This was a retrospective observational study using IBM MarketScan® Commercial Claims and Encounters (CCAE) (1998-2018) and Multi-State Medicaid databases (2001-2018). AOM claims in children < 18 years old were identified using ICD9 codes 382.x and ICD10 codes H66.x and H67.x. An episode could comprise one or more AOM-related claims. A gap of at least 14 days between two AOM-related claims was required to define the start of a new episode. IRs were defined as the numbers of episodes per 1,000 person-years (PY). Annual IRs were stratified by age groups (< 2, 2-4, and 5-17), and reported separately for CCAE and Medicaid databases.

Results. AOM IRs declined over time among commercially and Medicaid-insured children in all age groups < 18 years old. In particular, among children < 2 years, AOM IRs declined from 1,111 in 1998 to 727/1,000 PY in 2018 in commercially plans and from 895 in 2001 to 656/1,000 PY in 2018 in Medicaid (**Figure 1**). In children 2-4 years, AOM IRs declined from 517 in 1998 to 400/1,000 PY in 2018 in commercial plans and from 385 in 2001 to 329/1,000 PY in 2018 in Medicaid (**Figure 2**). In children 5-17 years, AOM IRs declined from 112 in 1998 to 87/1,000 PY in 2018 in commercial plans and from 98 in 2001 to 87/1,000 in 2018 in Medicaid (**Figure 3**).