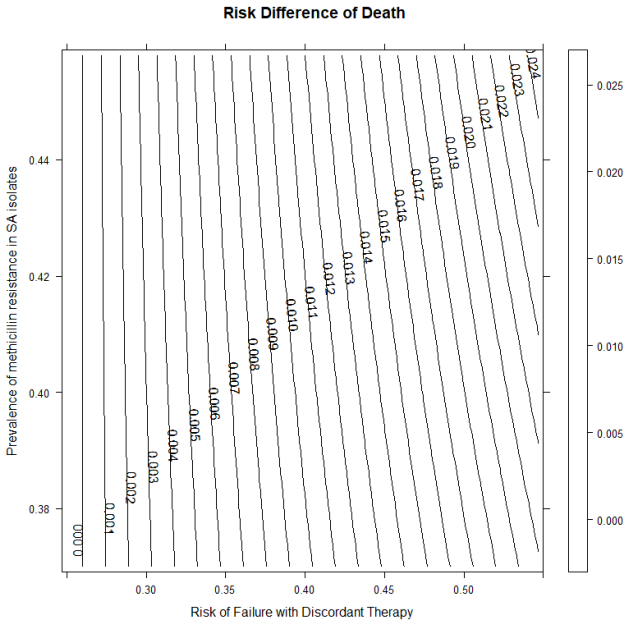
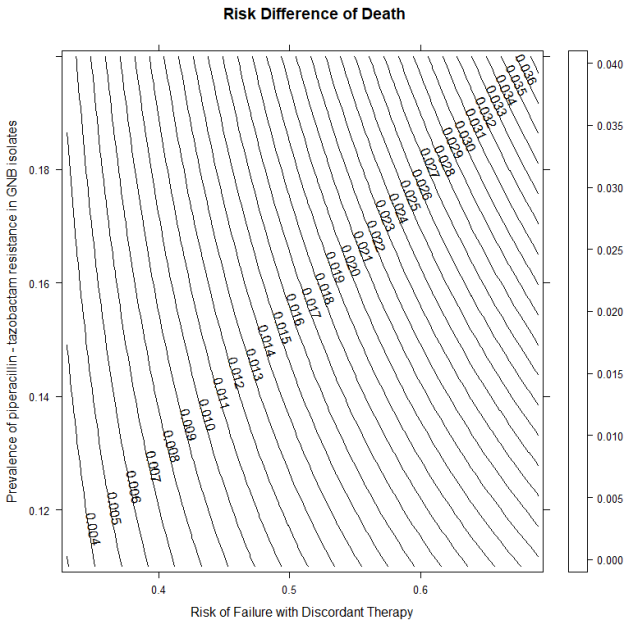
Risk Difference of Death for Staphylococcus aureus Isolates



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**).

Figure 1. AOM incidence in commercially and Medicaid-insured children ages 0 - 1 years, episodes per 100,000 patient-years (1998 - 2018)

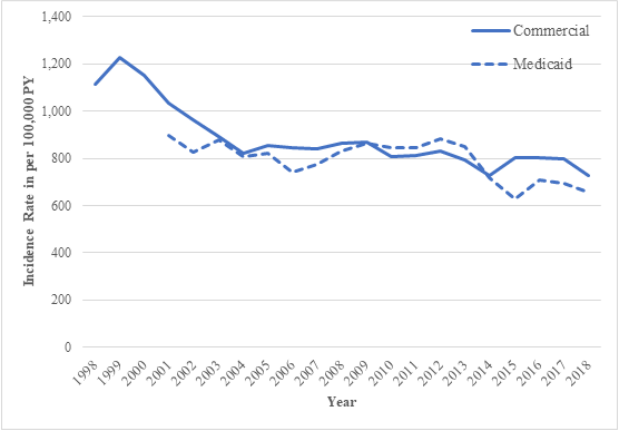


Figure 2. AOM incidence in commercially and Medicaid-insured children ages 2 - 4 years, episodes per 100,000 patient-years (1998 - 2018)

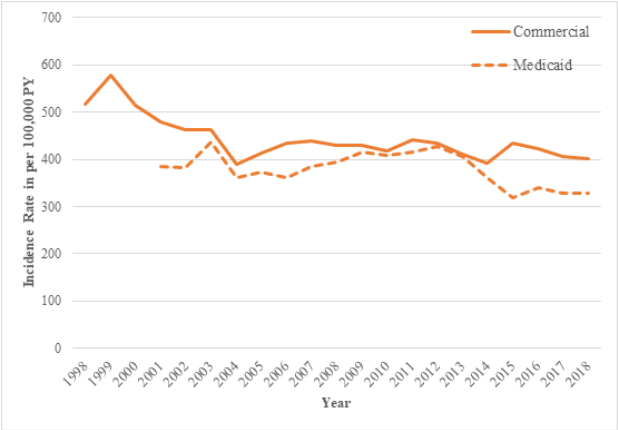
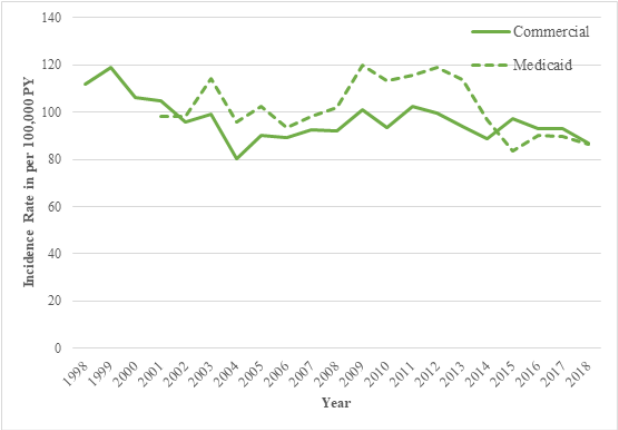


Figure 3. AOM incidence in commercially and Medicaid-insured children ages 5 - 17 years, episodes per 100,000 patient-years (1998 - 2018)



Conclusion: AOM IRs declined following the introduction of PCV7 and PCV13; however, disease burden remains substantial in younger children. The impact of future PCVs on AOM will depend on the proportion of AOM caused by *S. pneumoniae* and vaccine-type serotypes.

Disclosures. Tianyan Hu, PhD, Merck (Employee, Shareholder) Yan Song, PhD, Merck (Consultant) Nicolae Done, PhD, Merck & Co., Inc. (Consultant) Eli Orvis, BA, Merck (Consultant) James Signorovitch, PhD, Merck & Co., Inc. (Consultant) Tanaz Petigara, PhD, Merck & Co., Inc. (Employee, Shareholder)

1480. Incidence of Non-Invasive Pneumococcal Pneumonia in Children in the United States before and after Introduction Pneumococcal Conjugate Vaccines (PCV7 and PCV13) during 1998-2018

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Session: P-67. Respiratory Infections - Bacterial

Background. Pneumonia causes significant pediatric morbidity, mortality, and healthcare resource utilization. *S. pneumoniae* is a leading cause of bacterial pneumonia in children. 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 burden associated with pneumococcal pneumonia (PP). This study was to estimate incidence rates (IRs) of non-invasive PP before and after PCV7 and PCV13 introduction in children in the US.

Methods. PP-related claims in children < 18 years were identified in the IBM MarketScan® Commercial database (1998-2018) using pneumococcal specific ICD9/10 codes. Claims with any invasive pneumococcal disease ICD9/10 codes were excluded. An episode could comprise one or more claims. Episodes with any inpatient stays were categorized as inpatient, and as outpatient otherwise. Age-stratified (< 2, 2-4, and 5-17 years) IRs were episodes per 100,000 patient-years (PYs) during the pre-PCV7 (1998-1999), early and late PCV7 (2001-2005, 2006-2009), and early and late PCV13 (2011-2013, 2014-2018) periods.

Results. Inpatient and outpatient PP IRs decreased steadily in children < 2 years (146.8, 117.9, 102.0, 67.8, and 32.2 per 100,000 PYs for pre-PCV7, early and late PCV7, and early and late PCV13 periods, respectively; **Figure 1**). In children 2-4 years, IRs increased slightly from 88.6 to 90.0 per 100,000 PYs from the pre-PCV7 to early PCV7 period, then declined to 83.9 and 30.8 per 100,000 PYs in the late PCV7 and late PCV13 periods, respectively **(Figure 2)**. In children 5-17 years, IRs declined from 35.3 to 34.2 per 100,000 PYs from the pre-PCV7 to early PCV7 period, stabilized at 34.1 per 100,000 PYs in the late PCV7 period, followed by a steeper decline to 12.5 per 100,000 PYs in the late PCV13 period **(Figure 3)**. The majority of episodes were outpatient in all three age groups.

Figure 1. Non-invasive pneumococcal pneumonia incidence in children <2 years, episodes per 100,000 patient-years (1998 - 2018)

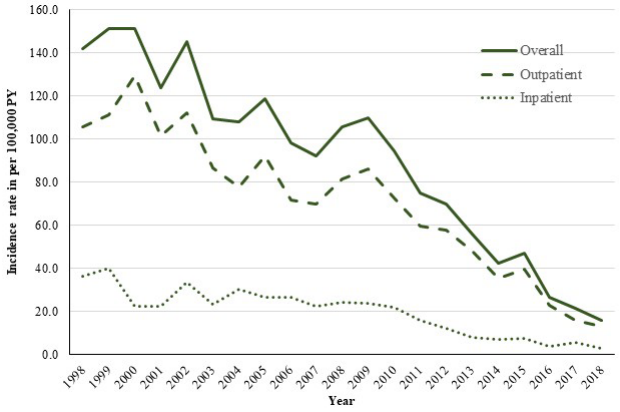

Figure 2. Non-invasive pneumococcal pneumonia incidence in children 2 - 4 years, episodes per 100,000 patient-years (1998 - 2018)