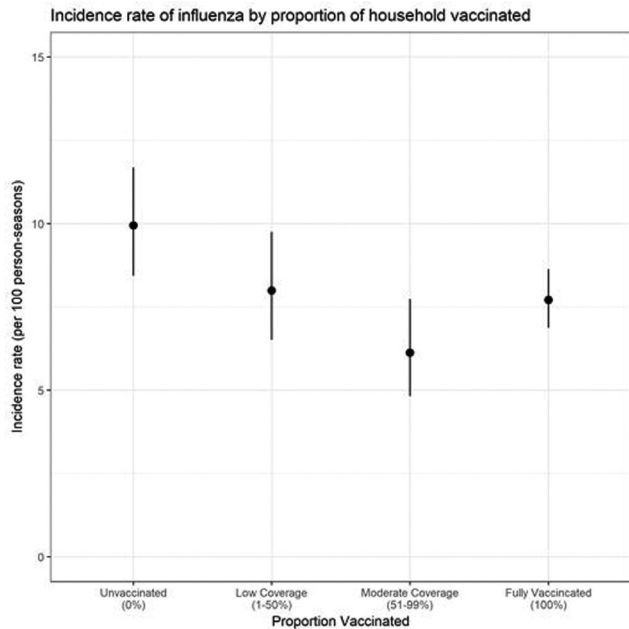


Conclusion. We demonstrate that vaccination of close contacts can reduce incidence of influenza in unvaccinated members of a community. Despite insufficient evidence, guidance from public health authorities currently suggests that vaccination protects close contacts. Our findings quantifying the protective effects of seasonal influenza vaccination of household contacts in unvaccinated individuals can provide clearer evidence for global vaccine recommendations.



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998. Missclassification of Community and Hospital Onset Bloodstream Infections Using Laboratory-Identified Events

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Background. Laboratory-identified bloodstream infections (LAB-ID-BSI) are classified as community onset (CO) if blood culture (BC) is collected within 3 days after facility admission and hospital onset if ≥ 4 days. This classification is often based on a computer-generated subtraction of the day of admission from day of onset. This method may miss recent prior hospitalizations at the same or different facilities.

Methods. We reviewed BC results (January 1, 2010–December 31, 2016), selected patients with BSI and defined the place of onset as CO (day 0–3) and HO (≥ 4 days) of admission based on LABID-BSI. All patients with CO were further evaluated to determine whether they were recently hospitalized. The source and microbiology of patients with hospitalization within 14 days of the onset of BSI was compared with HO and CO without prior admission within 6 months.

Results. We encountered 5,179 BSI episodes, 3866 (74.6%) were CO. Prior hospitalization in any hospital within 1–14 and 15–180 days of onset was documented in 659 (17.0%) and 1,465 (37.9%), respectively. Source of bacteremia and type of organisms in patients with prior hospitalization within 1–14 days were closer to HO than patients without prior hospitalization with higher frequency of Intravenous catheters (IVC), polymicrobial bacteremia, and candidemia (table).

Conclusion. Using Lab-ID events to classify BSI, one in six patients may risk being misclassified as CO. This underestimates BSI related to hospital setting. Onset classification should be based on thorough historical information and not a computer-generated subtraction of admission and Lab event dates.

	Source of Bacteremia (%)									Type of Organisms (%)			
	IVC ^a	IE	STB ^a	UTI ^a	Pne	Abd ^a	UK/M	Poly ^a	GP	GN	Ana	Can ^a	
No Hosp (1745)	9.4	5.0	18.9	30.4	9.5	13.1	13.8	10.0	43.5	40.2	6.0	1.1	
Prior Hosp (659)	17.5	4.7	16.1	22.0	7.9	11.1	20.6	18.9	42.1	41.0	5.3	3.6	
HO (1313)	20.9	3.5	13.0	12.5	10.7	17.4	22.3	14.4	47.8	46.2	5.1	6.5	

Infected endocarditis; soft tissue/bone; pneumonia; abdomen; unknown/miscellaneous; polymicrobial. Gram-positive; Gram-negative; anaerobes; *Candida* spp. a: $P < 0.01$; chi square test.

Disclosures. All authors: No reported disclosures.

999. Ongoing Burden of Streptococcus pneumoniae Sepsis in Children After Introduction of Pneumococcal Conjugate Vaccines

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Background. Recent population-based studies assessing the impact of pneumococcal conjugate vaccines (PCV) on the burden of pneumococcal sepsis in children are lacking. We aimed to define the burden of pneumococcal sepsis in children and assess predictors for severe outcomes following the introduction of PCV-13 in 2011 in a nationwide cohort study.

Methods. The Swiss Paediatric Sepsis Study prospectively recruited children < 17 years of age with blood culture-proven sepsis between September 2011 and December 2015 in Switzerland. We report on patients with *Streptococcus pneumoniae* sepsis stratified by the presence of meningitis vs. any other clinical focus. Admission to the paediatric intensive care unit (PICU) and length of hospital stay (LOS) were defined as outcomes.

Results. From all 1,181 sepsis episodes recorded during the 4.3-year period, children with pneumococcal sepsis ($n = 117$) accounted for 10% of all sepsis episodes, and 25% of community-acquired sepsis episodes. Forty-two (36%) patients required PICU admission resulting in a mortality of 8%. Children presenting with meningitis (29; 25%) were more frequently admitted to PICU (69% vs. 25%; $P < 0.001$) and more likely infected by serotypes not included in vaccines (69% vs. 31%; $P < 0.001$) than those without meningitis. Pneumococcal serotypes 3, 19A, and 7F accounted for 49 (44%) pneumococcal sepsis episodes. From 62 children completely immunised with PCV, of whom 32 were infected with vaccine serotypes, 16 (50%) presented with vaccine failure, of whom 11 were infected with serotype 3. In multivariable analyses, children with meningitis (OR 6.8; 95% C.I 2.4–19.3; $P < 0.001$) and those infected with serotype 3 (OR 2.8; 95% C.I 1.1–7.3; $P = 0.04$) were more likely admitted to PICU, and those infected with serotype 3 had a longer hospital stay (β -coefficient 0.2, 95% C.I 0.1–1.1; $P = 0.01$).

Conclusion. The burden of pneumococcal sepsis in Swiss children shortly after the introduction of PCV-13 remains important. Meningitis and serotype 3 were significant predictors of severity.

Disclosures. All authors: No reported disclosures.

1000. Antimicrobial Susceptibility of Gram-Positive Bacteria Isolated From Patients Hospitalized With Bacteremia in United States and European Medical Centers: Results From the International Dalbavancin Evaluation of Activity (IDEA) Program

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Background. Gram-positive bacteria (GP), mainly *S. aureus* (SA), coagulase-negative staphylococci (CoNS), and *Enterococcus* spp., represent major causes of bacteremia in hospitalized patients. We evaluated the activity of dalbavancin (DALBA) and comparator agents against contemporary GP from patients with bacteremia.

Methods. A total of 8,296 GP unique isolates were consecutively collected from 33 United States ($n = 4,409$) and 39 European (EUR; $n = 3,887$) medical centers in 2015–2017 and susceptibility tested by reference broth microdilution methods.

Results. The most common organisms were SA (48.3% in United States, 44.3% in EUR), CoNS (14.3% in United States, 15.6% in EUR), and *E. faecalis* (EF; 11.5% in United States, 13.1% in EUR). All SA isolates were susceptible (S) to DALBA (MIC_{50/90}^a 0.03/0.03 mg/L), linezolid (LZD; MIC_{50/90}^a 1/2 mg/L), vancomycin (VAN; MIC_{50/90}^a 1/1 mg/L), and teicoplanin (TEI; MIC_{50/90}^a $\leq 0.5/\leq 0.5$ mg/L); $> 99.9\%$ were S to daptomycin (DAPTO; MIC_{50/90}^a 0.25/0.5 mg/L). Based on MIC₅₀, DALBA was 8-fold more active than DAPTO and 32-fold more active than VAN against SA, and DALBA activity was not adversely affected by oxacillin (OXA) resistance (R). Among CoNS, 99.9% of isolates were inhibited at a DALBA MIC of ≤ 0.25 mg/L (MIC_{50/90}^a 0.03/0.06 mg/L); S to DAPTO (MIC_{50/90}^a 0.5/0.5 mg/L), LZD (MIC_{50/90}^a 0.5/1 mg/L), VAN (MIC_{50/90}^a 1/2 mg/L), and TEI (MIC_{50/90}^a 2/4 mg/L) were 99.9%, 97.6%, 100.0%, and 98.5%, respectively. Among EF, 97.7% were DALBA-S (96.4% in USA, 99.0% in EUR; MIC_{50/90}^a 0.03/0.06 mg/L), 97.5% were VAN-S (96.1% in United States, 99.0% in EUR; MIC_{50/90}^a 1/2 mg/L), and all isolates were S to ampicillin (MIC_{50/90}^a 1/1 mg/L), DAPTO (MIC_{50/90}^a 0.5/1 mg/L) and LZD (MIC_{50/90}^a 1/2 mg/L). Among *E. faecium* isolates ($n = 656$; 7.9% overall), 63.9% were inhibited at ≤ 0.25 mg/L of DALBA (33.4% in United States, 87.5% in EUR) and 61.6% were VAN-S (32.8% in United States, 84.0% in EUR). DALBA was highly active against β -hemolytic streptococci (BHS; $n = 686$ [8.3%]; MIC_{50/90}^a 0.015/0.03 mg/L) and viridans group streptococci (VGS; $n = 432$ [5.2%]; MIC_{50/90}^a 0.015/0.03 mg/L).

Conclusion. DALBA was very active against SA, CoNS, VAN-S enterococci, BHS, and VGS isolated from patients with bacteremia. Based on MIC₅₀, DALBA was generally 8- to 32-fold more active than DAPTO and VAN against these organisms.

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1001. Evaluation of the Clinical Efficacy and Safety of Oral Antibiotic Therapy for Streptococcus spp. Bloodstream Infections

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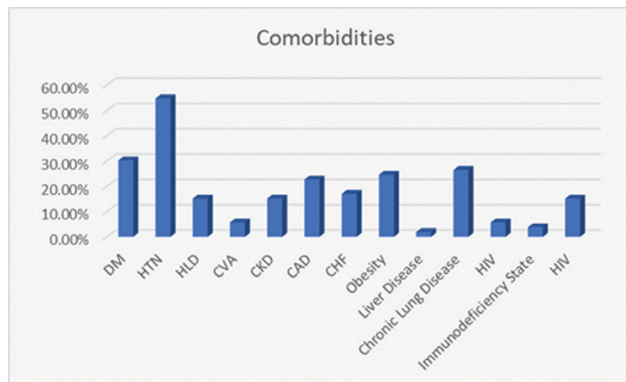
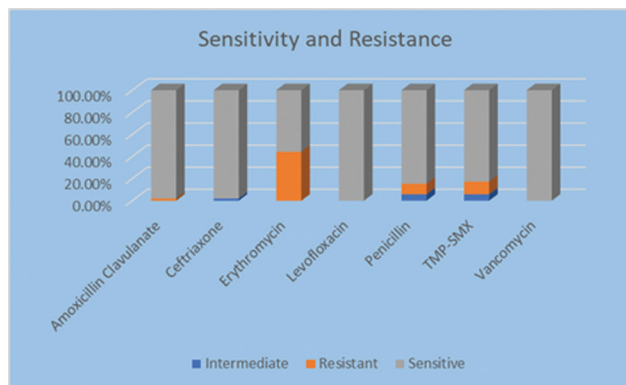
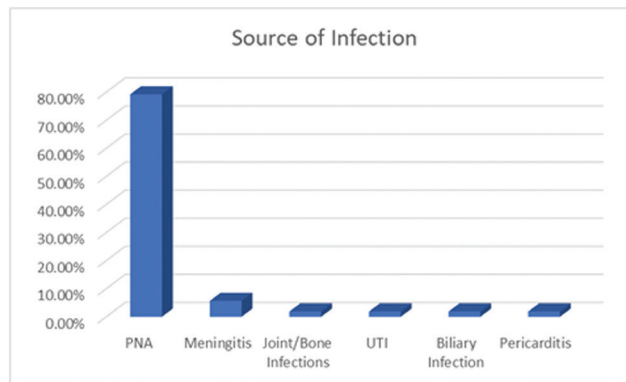
Background. Despite the severity and frequency of bloodstream infections (BSI), the effectiveness of oral definitive therapy remains unknown. The objective of this study was to evaluate the efficacy and safety of step down oral antibiotics for the treatment of *Streptococcus* spp. BSI.

Methods. This was a retrospective cohort study of adult, hospitalized patients with *Streptococcus* spp. BSI between June 2015 and June 2017. Patients were excluded if received <48 hours of antibiotic therapy or therapy was started >48 hours from first positive culture. Patients were grouped by receipt of step down oral antibiotic therapy (PO group) vs. full course IV therapy (IV group) and compared for demographics, clinical course, and outcomes. The primary outcome was 30-day mortality and hospital length of stay (LOS). The secondary outcomes included 30-day recurrence of BSI and adverse events (AEs).

Results. One hundred ninety-five patients met inclusion criteria; median age was 51 year old, 68% were male, 57% were Hispanic, and 71% had community-onset BSI. Sixty-four (33%) were treated with step down oral therapy. The most common source of bacteremia was pneumonia (21%); 8% had endocarditis. Comorbidities were similar between the groups, with diabetes being most common (IV 22% vs. PO 19%, $P = 0.29$). Severity of illness measured by need for ICU admission, initial lactate level, and SOFA score was similar between the two groups. *S. viridans* was the most frequent pathogen isolated (IV 28% vs. PO 27%, $P = 0.87$). Ceftriaxone (39%) for the IV group and levofloxacin (30%) for the PO group were the most common definitive therapy prescribed. PO group received 4 days of IV therapy prior to transition to orals. The IV group had significantly higher mortality rate (11% vs. 2%, $P = 0.02$) and longer LOS (median 9 days [IQR 5–18] vs. 5 days [4–7.75], $P \leq 0.01$) compared with the PO group. 30-day recurrence (IV 2% vs. PO 5%, $P = 0.40$) and AEs (IV 2% vs. PO 3%, $P = 0.60$) were similar between the two groups.

Conclusion. In *Streptococcus* spp. BSI, step down oral antibiotic therapy was associated with a significantly shorter LOS compared with IV only therapy without compromise of clinical outcomes. Larger prospective trials evaluating step down oral therapy are warranted to confirm our results.

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1002. Epidemiology of Pneumococcal Bacteremia in a Large Tertiary Center

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Background. *Streptococcus pneumoniae* remains an important cause of bacteremia in the United States with high morbidity and mortality despite readily available treatment and vaccines. Increased incidence of bacteremia observed during 2017–2018 season.

Methods. Retrospective chart review of patients admitted with pneumococcal bacteremia over the last two winter seasons. Demographics, laboratory data, ICU stay, need for ventilation or pressor, comorbidities, and mortality were collected.

Results. Fifty-three patients enrolled. 62% admitted during 2017–2018. Sixty-six percent white, 60% male, mean BMI 27 (38% had normal BMI). Mean age was 55 years (1–93) (57% > 61). Mean hospital length of stay was 7.8 days (1–30). More than 40% required ICU stay. The use of NPPV, vasopressors, and mechanical ventilation were 6%, 15%, and 17%, respectively. Most common presentation: dyspnea 30% and fever 18%. Smoking history (55%). Eighty percent of these patients had pneumonia. Resistance to penicillin 9% and intermediate susceptibility 6%. Resistance to erythromycin 44% and trimethoprim-sulfamethoxazole 12% which increased during winter 2017 (52% and 12%) compared with winter 2016 (30% and 10%). Only 2% of patients with pneumonia had positive sputum culture for pneumococcus and 62% had positive serum pneumococcal antigen with bacteremia. Positive co-detection of bacterial or viral targets in sputum using Multiplex PCR did not correlate with mortality and hospital stay but they were more likely needed ICU stay, use of vasopressor and mechanical ventilation. 43% of empiric therapy was as recommended by IDSA guidelines. Comparing 2016 vs. 2017 seasons, mortality (15% vs. 6%), hospital stay (9 days vs. 7 days), use of NPPV (5% vs. 6%) mechanical ventilation (15% vs. 18%) and vasopressor (5% vs. 21%). No correlation between influenza infection and bacteremia. Overall 6-month mortality and re-admission rate was 9% and 2%, respectively. Mortality was higher in overweight patients (60% vs. 20%), non-smokers (40% vs. 20%), coronary artery disease (40%) and congestive heart failure (40%).

Conclusion. Pneumococcal bacteremia cause significant morbidity and mortality, we observed less mortality and hospital stay, but more use of NPPV, mechanical ventilation, and vasopressor during 2017–2018 season which had widespread influenza like activity.

1003. Clinical Implications of Emerging Nonvaccine-Serotype Invasive Pneumococcal Disease Among Adults in the Republic of Korea in the Era of Protein-Conjugated Pneumococcal Vaccine

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