Two-dimensional gel electrophoresis analysis of exoprotein from *Streptococcus dysgalactiae* subsp. *equisimilis*

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**Objectives:** *Streptococcus dysgalactiae* subsp. *equisimilis* (SEDE) is a gram-positive bacterium which causes severe invasive infections, such as bacteremia, necrotizing fasciitis, and streptococcal toxic shock-like syndrome in elderly patients. Although SDSE may produce numerous virulent exoprotein, no comprehensive studies have analyzed the production of all exoprotein in SDSE. Two-dimensional gel electrophoresis (2-DE) is a powerful method for the detection of proteins not only qualitatively but also quantitatively.

**Results:** A total of 383 isolates of *Moraxella catarrhalis* were collected from healthy children aged less than 2 years in China, 92.2% (353) produced β-lactamase. By CLSI breakpoints, the non-susceptibility rates for erythromycin and azithromycin were 40.3% and 22.5%, respectively, while the non-susceptibility rates were 59% and 60.1% based on PK/PD breakpoints, with MIC90 values of >256 μg/ml. The prevalence of macrolides-nonsusceptible *M. catarrhalis* varied from 9.7% in Shanghai to 75.9% in Dongguan. The PCR and sequence analysis indicated that many mutations in 23S rRNA were identified in 153 macrolides-nonsusceptible *M. catarrhalis,* but the ermA, ermB, ermC, ermF, mefA, mefE genes were not detected among 153 macrolides-nonsusceptible and 18 macrolides-susceptible *M. catarrhalis.* Moreover, A2982T and A2796T mutations in 23S rRNA were related to high-level resistance with MICs ranging from 24 μg/ml to >256 μg/ml, and A2983T mutation mediated low-level resistance (MICs of 0.19 μg/ml to 16 μg/ml).

**Conclusion:** The high prevalence of macrolides-nonsusceptible *M. catarrhalis* has become a serious problem in healthy children aged less than 2 years in China, and further study for the mechanism of macrolides resistance was needed.

Evaluation of an antimicrobial stewardship program (ASP) implemented at a Veterans Affairs health care system

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**Background:** Antimicrobial resistance has shown to increase morbidity, mortality and healthcare costs. Antimicrobial Stewardship Programs (ASP) have been utilized in many facilities as a tool to aid in the solution to this global issue. The Fargo Veterans Affairs Health System implemented an ASP program in February 2010 to optimize use of antimicrobial agents.

**Methods:** The ASP team consists of an infectious disease physician and four clinical pharmacists. The team meets three times a week to review charts of all in-patients on antimicrobial agents. The ASP team reviewed 1,017 charts during two distinct time periods, February to September 2008 (prior to ASP implementation) and February to September 2010 (after ASP implementation). The following data were collected and analyzed: duration of antimicrobial therapy, number of patients on specific antimicrobials, length of hospital stay, cost of inpatient antimicrobial therapy, total volume of antimicrobial usage, number of ASP interventions, type of intervention, and intervention acceptance rate.

**Results:** The ASP team interventions included: duration of antimicrobial therapy, dose/interval change, IV to PO change, discontinuation of antimicrobial, and antimicrobial change. The intervention acceptance rate was 81%. Total number of patients on antimicrobials before and after ASP implementation was 2,263 and 2,848, respectively. However, total cost of antimicrobials used during the two time periods were reduced US$ 191,135 vs. US$ 146,098, respectively. Average duration of hospital stay (including long term care unit) before and after the inception of ASP was 30.86 days and 18.76 days, respectively.

**Conclusion:** Although only 10 months of data were collected after ASP implementation, the program’s recommendations were very favorably accepted. Despite an increase in the number of patients on antimicrobials in the post-ASP implementation period, we saw a remarkable cost saving and significant decrease in hospital stay in patients who were on antimicrobials compared to the pre-implementation period.