854. Evolution of Group B Streptococal Capsular Type V Invasive Infections in Neonates and Young Infants: A Whole Genome Sequencing Study

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Background. Since 1970 group B Streptococcus (GBS) has been a frequent cause of sepsis or meningitis in young infants. Capsular polysaccharide type V was first recognized in 1990 and has increased to the point where it now causes ~15% of GBS infections.

Methods. This study investigated the frequency and clinical impact of type V GBS among infants before 1990 to more contemporary isolates from young infants and adults.

Results. Thirty-five strains isolated from blood or CSF of infants <90 days of age (Houston, 1979–1996) were compared with the following previously sequenced type V ST1 strains: (1) 14 from infant blood or CSF from Center for Disease Control and Prevention (CDC) (2015–2017), (2) 193 blood ST1 isolates from adults (Houston, 1992–2013), and (3) 516 invasive isolates from the CDC (2015–2017). These isolates were sequenced using an Illumina MiSeq instrument followed by molecular typing, antimicrobial resistance gene determination, and phylogenetic analysis. Antimicrobial susceptibility testing (AST) was performed using disk diffusion and E-test.

Results. The majority (29/35) of Houston young infant strains were ST1. Type V GBS strains isolated prior to 1990 were more likely to be of ST2 or ST-26 (5/10) compared with those from 1990 or later (24/25) and 1–14 CDC invasive type V. Tetracycline resistance was identified in 83% (29/35) while ampicillin resistance (MR) occurred in only 23% (8/35) of the strains. Compared with early neonatal isolates, MR was significantly more frequent among contemporary neonatal (12/14, 86%, P < 0.0001) and adult (502/710, 71%, P < 0.0001) ST1 GBS. Phylogenetic analysis showed two distinct clades defined, in part, by 16S. A high-frequency MR (340/360, 96%) clade was defined by the presence of erm(B) on Tn3872 while the low-frequency MR clade (159/550, 45%) was more diverse in mobile elements contributing to MR. The majority (27/29) of early neonatal ST1 GBS strains were observed in the low-frequency MR clade.

Conclusion. The multistate cohort included ADAP clients who were eligible for ADAP-funded QHPs in 2015 was higher for those who had ADAP-funded QHPs during 2014 (aPR 1.16; 95% CI 1.05–1.27), and it was significantly higher than the 2014 QHP enrollment prevalence and 1-year risk of VS.

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Results. For the cohort (n = 7,800; 5% NE, 36% SC, 59% VA), 52% enrolled in ADAP-funded QHPs with enrollment ranging from 35% to 63% by state. Enrollment in ADAP-funded QHPs in 2015 was higher for those who had ADAP-funded QHPs in 2014 (aPR 1.16; 95% CI 1.05–1.27), and it was lower for those with a rural residence (apPR 0.91; 95% CI 0.81–1.00). Of those who were consistently engaged in care (n = 4,597), as defined by one viral load in 2014 and one viral load in 2015 separated by at least 180 days, those who received medications from