State of Alaska Epidemiology Bulletin

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Update on Invasive Group B *Streptococcus* Infections — Alaska, 2000–2018

Background

Streptococcus agalactiae or Group B *Streptococcus* (GBS) is a gram-positive bacteria that frequently colonizes the genital and gastrointestinal tracts. GBS is an important cause of infection in neonates, pregnant women, and older adults. Early-onset (at <7 days of age) invasive GBS (iGBS) infections have declined sharply nationwide due to universal vaginal-rectal screening for maternal GBS colonization and use of intrapartum antibiotic prophylaxis in pregnant women. In contrast, late-onset (at 7–90 days of age) infant infections have not declined,[1] and the rate of iGBS infection among U.S. adults has increased from 8.1 cases per 100,000 persons in 2008 to 10.9 cases per 100,000 persons in 2016.[2] This *Bulletin* provides an update on the epidemiology of iGBS in Alaska during 2000–2018.

Methods

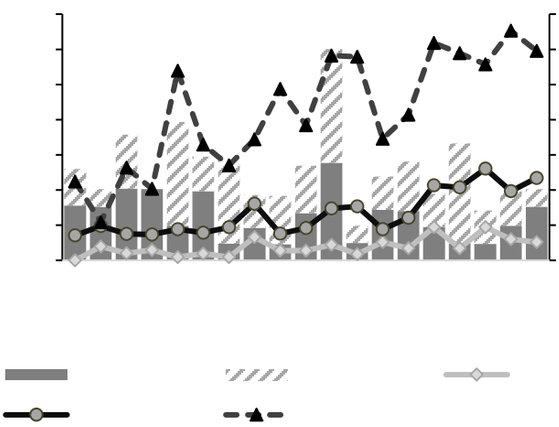
iGBS disease is defined as the isolation of GBS from a normally sterile site (e.g., blood, or cerebrospinal, pleural, peritoneal, or joint fluid) or from the placenta or amniotic fluid with fetal demise. The Centers for Disease Control and Prevention's Arctic Investigations Program (AIP) has been conducting statewide laboratory-based surveillance for iGBS since 2000. In 2007, iGBS became a reportable condition to the Alaska Section of Epidemiology (SOE). Laboratories send GBS isolates to AIP for confirmation and antimicrobial susceptibility testing. Demographic and illness-related data are collected for each confirmed case. Data from 2000–2018 were reviewed.

Results

Of the 741 iGBS cases identified during 2000–2018, 410 (55%) were in males, 198 (27%) were in Alaska Native people, and 98 (13%) were in infants. Of the 331 iGBS cases occurring in females, 24 (7%) occurred in pregnant or postpartum women. The median age of iGBS patients was 56 years (range: newborn to 104 years); 631 (85%) cases were in persons aged >2 years. Commonly documented clinical syndromes included bacteremia (34%), cellulitis (29%), pneumonia with bacteremia (12%), and osteomyelitis (11%). Of the 731 patients for whom hospitalization information was available, 665 (91%) were hospitalized. Sixty (8%) persons died; the median age of decedents was 56 years (range: newborn to 102 years).

The statewide incidence of iGBS increased from 2.7 to 8.6 cases per 100,000 persons in 2000 and 2018, respectively; the average annual incidence was 5.6 (range: 2.7–9.2) cases per 100,000 persons. Among infants, 46 cases of early-onset iGBS (overall rate: 0.25/1,000 births) and 52 cases of late-onset iGBS (overall rate: 0.28/1,000 births) were identified. The incidence of iGBS increased for all adults (Figure).

Figure. iGBS Rates, by Age Category* — Alaska, 2000–2018



**Annual rates for children aged 91 days to 17 years were <1 case/100,000 persons and are not shown in the figure.*

The most commonly reported underlying health condition in adult iGBS patients was diabetes, which occurred in 45% (280/625) of adults (aged ≥18 years). Other commonly reported health conditions in adult iGBS patients included pregnancy in 38% (19/50) of women aged 18–39 years, obesity in 28% (82/297) of persons aged 40–64 years, and congestive heart failure in 26% (63/246) of persons aged ≥65 years.

During 2004–2017, antibiotic susceptibility data were available for 515 iGBS isolates. No isolates were resistant to penicillin or cefotaxime, 1% were resistant to levofloxacin, 53% were resistant to erythromycin, and 82% were resistant to tetracycline. At least 29% were resistant to clindamycin; however, not all isolates were tested for inducible resistance.

Discussion

The data presented here show that the overall incidence of iGBS disease has increased considerably in Alaska since 2003; this has been driven primarily by rising rates among older adults and mirrors national trends.[2] Adults with chronic illnesses (e.g., diabetes mellitus, obesity, or cardiovascular disease) are at higher risk for iGBS disease, and escalating rates of obesity and diabetes are thought to be contributing to iGBS trends nationally.[3] In Alaska, diabetes was the most commonly reported underlying health condition in adult iGBS patients.

While infant iGBS was a recognized problem during the 1970s through the 1990s, the incidence of iGBS in infants has decreased considerably nationwide (and in Alaska) since prevention guidelines were implemented in 1996. In 2019, the American College of Obstetricians and Gynecologists and the American Academy of Pediatrics published updated GBS prevention/management guidelines for newborns and infants.[4,5]

Recommendations

1. Penicillin is the preferred treatment for iGBS; ampicillin is an acceptable alternative.[4,5] If a true penicillin allergy is identified, clindamycin is the alternative treatment of choice if the isolate has been shown to be clindamycin-susceptible.[4] If not, Alaska iGBS resistance patterns reported here indicate that cefotaxime or levofloxacin are good alternatives.
2. Recommendations for screening pregnant women were modified in 2019 to *36 weeks and 0/7 days to 37 weeks and 6/7 days gestation*. This new testing period provides a 5-week window for valid culture results for births occurring up to a gestational age of at least 41 weeks and 0/7 days.[4,5] This decreases the number of women who need to be recultured if they have not delivered by their due date.[5]
3. Intrapartum antibiotic prophylaxis guidelines have been expanded to include women with unknown GBS status and a history of GBS colonization in a previous pregnancy.[5]
4. Clinicians should report iGBS cases to SOE and send GBS isolates to AIP for confirmation and susceptibility testing.

References

1. Nanduri SA, et al. Epidemiology of invasive early-onset and late-onset group B streptococcal disease in the United States, 2006 to 2015. *JAMA Pediatr* 2019;173(3):224–33.
2. Francois Watkins LK, et al. Epidemiology of invasive Group B streptococcal infections among nonpregnant adults in the United States, 2008-2016. *JAMA Intern Med* 2019; ahead of print.
3. Pitts SI, et al. Obesity, diabetes, and the risk of invasive Group B streptococcal disease in nonpregnant adults in the U.S. *Open Forum Infect Dis* 2018;5(6)1–7.
4. ACOG. Prevention of Group B Streptococcal Early-Onset Disease in Newborns. Available at: https://www.acog.org/GBS
5. AAP. Management of Infants at Risk for Group B Streptococcal Disease. Available at: https://pediatrics.aappublications.org/content/144/2/e20191881

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