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Findings

Streptococcus agalactiae/Group B *Streptococcus* (GBS) is the leading cause of neonatal early onset sepsis (EOS) in South Africa.

Over a quarter of GBS EOS infants diagnosed in regional hospitals in South Africa die in the neonatal period.

Improved multi-pronged prevention methods for GBS EOS are required.

Purpose

Group B *Streptococcus* (GBS) is a leading cause of neonatal infections globally, however the relative burden of GBS as an invasive neonatal pathogen in developing countries is less clear.

Methods

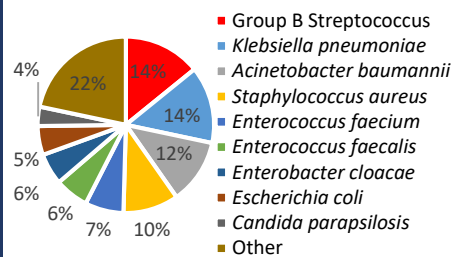
- Population-level surveillance for culture-confirmed bacterial and fungal bloodstream infections and meningitis among neonates aged <28 days
 - Location: All public-sector hospitals in South Africa
 - Time period: 2014 through 2019
- Through enhanced sentinel surveillance we collected isolates and clinical data to characterise and compare episodes of GBS to other aetiologies of neonatal infection.
 - Location: 6 regional/district neonatal units
 - Time period: September 2019 through October 2020
- Definitions: Early onset sepsis (EOS) – infant <3 days of life; Late onset sepsis (LOS) – infant ≥3 days of life

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BILL & MELINDA GATES foundation

Early Onset Sepsis (<3 days)



Late Onset Sepsis (>3 days)

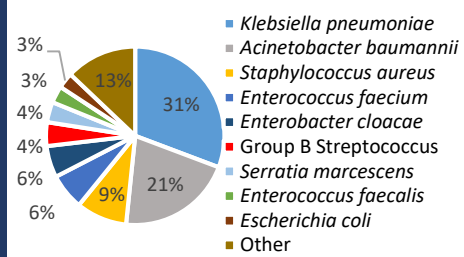


Figure: Aetiologies of early and late onset neonatal infections from six regional/district hospitals in South Africa, October 2019 through September 2020, n=714

Table: Maternal and infant characteristics of neonates with early onset sepsis from six regional/district hospitals in South Africa, October through September 2020, n=226

	Total N=226	Group B Streptococcus N=32	%	Non-GBS N=194	%	P-value
Maternal characteristics						
Maternal age (median)	27 (22-33)	23	20-29	28	22-33	0.04
HIV status of mom						
positive	65 (29)	8	(12)/(26)	57	(88)/(30)	
negative	157 (71)	23	(15)/(74)	134	(85)/(70)	0.647
Antenatal care						
yes	194 (91)	26	(13)/(93)	168	(87)/(90)	
no	20 (9)	2	(10)/(7)	18	(90)/(10)	0.669
Intrapartum antibiotics						
yes	2 (1)	0	0	2	(100)/(1)	
no	184 (99)	26	(14)/(100)	158	(86)/(99)	0.567
Infant characteristics						
Gestational age (median)	35 (30-37)	34	(29-37)	35	(30-37)	0.437
Sex						
female	91 (42)	18	(20)/(58)	73	(80)/(39)	
male	126 (58)	13	(10)/(42)	113	(90)/(61)	0.053
overall	9 (4-16)	9	3-18	9	4-16	0.349
Duration of hospitalisation (in days)						
died	3 (2-6)	3	1-4	4	3-6	0.757
discharged	12 (6-18)	12	4-22	12	6-18	0.954

Results

- Nationally,
 - incidence of neonatal infections was 6/1 000 live births
 - GBS accounted for 6% (2 495/43 438) of infections
 - GBS incidence was 0.4/1 000 live births.
 - More GBS in regional/district hospitals (7% each) versus national/provincial hospitals (4% each).
- Incidence of EOS was 1.1/1 000 live births
- GBS was the leading cause of EOS (1 498/7 580, 20%), and the 10th cause of LOS (997/35 858, 3%).
- At enhanced surveillance sites,
 - GBS caused:
 - 7% (53/714) of all neonatal infections
 - 14% (32/226) of EOS, and
 - 4% (21/488) of LOS [Figure].
 - Crude mortality associated with GBS EOS was 27% (8/30),
 - Compared to 18% (33/186, p=0.241) for other causes of EOS.
 - Only 2/186 mothers of babies with EOS received intrapartum antibiotic prophylaxis (none of those with EOS GBS) [Table].
 - Of 9/32 EOS GBS isolates serotyped, serotype III was most common (56%, 5/9), followed by serotypes V (2/9), 1a (1/9) and non-typeable (1/9).