



NEONATAL EARLY-ONSET SEPSIS (EOS): analysis of Estonian data using the neonIN surveillance network

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Background

- The incidence of EOS has decreased in many countries due to implementation of group B *Streptococcus* (GBS) screening and intrapartum antibiotic prophylaxis (IAP).
- In Estonia pregnant women are not routinely screened for GBS carriage, IAP is administered to women with risk factors.
- We aimed to describe the causative agents of EOS and evaluate their susceptibility to empiric antibiotic regimens (ampicillin+ gentamicin for LBW infants; penicillin G + gentamicin for normal BW infants) in Estonia.

Methods

A prospective surveillance study using a web-based database (neonIN)

All neonates with culture-proven EOS (sepsis occurring in the first 72 hours of life) in 2013-2017 in 2 Estonian maternity hospitals were included

Coagulase-negative staphylococcal (CoNS) infections were included if treated with antibiotics for at least 5 days.

Patients were divided into two groups: low birth weight (LBW) < 2500 g and normal birth weight (BW) ≥ 2500 g

Figure 1. Study flow

Results

Table 1. Key demographic characteristics

	LBW (n=28)	Normal BW (n=44)
Gestational age (weeks) (mean, SD)	28 (±3.9)	39 (±1.7)
Birth weight (g) (mean, SD)	1352 (±598)	3470 (±389)
Male (n,%)	15 (53.6)	26 (59)

- 72 episodes of EOS were included.
- Main pathogens of EOS are presented in Figure 2 and their antibiotic susceptibility in Figure 3.
- The incidence of EOS (excluding CoNS) was 1.6/1000 live births.
- The incidence of CoNS-related EOS was 3/1000 neonatal admissions.
- The incidence of GBS-infection was 0.64/1000 live births, in comparison to 1.2/1000 in 2007-2008.
- In normal BW neonates 88% of infections were caused by Gram-positive bacteria, while in LBW 32% (50% excluding CoNS) by Gram-negatives.

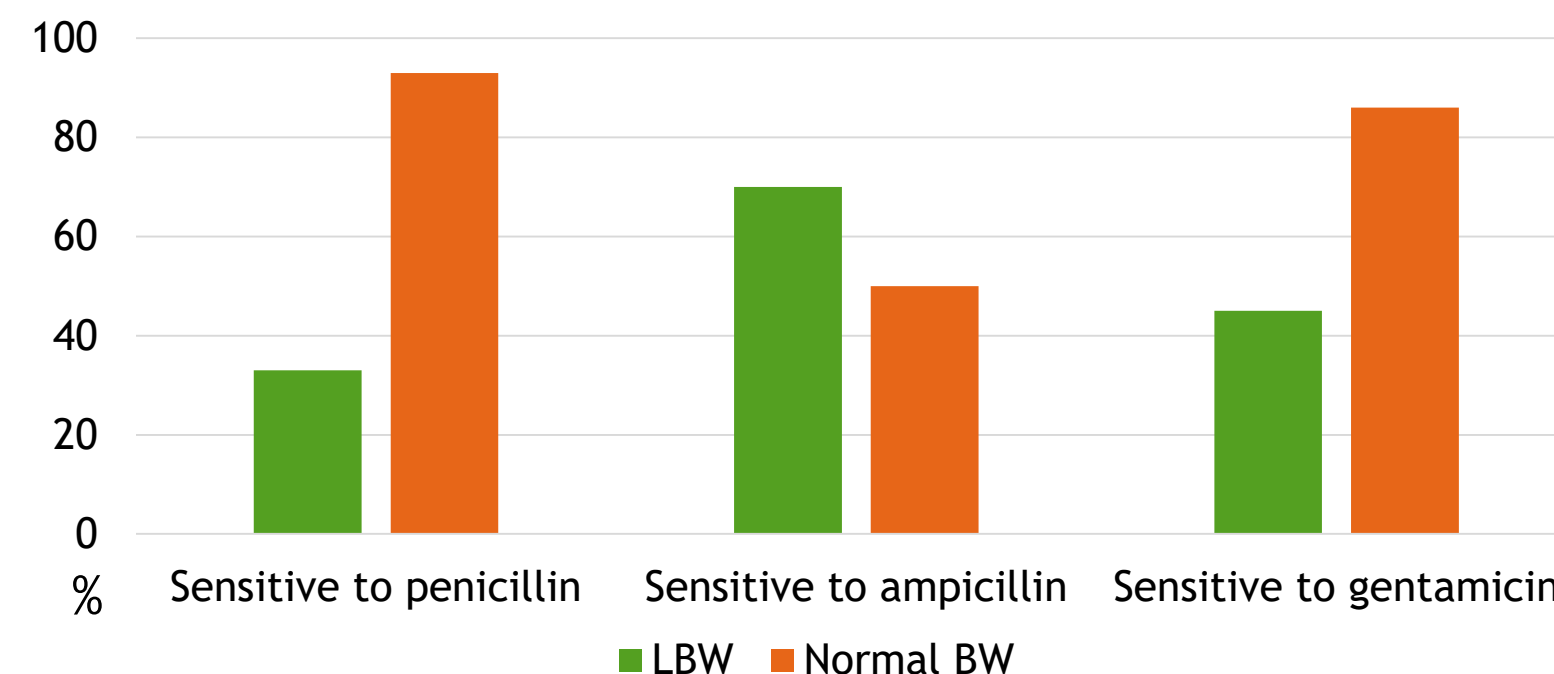


Figure 3. Proportion of bacteria sensitive to empiric antibiotics

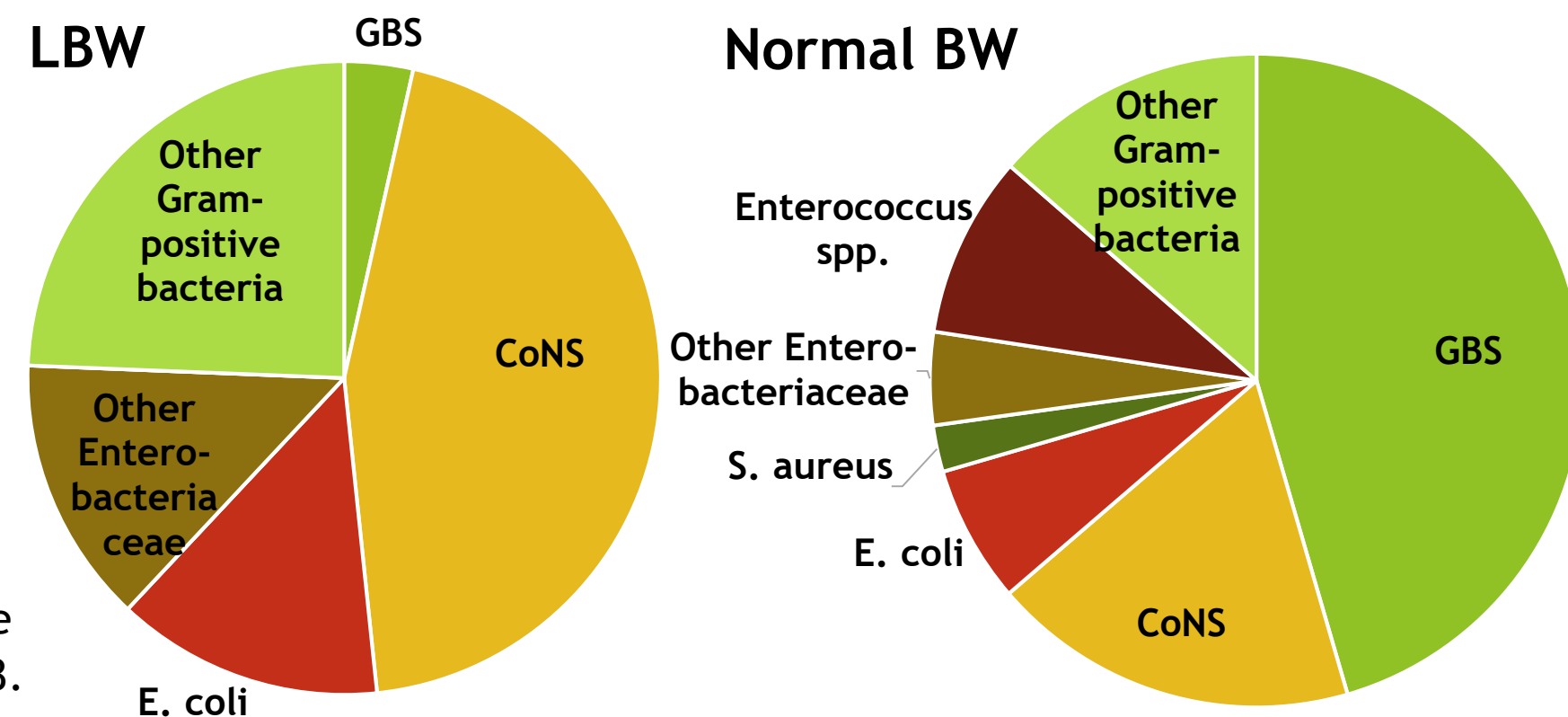


Figure 2. Main pathogens of EOS

Conclusions

- Over the last decade the incidence of EOS has remained stable in Estonia, although the incidence of EOS-GBS is higher than in countries using GBS-screening and IAP.
- The current empiric antibiotic regimen is adequate for normal BW neonates, but may not be sufficient for LBW neonates with Gram-negative EOS.
- The Estonian programme for prevention and empiric treatment of EOS should be revised.

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