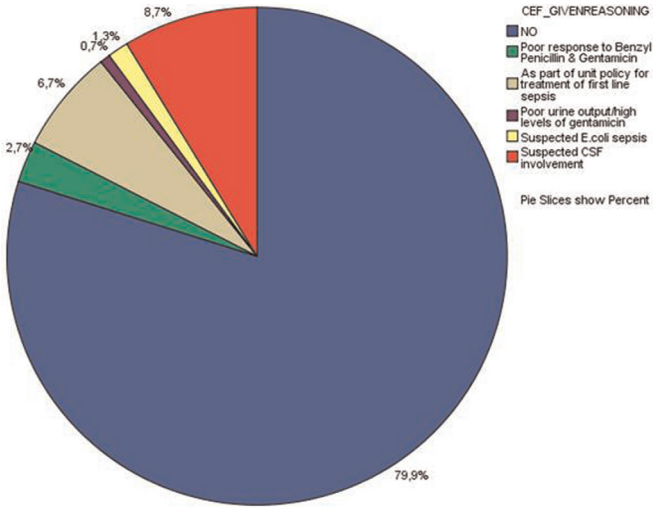

Abstract PS-216 Figure 2

Background Clinical practice within the network is facilitated by a regional guideline and a relevant clinical guidance tool from the National Institute for Health and Clinical Excellence (NICE-149, August 2012).
Methods Prospective study from September 2012 until May 2013. 17 participating neonatal units within the network. 10 cases from each unit were included. These referred to term or preterm infants who required intravenous antibiotics for suspected or confirmed early onset sepsis with a minimum length of stay of 10 days. The data were analysed using SPSS 17.0.
Results 15 units participated. 149 babies were recruited with a mean gestational age of 32+2 weeks. 91.3% of babies received intravenous benzyl penicillin and gentamicin as first line treatment. In 25% of cases there were prescribing issues regarding gentamicin. 20.1% received cefotaxime. 19.5% of babies underwent a lumbar puncture. 17.5% of babies received antifungal agents. In 15.4% of which as treatment.
Conclusions The overall outcome was positive with prompt recognition of risk factors and initiation of treatment across all units. This unified policy promotes good quality of care. However, the percentage of prescribing issues regarding gentamicin was worryingly high. Hence, further studies and review of literature are required to evaluate the efficiency of our practice and to establish alternative choice of antibiotics.

PS-217 IMPACT OF THE NEW ALGORITHM FOR MANAGEMENT OF NEWBORNS WITH RESPECT TO RISK FOR EARLY-ONSET GBS DISEASE

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Background Guidelines for the prevention of perinatal group B streptococcal (GBS) disease were updated in 2010, including a revised algorithm for management of newborns with respect to risk for early-onset GBS disease (EOD-GBS).
Aim To know the impact of this new algorithm on EOD-GBS evaluations, hospital admissions, and detection of EOD-GBS cases in a newborn unit.
Methods Retrospective cohort study of infants of GBS-colonised mothers born at ≥36 weeks gestational age in two periods of time: from July to December 2010, and from July to December 2012. The following variables were analysed: gender, gestational age, chorioamnionitis, indication for and prescription of antibiotics to the mother, EOD-GBS evaluations, infant admission and outcome. Continuous data were compared by using *t* test; discrete data using chi square. Preventable fraction in the exposed (Pf_e) was used to quantify the impact or the new algorithm.
Results One hundred and fifty-two neonates were included in 2010 and 130 in 2012. No significant differences between both groups were found regarding gender, gestational age, chorioamnionitis, obstetric care and antibiotic prophylaxis received by mothers. There were no cases of GBS infection in both periods. The new algorithm avoided 88% evaluations in EOD-GBS screening from 2010 to 2012 (Pf_e = 0.88, 95% confidence interval [CI]: 0.39–0.96). The number of infants admitted for suspected EOD--GBS was reduced by 48.1% (Pf_e: 0.481, 95% CI: -0.648–0.864).
Conclusions Implementation of the 2010 algorithm resulted in a decrease of EOD-GBS evaluations and the number of newborn admissions for suspected sepsis.

PS-218 DEVELOPING A SAFER DOSING REGIMEN OF AMIKACIN IN PRETERM INFANTS

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Background and aims Aminoglycosides with penicillin are commonly used first line antimicrobials of choice to target early onset sepsis organisms (1). The concern about emergence of gentamicin resistant gram-negative organism has led neonatal units to switch to Amikacin (2). The current British National formulary (BNFc) recommends a dose of 15 mg/kg/day even for preterm infants. The ideal dose of amikacin for use in preterm infants is not clearly defined. The aim of this study was to compare amikacin blood levels in preterm infants less than 32 weeks gestation receiving two dosage regimens.
Methods During initial six-month period infants received amikacin dose of 12 mg/kg/day (group 1) and subsequently after a change to 12 mg/kg every 36 h (group 2) at the neonatal unit over a four-month period at Royal London Hospital. Data was collected from the neonatal database, hospital records and drug chart. Study was approved by Clinical effectiveness unit and Chi-square tests used for analysis (SPSS v22).
Results
Conclusions Most preterm infants even on a lower dose of amikacin than currently recommended by BNFc develop a high

Abstract PS-218 Table 1

	Group 1(amikacin 12mg/kg/day)	**Group 2** (amikacin 12 mg/kg 36 hourly)
N	46	18
No of babies with high trough amikacin levels (%)	35(76)*	6 (33)*
Mean gestation in weeks (SD)	28.3 (2.8)	28.0 (2.7)
Mean Birth weight in grams (SD)	1129 (354)	1020 (360)
Mean Creatinine (range) in micromol/L	78 (36-111)	79 (20-140)

* p = 0.001.
The proportion of babies with high trough amikacin levels was significantly reduced after changing the dose from 24 hourly to 36 hourly.

trough level. There was a significant reduction in the number of babies with high trough amikacin levels after the dose was changed from 12 mg/kg/day to 12 mg/kg every 36 hours. We recommend this dose for use in infants less than 32 weeks gestation with continued monitoring of amikacin levels.

REFERENCES

1 Vergnano *et al*. Neonatal infections in England: the NeoniN surveillance network. *ADC* 2011
2 Hasvold *et al*. Gentamicin resistance among Escherichia coli strains isolated in neonatal sepsis. *Journal of Neonatal-Perinatal Medicine* 2013

PS-219 PREDICTORS OF CLINICAL AND MICROBIOLOGICAL TREATMENT FAILURE IN NEONATAL BACTEREMIA

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Aims To identify independent predictors of clinical and microbiological treatment failure and develop a predictive model in neonates with bloodstream infections (BSIs).
Methods A total of 1078 episodes of BSI occurred in 793 neonates in a tertiary-level neonatal intensive care unit (NICU) between 2004 and 2012 were enrolled. Patient demographics, underlying chronic comorbidities, clinical features, antimicrobial treatment and microbiological characteristics were evaluated.
Results Presences of underlying congenital anomalies (odds ration [OR] 2.22, 95% confidence interval [CI] 1.15–4.29) and pulmonary hypertension (OR 3.57, 95% CI 1.65–7.70), infections caused by multidrug-resistant gram-negative bacteremia (OR 2.84, 95% CI 1.21–6.66), *Group B streptococcus* (OR 3.08, 95% CI 1.31–7.26), and fungus (OR 4.06, 95% CI 1.97–8.38), a NTISS score of ≥ 23 (OR 6.61, 95% CI 2.40–26.47), inappropriate antibiotics (OR 2.01, 95% CI 1.31–3.08), and concomitant meningitis (OR 4.35, 95% CI 2.13–8.89) and ventilator-associated pneumonia (OR 2.82, 95% CI 1.26–6.32) were identified as independent risk factors for 28-day treatment failure in neonatal bacteremia. A risk-score model was created by adding points for each independent risk factor, and had a c-statistic of 0.83. Patients with risk scores of 0, 4, 8, 12 and 15 had estimated 28-day treatment failure rates of approximately 3%, 17%, 52%, 85% and 95%, respectively.
Conclusions This predictive model, calculated after documentation of a BSI, reflects spectrum of BSI severity and is associated with subsequent treatment failure through illness severity score and case-mix variables. This simple score could prove useful in clinical and research settings, and practical in estimating the prognosis.

PS-220 NOSOCOMIAL INFECTIONS DUE TO MULTIDRUG-RESISTANT MICROORGANISMS IN NEONATES

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Aim We aimed to evaluate nosocomial infection (NI) rate and antimicrobial susceptibilities of microorganisms causing NI in our Neonatal Intensive Care Unit (NICU).
Material and method NI afflicting infants admitted to NICU of Bahcesehir University Göztepe Medicalpark Hospital between January 2012 and December 2012 were assessed using Centre For Disease Control And Prevention (CDC) criteria. Only culture-positive infants were enrolled.
Results Of 328 infants, 49.1% were preterm. Thirty-five nosocomial infections occurred in 19 (6.4%) patients. Incidence density was 6.8/1000 patient-days. Attact rate per patient was 1.84. Two infants (10.5%) succumbed to death, one with a liver abscess due to Staphylococcus epidermidis, other with Candida albicans sepsis. Ventilator associated-pneumonia (VAP) rate (n = 4) 2.3/1000, sepsis rate (n = 19) 5.7/1000, UTI rate (n = 10) 1.5/1000, wound infection rate (n = 1) 0.1/1000, catheter infection rate (n = 2) 4/1000 and meningitis rate were (n = 1) 0.1/1000. Of 35 nosocomial agents 22 (62.8%) were gram negative (10 Klebsiella spp, 4 Enterobacter, 3 Acinetobacter, 3 E. coli, 2 Peudomonas), 10 (28.5%) were gram positive and 3 (8.6%) were Candida spp. All gram negatives were resistant to cephalosporins. Thirty-one percent of gram negative bacteria were resistant to carbapenems. Carbapenem-resistant gram negative agents were namely Acinetobacter baumanii complex, Pseudomonas aeruginosa and Enterobacter cloacea complex, All bacteria were susceptible to colistine.
Conclusion ESBL positive and carbapenem-resistant gram negative bacteria are threats for NICU. It is of vital importance to implement reasonable antibiotherapy strategies and to propagate standart infection control measures.

PS-221 LOWER MATERNAL/NEONATAL VITAMIN D LEVELS ARE ASSOCIATED WITH INCREASED RISK OF EARLY ONSET NEONATAL SEPSIS IN TERM INFANTS

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Background and aims Besides its well known role in bone metabolism, vitamin D also has immune modulatory effects. Although the link between vitamin D deficiency and various infections has been reported, no study has evaluated the effect of vitamin D levels on neonatal sepsis. The aim of this study was to evaluate the effect of vitamin D levels on early-onset sepsis (EOS) in term infants. The association between the severity of vitamin D deficiency and EOS was also investigated.
Methods Fifty term infants with clinical and laboratory findings of EOS (Study group) and 50 healthy infants with no signs of clinical and laboratory infection (Control group) were enrolled. Infants with high probable sepsis consisted the Study group and the healthy infants with no signs of clinical and laboratory infection were referred to as the Control group. Blood for neonatal and maternal vitamin D levels were obtained from all infants and their mothers at the postpartum period at the time of hospital admission.
Results Both maternal and neonatal 25-hydroxyvitamin D (25-OHD) levels in the Study group were significantly lower compared with those of the Control group ($p < 0.001$). A positive correlation was detected between maternal and neonatal 25-OHD levels. Both maternal and neonatal 25-OHD levels were significantly higher in summer and with regular vitamin D supplementation during pregnancy. Severe vitamin D deficiency was significantly more common in the sepsis group.