Background: Vancomycin is commonly used in neonatal intensive care for suspected or proven Coagulase-Negative Staphylococcus [CoNS] sepsis. Achieving the therapeutic level is important but sub-therapeutic levels are common. There is little data to guide dosage adjustment.

Method: A retrospective audit on vancomycin use was undertaken, using standard 24 hourly dose interval in extreme premature babies [< 29 weeks]. Finding resulted in a change of dose frequency to 18 hourly: a prospective audit was then performed.

Result: Of the 27 extreme premature babies on 24 hourly vancomycin, 70% had sub-therapeutic levels; 20% had normal levels. 1 baby [4%] with abnormal renal function had high levels.

A subsequent prospective audit of 20 babies [dosed 18 hourly], showed 70% with sub-therapeutic levels, 25% with normal levels; one baby [5%] with abnormal renal function had high level.

Conclusion: Increasing vancomycin dosing frequency to 18 hourly produced no increase in the number of therapeutic or sub-therapeutic levels, but might theoretically result in longer periods of therapeutic drug levels during the course.

On finding the sub-therapeutic levels, there should be flexibility in approach as 10% increase in dose is often ineffective; perhaps, change in frequency should also be considered. More studies are needed to guide the rapid achievement of therapeutic drug levels.

1637 USE OF PREMEDICATION DRUGS FOR NEONATAL INTUBATION: IS THIS THE TIME TO THINK OF CHANGING CLINICAL PRACTICE?

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Background: A recent national survey of tertiary neonatal units in the UK showed that six different premedication drugs are being used in ten different combinations. Preparation and administration of three premedication drugs, especially regime having controlled drugs, may take significantly longer time and may delay intubation.

Aims and objectives:
To study the time taken for preparation and administration of commonest drug regimen (combination of Fentanyl, Atropine and Suxamethonium).

To study its efficacy during neonatal intubation.

Design and methods: A prospective study in a tertiary neonatal setting in the UK included elective and semi-elective intubations. Neonatal intubations done in the delivery suite and emergency situation, where patient was collapsed, were excluded.

Results: Data was collected from use of premedication drugs during 24 neonatal intubations. Mean time taken to obtain and prepare premedication drugs was 18 minutes (Range: 3-94 minutes) and mean time taken to administer premedication drugs was 3 minutes (Range: 1-10 minutes).

Mean time taken from insertion of laryngoscope in mouth to successful intubation was 5 minutes (Range: 1-24 min) and mean number of attempts were 2 (Range: 1-7 attempts). Only 8% cases needed repeat premedication drugs.

Conclusion:
The average time taken for preparation and administration of three premedication drugs was 18 minutes which is significantly longer than expected for emergency situations. Use of single un-controlled premedication like Propofol can be quick and cost effective. Is this time to change our practice or do we need more randomised trials to study the efficacy of Propofol?

1638 WHAT IS THE EXTENT OF EXCIPIENT INTAKE IN THE PICU PATIENT?

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Background: Many medications used in PICU contain excipients which are classed as non-pharmaceutically active ingredients. There is increasing reports of adverse effects attributed to these agents. This study looks for recommendations of maximum levels and actual excipient intake in 5 PICU patients.

Methods: EmbASE, Medline, UK and International guidelines were searched for adverse effects, pharmacokinetics, maximum doses for non-pharmaceutically active ingredients. The medication intake for 5 PICU patients was recorded and excipient content calculated where available.

Results: There were 49 medications administered, no excipient information could be found for 8. There was 285 excipients listed in the remaining 42 medicines, complete excipient information was available for 11/49 medicines. Maximum upper limits were found for sorbitol (0.5g/kg), Propylene glycol (25mg/kg) and hydroxybenzoates (10mg/kg). Only a lethal dose was found for ethanol (3.8ml/kg), there was a recommendation that no ethanol should be contained in medicines for under 6 year olds.

Whilst excipient intake calculation was not complete due to lack of response or availability of information from the manufacturer, each patient received a medicine containing ethanol. Patient 3 and

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1636 PREMEDICATION FOR NEONATAL INTUBATION: CURRENT PRACTICE IN THE TERTIARY NEONATAL UNITS IN THE UNITED KINGDOM

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Background: Evidence clearly shows that awake intubation is associated with a significantly higher intracranial pressure, higher blood pressure, and more variable heart rate than premedicated intubation. The last national survey was over 10 years ago. Recently there has been promising research on use of Propofol during neonatal intubation which showed to be more effective than the morphine, atropine and suxamethonium.

Aims: To establish and up to date census on the current use of premedications to facilitate neonatal intubation in the UK tertiary neonatal units.

Design and methods: Telephone survey included all the 44 tertiary neonatal units in the UK. Professionals were asked about their current practice in use of pre-medication drugs during neonatal intubation.

Results: 44 tertiary neonatal units were contacted and all units use pre-medication drugs to facilitate intubation. Of the 44 units (91%), have written guideline or protocol. 6 premedication drugs are being used in 10 different combinations.

Combination of Fentanyl, Atropine and Suxamethonium is the most commonly used drug regimen used by 16 of 44 units (36%) while 2nd most popular regimen (used by 25%, 11 of 44 units) included combination of Morphine, Atropine and Suxamethonium.

Propofol is being used in only one unit.

Conclusion: Use of premedications to facilitate intubation has become standard practice across the tertiary neonatal units in the UK. However practice varies in terms of choice, number and doses of premedication drugs. Six premedication drugs are being used in 10 different combinations/regimens which vary from 1–3 drugs.
5 had above the sorbitol level (0.9g and 2.1 gram/kg respectively). Three patients received above the propylene glycol limit (52.6mg, 30mg and 190mg/kg), and at least one patient was getting 14.4mg/kg of hydroxybenzoates.

**Conclusion** When the information regarding quantities of excipients in medicines are available and calculated PICU patients are receiving significant amounts of excipients, some above the recommended safe limits.

**1639 ADVERSE DRUG REACTIONS ASSOCIATED WITH CIPROFLOXACIN IN NEONATES**

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**Background** Ciprofloxacin is used in many nurseries in developing countries. Data on drug concentrations and side effects of ciprofloxacin in neonates is limited.

**Aims** To study adverse drug reactions (ADR) associated with ciprofloxacin in term and preterm neonates and correlate them with drug levels.

**Design** Babies of 3 gestational age (GA) groups were enrolled: 37 (gp1), 32–36 (gp2) and 28–31 (gp3) weeks. Ciprofloxacin was administered twice daily at 10mg/kg/dose IV. Lab parameters were done at baseline, day 3 and day 7, including peak and trough drug levels.

**Results** 165 babies receiving ciprofloxacin were enrolled. Predominant ADR were jaundice (79%), rash (23%), hyponatremia (28%), anaemia (15%) and hypokalemia (5%). Using Naranjo algorithm, Probable ADR were cardiac arrhythmia, mucosal ulceration, renal failure and seizures. Possible ADR were rash, elevated liver enzymes, feed intolerance and leucopenia. ADRs were self-limited and treatable.

**Conclusions** Ciprofloxacin can be considered safe for treating neonates.

**1640 EFFICACY AND SAFETY OF MELATONIN IN NEONATES**

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**Background and Aims** Newborns are more sensitive to oxidative stress than older infants. Melatonin, based on its properties as chro-nobiotic, antioxidant, or analgesic, offers perspectives of beneficial effects in neonatology. Aim of this study was to retrospectively review the efficacy and safety of melatonin administered at preterm and at term newborns in NICU.

**Methods** A retrospective patient record review of newborns treated with Melatonin in NICU of University of Messina (Italy) was performed.

**Results** 85 neonates were recruited and treated with Melatonin (5–70 mg/Kg/die) in six previously published RCT. Melatonin has been given to 55 preterm infants with RDS and 30 at term newborns (10 with sepsis, 10 with perinatal asphyxia, and 10 with surgical abdominal malformations).

**Conclusions** To our knowledge, studies related to the toxicity of melatonin have not uncovered evidence of toxicity in humans even when given in very high doses. Our studies confirmed the potential role of melatonin as a treatment in different neonatal pathologies and the safety of its use in neonates at relatively high doses for short term and in various formulations.

**1641 DIAZOXIDE OPENS THE CLOSING NEONATAL DUCTUS ARTERIOSUS**

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**Background and Aims** Sulfonylureas inhibit the ATP-sensitive potassium (K_ATP) channel, are insulinoergic, and close the fetal duc-tus arteriosus. Diazoxide, a K_ATP channel opener, is used for neonatal hyperinsulinemic hypoglycemia, and has been associated with the opening of the ductus arteriosus. The aim of this study is to clar-ify ductus-opening effect of diazoxide.

**Methods** Neonatal rats were delivered by caesarian section near-term and incubated at 34°C. Diazoxide and pinacidil, another K_ATP channel opener, were injected intraperitoneally immediately, or at one hour, or at four hours postnatally, and the ductus was studied 0.5, and 1 hour later, with a rapid whole-body freezing method.

**Results** Diazoxide and pinacidil both induced hyperglycemia. Diazoxide and pinacidil delayed neonatal ductus closure following injection immediately after birth. At 2 hours, the control ductus was closed, whereas the ductus treated with 100 mg/kg of diazoxide at birth was widely patent with a diameter 40% of the fetal ductus. Ductus diameter at 60 minutes postnatally dilated from 10% to 40% with diazoxide. Diazoxide given to the closed ductus at 4 hours after birth did not open it. The ductus was more sensitive to pinacidil than to diazoxide.

**Conclusions** Diazoxide and pinacidil open the closing ductus arte-riosus of the neonatal rat. This study demonstrates that opening of K_ATP channels results in opening of the ductus arteriosus, indicating that the K_ATP channel is physiologically and pharmacologically important in ductus opening. The ductus should be checked in the neonate before and after treatment with diazoxide.

**1642 DESCRIBING THE USE OF OFF-LABEL AND NOT APPROVED MEDICATIONS IN A NEONATAL INTENSIVE CARE UNIT IN SOUTH BRAZIL**

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**Background and Aims** It is known that unlicensed medicines (unapproved) or used other way than directed in the label (off-label use) are widely prescribed in children. In the NICU, the severity of the patient justifies this type of prescription, evoking the risk-benefit ratio. We aimed to analyze the exposure to unapproved or off-label drugs in NICU in a tertiary university hospital in southern Brazil.

**Method** A descriptive cohort of drugs prescribed during hospitalization for 129 patients within 6 weeks. The drugs were classified as non-approved, and off-label for the dose, frequency, presentation, age or indication, according to FDA-approved e-lary.