ethanol and benzalkonium chloride. Opportunities for product substitution were defined as EOI-containing formulations for which an EOI-free product was reported in the survey with identical active pharmaceutical ingredient (API), galenic form and strength.

Results Of 31 invited European countries 20 with 115 NICUs responded. A total of 564 trade names (TN) with 53 APIs were used in more than 10% of units. EOI containing formulations (n = 151) were used for 31 APIs, found overall in 363 TNs. Compared to parenteral forms (50/199; 25%), enteral (83/130; 64%) and topicalTNs (18/34; 53%) contained EOI more frequently (OR; 95% CI 5.3; 3.3–8.5 and 3.4; 1.6–7.1, respectively). An EOI free substitution was available for 31/50 parenteral (63%), 17/83 enteral (21%) and 3/18 topical (17%) TNs. Overall, 51/151 (34%) TNs with EOI could be replaced; substitution was possible in 92/151 (61%) of cases if the requirement for identical API strength was ignored.

Conclusions EOI-free formulations available on the European market could be used to reduce the number of TNs with EOI by at least a third.

Background and aims In light of the current epidemic in the abuse of opioids, a major increase in neonates with neonatal abstinence syndrome (NAS) is likely. Incorporation of breastfeeding as a first pillar of treatment of NAS seems appropriate. We aimed to quantify the impact of breastfeeding on the incidence and severity of NAS.

Methods Pooling of published NAS cohorts, with specific emphasis on the impact of breastfeeding on the incidence (yes/no opioid administration) and duration (duration opioids, duration hospitalisation) of NAS.

Results Three studies [1–3] were retrieved and resulted in a pooled dataset of 400 neonates (218 breastfed, 54.5%). There is a significant reduction in NAS (54 vs 77%), number needed to treat 5–6. The same trends are observed when the duration of opioid treatment (difference -18 to -23 days) or the length of hospital stay (difference -4 to -10 days) are considered.

Conclusions Breastfeeding is associated with a clinical significant reduction on the incidence and the duration of NAS in opioid exposure newborns. Incorporation of breastfeeding as a first pillar of treatment for relieving the NAS symptoms seems to be a very natural, and effective way of addressing this.

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Background Neonates admitted to NICUs are frequently subjected to invasive procedures, often with sub-optimal analgesic treatment.

Objective To determine the number of invasive procedures and analgesic practices in NICUs.

Methods Invasive procedures and corresponding analgesic therapies on days 1–14 of NICU admission were prospectively monitored.
studied over a 2-month period in all neonates admitted to the 16 NICUs in the Paris region.

**Results** For 589 neonates included, mean (SD) gestational age, birth weight, CRIB scores, and number of days of participation were 33.3 (4.5) wks, 1983 (943) gm, 1.5 (2.5), and 7.4 (4.5) days, respectively. 103239 procedures were performed in all neonates, 40927 were classified as painful and 62312 were stressful. The median (range) number of all procedures, painful procedures (PP) and stressful procedures (SP) per infant were, respectively, 124 (0–699), 44 (0–353), and 78 (0–406). Table 1 shows most frequent PP.

Analgescic therapy before PP varied widely among procedures. Analgesic therapy was given before 28.1% of PP. Continuous infusions of sedatives and/or analgesics were given during 38.8% of PP. Overall, 61.8% of PP were performed with an analgesic given before the procedures and/or while the neonate was receiving continuous sedation/analgesia. Fig. shows factors associated with preprocedural analgesia use.

**Conclusions** There is an urgent need to reduce the number of procedures and the pain produced by routine NICU procedures in neonates. Analgesic therapy should be matched with the intensity and duration of acute pain caused by invasive procedures.

**Abstract O-102**

**ANALYSES OF CURRENT UNLICENSED AND OFF-LABEL FOR AGE DRUG PRESCRIPTIONS AT A NEONATAL INTENSIVE CARE UNIT**

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**Background and aims** Treatment of critically ill and preterm neonates includes the use of multiple drugs. Many drugs are unlicensed for children or used off-label. Recent changes of drug legislation by FDA and EMA should encourage more drug research in children. We aimed to study the current drugs used in a neonatal intensive care unit.

**Methods** All drug prescriptions at the level III NICU of Erasmus MC from January 2007 till June 2013 were retrieved from the patient data management system. The product license of each drug was used to judge the label for use in neonatal age.

**Results** A total of 4,054 neonates (2,240 males) with a median gestational age of 32+0 (range 23+6–42+2) weeks and a body-weight at admission of median 1.8 (range 0.36–5.4) kg, were included. Most frequently administered drugs were benzyl-penicillin, gentamicin, caffeine, morphine and surfactant. Of the 24,903 prescriptions, 7,948 (32%) were off-label for neonatal age, and 1,932 (8%) were unlicensed for children.

**Conclusion** The availability of adequately licensed drugs still shows important shortcomings. Almost all CNS drugs were off-label for neonatal age (93%) although few unlicensed for use in children (7%). On the other hand most antimicrobial drugs were on label (7%). We believe that drug research in neonates should have high priority to access safe and appropriate medicines.