exposed in controlled conditions (silent room, active sleep, randomised order) to three odours presented on a Q-tips:
- water (control);
- a hand rub (DES60®) diluted to match the odour’s intensity released by hands;
- an adhesive remover (Convacare®).

We recorded bilaterally cortical activation in orbito-frontal gyri (OFG), prefrontal (PFC) and somatosensory (S1 and S2) cortices during 40s (10s-baseline, 10s-presentation, 20s-post-stimuli) by multichannel-NIRS. HbO2 changes were analysed from baseline (ANOVA) and by subgroups (Kruskall-Wallis).

Results In the whole population, we observed:
- no activations for water.
- cortical activations (HbO2 increase) for DES60® (p < 0.001), unilaterally in OFG, PFC, and bilaterally in S1 and S2; whereas only in S1 (unilaterally) for Convacare® (p < 0.001).

We noticed significant profiles of response for all infant's subgroups, in at least one olfactory and one pain processing areas. The average magnitude of HbO2 increase from baseline was higher in full-terms vs both subgroups of preterms: 8.5(2.8–12.6) μmol/l vs 5.9(2.6–10.4) and 5.7(1.8–9.2) μmol/l for DES60® (p < 0.001).

Conclusion Full-term and preterm newborns can perceive OS at a cortical level. Exposure to OS can activate trigeminal/olfactory and pain processing areas and may induce discomfort/pain in newborns.

Abstract PO-0414 Figure 1 Choline, cytidine and uridine levels before and after hypoxia as well as after resuscitation