proportions of the sample above the target range were not significantly different from intermittent dosing.

REFERENCE
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HOW MUCH FORCE WE ARE APPLYING WITH FACE MASK DURING RESUSCITATION OF PRETERM INFANTS? -SIMULATION STUDY

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Aims
Background Positive pressure ventilation (PPV) is the most common method used to assist preterm babies at birth. Effective delivery of PPV requires optimal face mask application techniques. Current resuscitation council recommendation is to apply face mask with even application of pressure down through the mask balanced across the center point.

Objectives
• What is the amount of force applied with face mask?
• Is the force applied evenly across all the facial areas (nose, chin, left cheek and right cheek)?
• To observe the variation in peak forces between techniques (one-person vs two-person).
• Is there a difference in face mask force application between professional and non-professional?

Methods
We conducted a simulation study using low fidelity Premature infant manikin (Anne-Laerdal Medical) and round silicone face size (XS-35mm) (Fisher & Paykel). We applied force Sensitive Resistors on four places on the manikin’s face- nose and chin, one on either cheekbone (figure 1a). With each PPV provision force applied on the sensors were recorded for continuous 60 secs (30breaths in and 30 out). Force pressure was as Newtons (N). Force-time graphs were plotted automatically using PYTHON programming. We tested the variations in force application between professional vs non-professional, using bag and Mask vs Neopuff, one person vs two-person technique. Non-professional is a novice who underwent short training in the form of lecture followed by hands on technique with PPV technique and professional, had at least 10 years of neonatal experience. For the two-person technique, non-professional and professional were the two operators. All the statistics were performed using IBM SPSS Statistics.

Results
We had a total of 792 force measurements. During each PPV breathe in and breathe out there was a clear increase and decrease in force (figure 1b). Median (Inter-quartile range-IQR) peak force measurements were: 0.6 (IQR 0.3-0.9) N, 0.9 (IQR 0.8-1.1) N, 1 (IQR 0.8-1.1) N, and 0.9 (IQR 0.8-1) N over nose, Chin, left cheek and right cheek respectively. Nose region had the lowest force and largest peak force variations with widest IQR. This force would deliver approximately 200grams of weight on 1kilogram preterm baby. There is statically significant difference (p<0.05) between forces across all the points except chin and left cheek. Using bag and mask, the non-professionals force application had a greater variation and significantly lower with median of 0.77 (IQR 0.5-1) N when compared to professional’s force application with a median of 1 (IQR 0.8-1.1) N. There is no significant difference and minimal variation in forces between the professional and two-person technique with median force of 1.1 (IQR 0.9-1.1) N vs 1.1 (IQR 0.66-1.1) N, p=0.64. Variation in forces for each of the four points between professionals and two-person technique were shown in figure 2.

Conclusion
Relatively large amount of force (1/4th weight of the baby) is applied during face mask PPV with unequal force applications across the facial region. Two-person technique had minimal variations with force applied even with one of the operators is inexperienced. Further research is needed in this field.