Defining the Reference Range for Oxygen Saturation for Infants after Birth.  

Objective  
The goal was to define reference ranges for pulse oxygen saturation (SpO2) values in the first 10 minutes after birth for infants who received no medical intervention in the delivery room.

Methods  
Infants were eligible if a member of the research team was available to record SpO2 immediately after birth. Infants were excluded if they received supplemental oxygen or any type of assisted ventilation. SpO2 was measured with a sensor applied to the right hand or wrist as soon as possible after birth; data were collected every 2 seconds.

Results  
We studied 468 infants and recorded 61650 SpO2 data points. The infants had a mean ± SD gestational age of 38 ± 4 weeks and birth weight of 2970 ± 918 g. For all 468 infants, the 3rd, 10th, 50th, 90th, and 97th percentile values at 1 minute were 29%, 39%, 66%, 87%, and 92%, respectively, those at 2 minutes were 34%, 46%, 73%, 91%, and 95%, and those at 5 minutes were 59%, 73%, 89%, 97%, and 98%. It took a median of 7.9 minutes (interquartile range: 5.0-10 minutes) to reach a SpO2 value of >90%. SpO2 values for preterm infants increased more slowly than those for term infants. We present percentile charts for all infants, term infants of ≥ 37 weeks, preterm infants of 32 to 36 weeks, and extremely preterm infants of <32 weeks.

Conclusion  
These data represent reference ranges for SpO2 in the first 10 minutes after birth for preterm and term infants.