Limited agreement between clinical assessment of infant colour at birth and oxygen saturation in a hospital in Ethiopia

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Aim: To evaluate the relationship between clinical assessment of infant colour and oxygen saturation at birth in a low-resource setting.

Methods: Classification of infant colour (cyanotic, pink or unclear) by midwives was compared to pulse-oximeter data at 60-90-120-300 seconds after birth in 60 neonates.

Results: Overall, oxygen saturation increased over time (P < .0001) and was different according to infant colour (P < .0001). Median oxygen saturation in pink infants was 87% at 60 seconds (n = 1), 90% (IQR 83-91) at 90 seconds (n = 5), 86% (IQR 81-94) at 120 seconds (n = 11) and 93% (IQR 90-96) at 300 seconds (n = 20). Median oxygen saturation in cyanotic infants was 60% (IQR 45-70) at 60 seconds (n = 52), 64% (IQR 52-69) at 90 seconds (n = 42), 63% (IQR 56-68) at 120 seconds (n = 35) and 66% (IQR 62-74) at 300 seconds (n = 22). Median oxygen saturation in unclear-coloured infants was 57% (IQR 56-60) at 60 seconds (n = 7), 78% (IQR 71-81) at 90 seconds (n = 13), 81% (IQR 79-88) at 120 seconds (n = 14) and 80% (IQR 76-84) at 300 seconds (n = 18). The proportion of infants with unclear colour ranged from 12% to 30%.

Conclusion: The variability of oxygen saturation among pink and cyanotic infants, and the substantial proportion of unclear infant colour, suggest the possible benefit of the availability of pulse oximetry in low-resource settings.