

## RESOLUTION

Subject: Addressing Pulse Oximeter Differences in People of Color

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Referred to: Reference Committee

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WHEREAS, a pulse oximeter measures oxygen saturation, or SpO<sub>2</sub>, via spectrophotometry to indirectly calculate the arterial hemoglobin saturation by determining the proportion of oxyhemoglobin in peripheral arterial blood<sup>1</sup>; and

WHEREAS, oxygen saturation is often considered the “5th vital sign”<sup>2</sup> due to its cost effectiveness, lack of invasiveness, continuous monitoring availability, and various points of accessibility<sup>3</sup>; and

WHEREAS, pulse oximetry has a sensitivity of 92% and a specificity of 90% when detecting hypoxia at a threshold of 92% oxygen saturation<sup>2</sup>, but the accuracy is reduced as saturations decrease to less than 90%<sup>1</sup>; and

WHEREAS, factors such as increased skin pigmentation, nail polish, anemia, and extreme (both hot and cold) skin temperatures can decrease the accuracy of the pulse oximeter<sup>4</sup>; and

WHEREAS, hypoxia is defined as SpO<sub>2</sub> less than 90%, and occult hypoxia is defined as an overestimation of oxygen saturation that is more likely to occur in People of Color compared to White individuals<sup>5</sup>; and

WHEREAS, the American Medical Association (AMA) recognizes that pulse oximeters may not accurately measure oxygen saturation in all skin tones<sup>6</sup>; and

WHEREAS, multiple studies have shown that SpO<sub>2</sub> is inaccurate (as it is often overestimated) in People of Color compared to their White counterparts, a phenomenon deemed “skin color related error” (SCRE)<sup>3, 5, 7</sup>; and

WHEREAS, this may lead to inequities in care, such as a delay in the administration of supplemental oxygen, leading to cases of “hidden hypoxia”<sup>1</sup>; and

WHEREAS, “hidden hypoxemia” is associated with higher mortality rates<sup>3, 5</sup>; and

WHEREAS, the largest degree of “hidden hypoxia” is seen in Black populations<sup>5</sup>; now, therefore, be it

RESOLVED, that KMA will encourage education in healthcare providers as well as the general public regarding the use of pulse oximetry and its associated inaccuracy in People of Color, which may lead to inequities in patient care.

## References:

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