Using the Munsell color system, New York anesthesiologist Paluel J. Flagg designed a fanning index of color cards in the early 1920s for visually estimating just how oxygenated (“O”) or cyanosed (“C”) a patient was. According to his color cards (from left to right above) blood under different degrees of oxygen saturation was represented on Card A: blood “seen directly”; Card B: “average mucous membrane, or edge of ear of plethoric patient”; Card C: “pale mucous membrane or edge of ear of average patient”; and Card D: “pale edge of ear, or average finger nail.” Note that Dr. Flagg did not consider many issues, including ambient lighting in the operating room or color blindness in the anesthesiologist.

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