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Continuous Pulse Oximetry Does Not Measure Blood Pressure

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To the Editor

The evidence favoring improved outcomes from continuous electronic monitoring continues to dribble in, and the metaanalysis from Lam et. al. is to be commended for summarizing the evidence to date¹. The authors acknowledge that Ochroch et. al.'s prospective randomized trial of continuous pulse oximetry (CPOX) found CPOX significantly reduced ICU transfers due to *pulmonary complications*. Yet they subsequently include non-pulmonary causes for ICU transfers in the Ochroch study in their metaanalysis, and conclude there is only a trend toward reduced ICU transfer. Had they restricted their meta analysis to *pulmonary (respiratory) causes* of ICU transfer, the relative risk (RR) of ICU transfer with CPOX would drop decisively from 0.81 to 0.32, with an upper 95% CI of 0.69 versus 1.2 (Fig 1). When including the Taenzer study, the RR would rise slightly to 0.46 but the 95% CI would narrow to 0.31 to 0.67 (Fig 1). Although the causes of ICU transfers in Taenzer et al's study are not described, it is less likely that the ICU transfers are as skewed by hemodynamic causes since the cohort was patients undergoing orthopedic, urologic, gynecologic, vascular and general surgery, whereas Ochroch studied solely patients undergoing cardiothoracic surgery.

There are approximately 45,000 acute respiratory compromise (ARC) events on the ward in US hospitals per year, of which 40% result in death². A recent comprehensive review states that ARC is potentially avoidable with earlier recognition and recommends CPOX be considered as a continuous monitor for patients at risk of all types of respiratory compromise³. Institutions that recognize the urgent need to improve patient safety and outcomes have overcome barriers to

CPOX adoption on the ward. The evidence to date provides not merely a trend but is conclusive that CPOX cuts the chances of an ICU transfer due to *respiratory causes* approximately in half.

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3. Morris TA, Gay PC, MacIntyre NR, Hess DR, Hanneman SK, Lamberti JP, Doherty DE, Chang L, Seckel MA. Respiratory compromise as a new paradigm for the care of vulnerable hospitalized patients. *Resp Care* 2017; 62:497-512.

Legend Fig1. Forest Plot: Odd Ratio of Intensive Care Unit Transfer by CPOX Study.

