Universiteit
Leiden
The Netherlands

Continuous Pulse Oximetry Does Not Measure Blood Pressure

Overdyk, F.J.; Broens, S.J.L.

Citation

Overdyk, F. J., & Broens, S. J. L. (2018). Continuous Pulse Oximetry Does Not Measure Blood Pressure. *Anesthesia And Analgesia*, 126(3), 1089-1090. doi:10.1213/ANE.0000000000002783

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/87144>

Note: To cite this publication please use the final published version (if applicable).

Anesthesia & Analgesia

Continuous Pulse Oximetry Does Not Measure Blood Pressure

--Manuscript Draft--

Manuscript Number:	AA-D-17-02497
Full Title:	Continuous Pulse Oximetry Does Not Measure Blood Pressure
Article Type:	Letter to the Editor
Corresponding Author:	Frank J Overdyk, MD, MSEE Roper St. Francis Healthcare Charleston, SC UNITED STATES
Corresponding Author Secondary Information:	
Corresponding Author's Institution:	Roper St. Francis Healthcare
Corresponding Author's Secondary Institution:	
First Author:	Frank J Overdyk, MD, MSEE
First Author Secondary Information:	
Order of Authors:	Frank J Overdyk, MD, MSEE
	Suzanne Broens, MD
Order of Authors Secondary Information:	
Manuscript Region of Origin:	UNITED STATES

Title page

Title: Continuous Pulse Oximetry Does Not Measure Blood Pressure

Corresponding Author:

Frank J. Overdyk MSEE, MD
Roper St. Francis Health System
Charleston SC, USA

125 Doughty Street
Suite 420
Charleston SC 29403
843-297-0628
foverdyk@gmail.com

CoAuthor:

Suzanne J.L. Broens, MD
Leiden University Medical Center
Netherlands

Financial Disclosures: None

Conflict of Interest:

FJO- Consultant: Medtronic; Respiratory Monitoring Solutions
SJB- None

Word Count: 380

Contributions: FJO & SJB- Coauthored letter

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.

1. Lam T, Nagappa M, Wong J, Singh M, Wong D, Chung F. Continuous pulse oximetry and capnography monitoring for postoperative respiratory depression and adverse events: a systematic review and meta-analysis." *Anesth Analg* 2017; Oct 19 [Epub ahead of print]
2. Andersen LW, Berg KM, Chase M, Cocchi MN, Massaro J, Donnino MW; American Heart Association's Get With The Guidelines®-Resuscitation Investigators. Acute respiratory compromise on inpatient wards in the United States: incidence, outcomes, and factors associated with in-hospital mortality." *Resuscitation* 2016; 105:123-129.
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.