Children's National

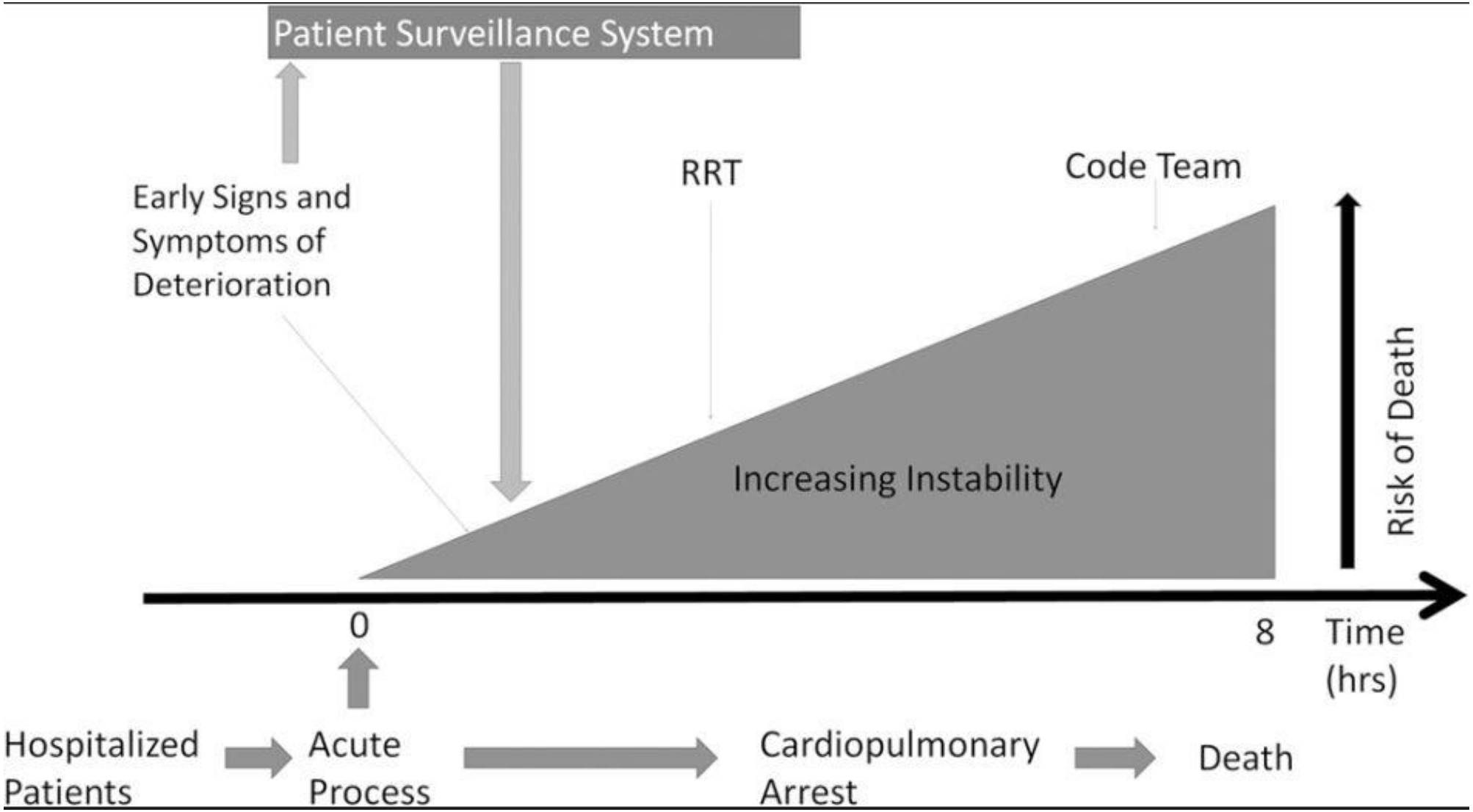
Ward Monitoring – A Historical Perspective

Andreas H. Taenzer, MS, MD

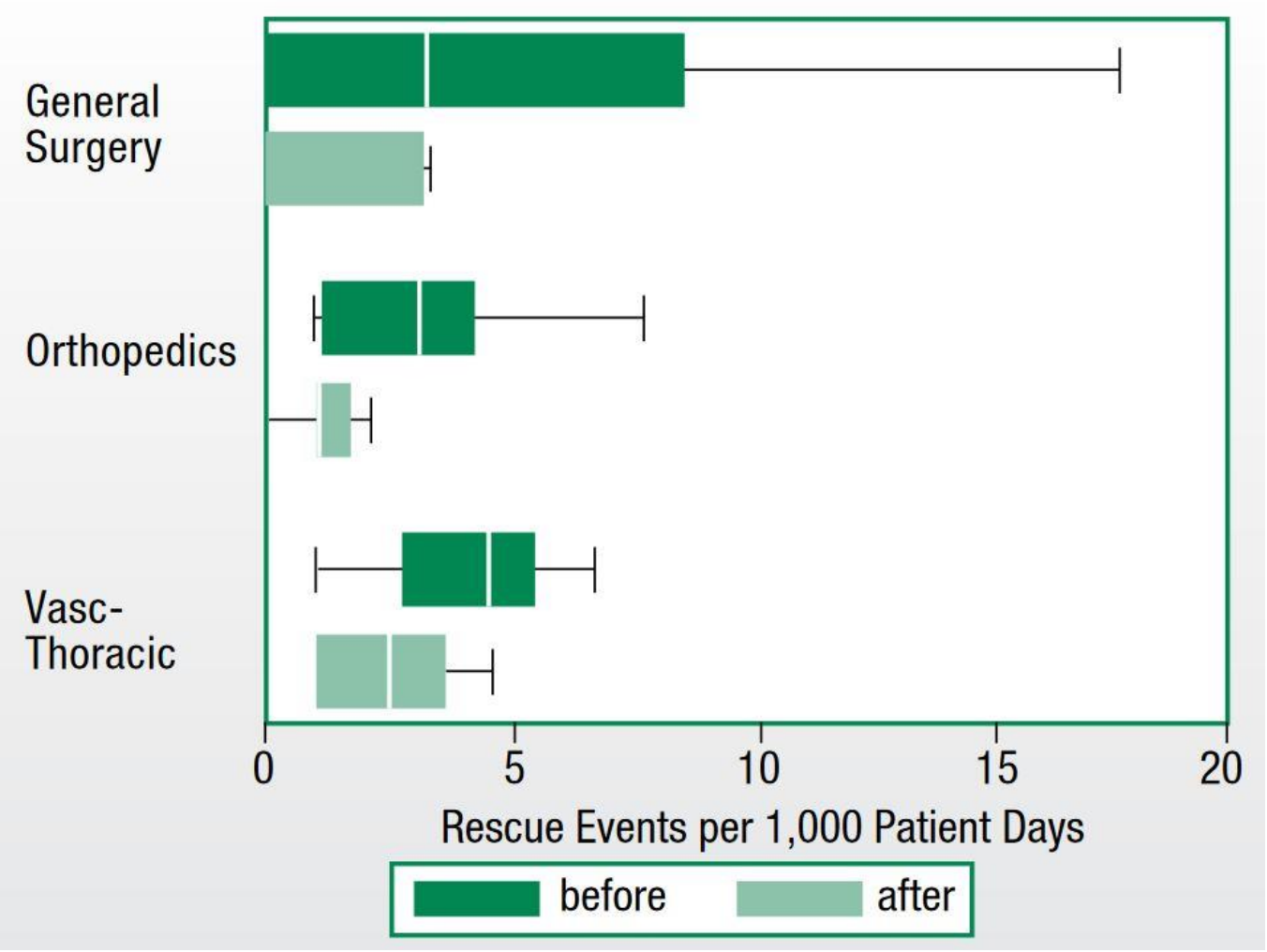
Professor of Anesthesiology, Critical Care Medicine and Pediatrics

Children's National Hospital

George Washington University School of Medicine and Health Sciences



Andreas H. Taenzer, Joshua B. Pyke, Susan P. McGrath, George T. Blike; A Review of Current and Emerging Approaches to Address Failure-to-Rescue. *Anesthesiology* 2011; 115:421–431



Taenzer AH, Blike GT. Postoperative monitoring: the Dartmouth experience. Anesth Patient Saf Found Newslet. 2012;27:1–21.

Surveillance vs Conditional Monitoring

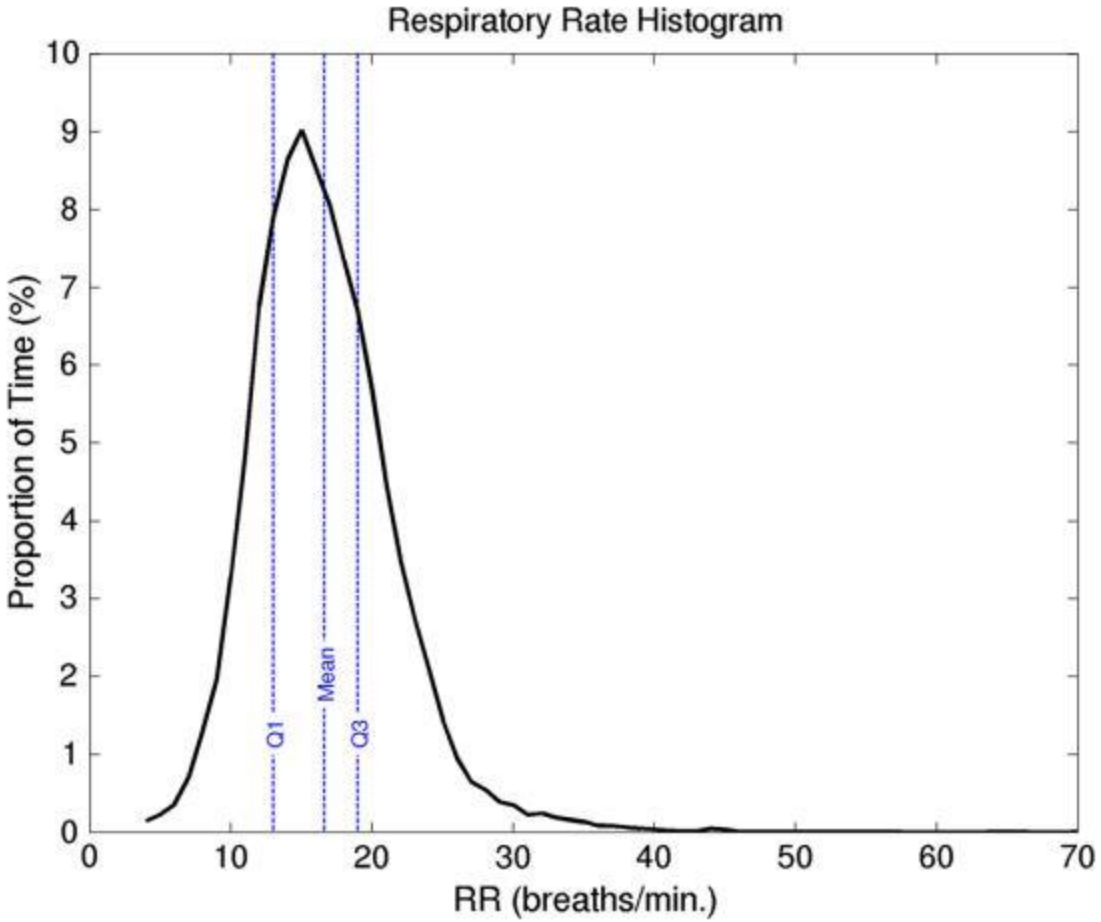
Galhotra S, DeVita MA, Simmons RL, Dew MA; Members of the Medical Emergency Response Improvement Team (MERIT) Committee. Mature rapid response system and potentially avoidable cardiopulmonary arrests in hospital. Qual Saf Health Care 2007;16:260-5.

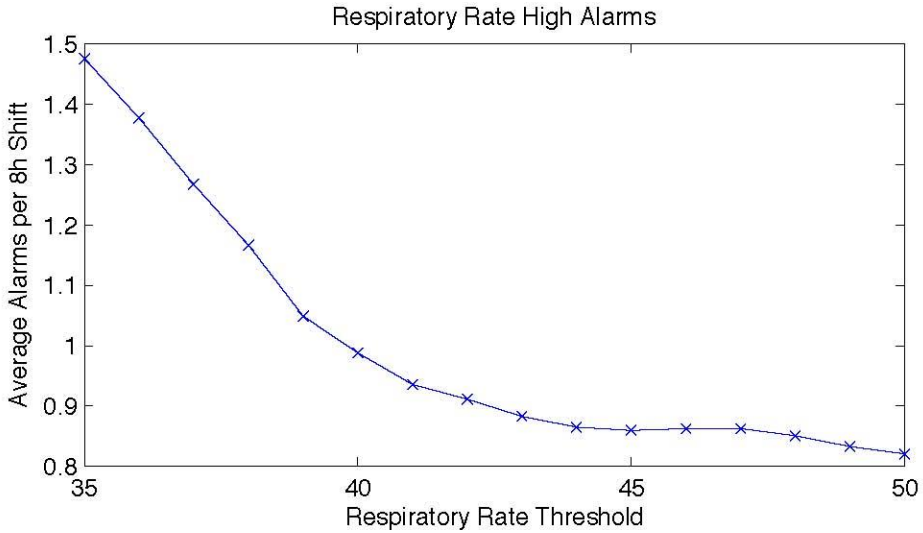
Pulse oximetry surveillance reduced RRT activations by 65% and ICU transfers by 48%

Taenzer AH, Pyke JB, McGrath SP, Blike GT. Impact of pulse oximetry surveillance on rescue events and intensive care unit transfers: a before-and-after concurrence study. Anesthesiology. 2010;112:282–287.

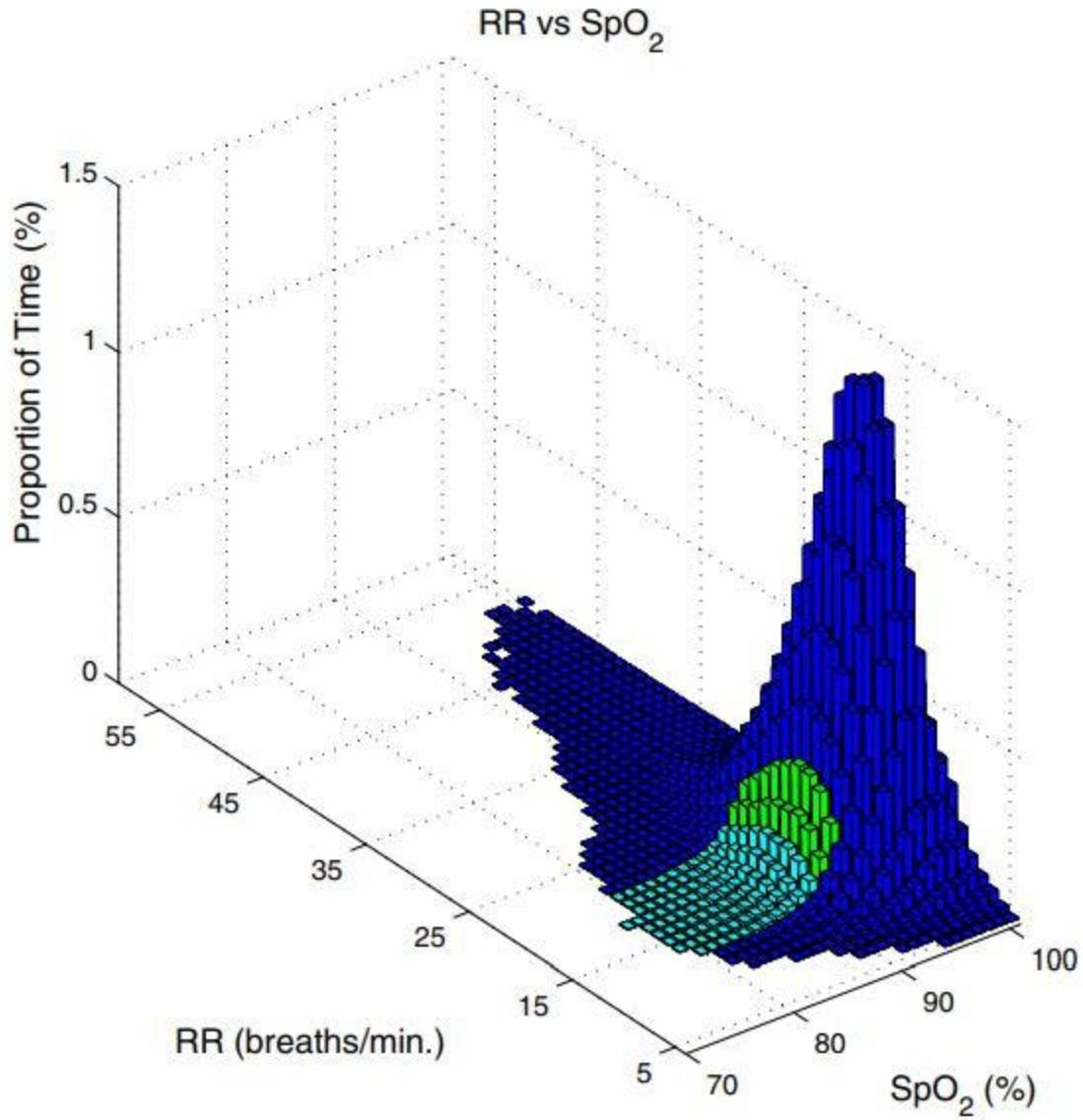
No OIRD harm or death in 111,488 patients in units with surveillance monitoring.

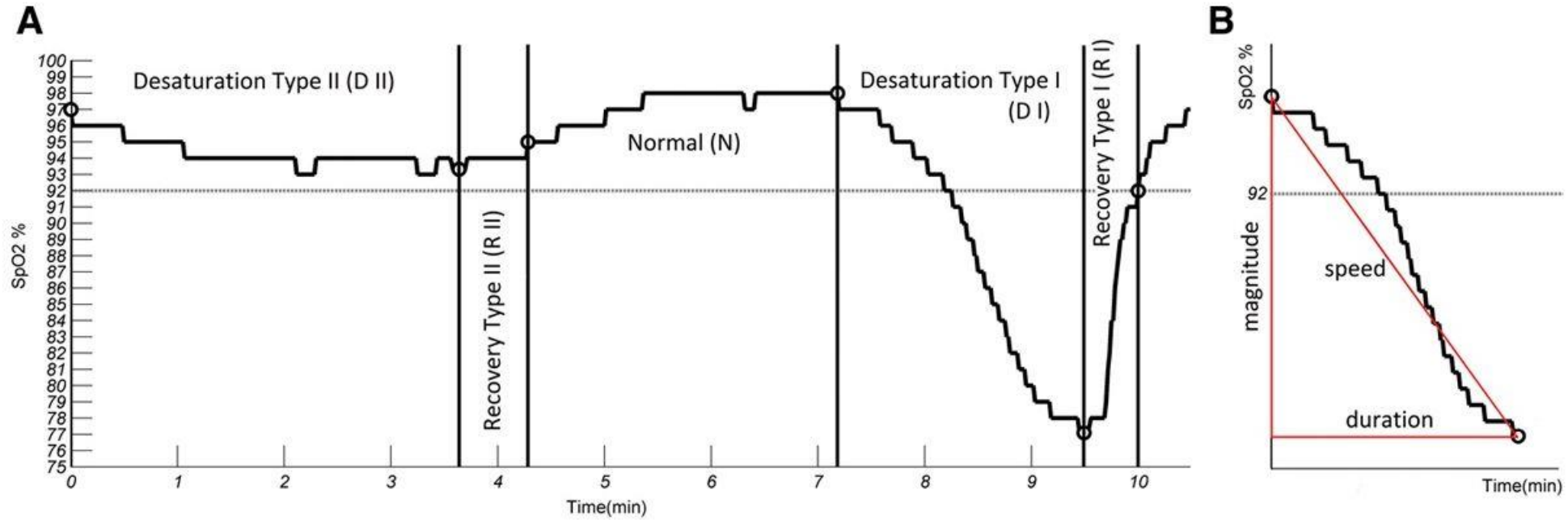
McGrath SP, McGovern KM, Perreard IM, Huang V, Moss LB, Blike GT. Inpatient respiratory arrest associated with sedative and analgesic medications: impact of continuous monitoring on patient mortality and severe morbidity. J Patient Saf. 2021;17:557–561.





McGrath, S.P., Pyke, J. & Taenzer, A.H. Assessment of continuous acoustic respiratory rate monitoring as an addition to a pulse oximetry-based patient surveillance system. *J Clin Monit Comput* 31, 561–569 (2017)

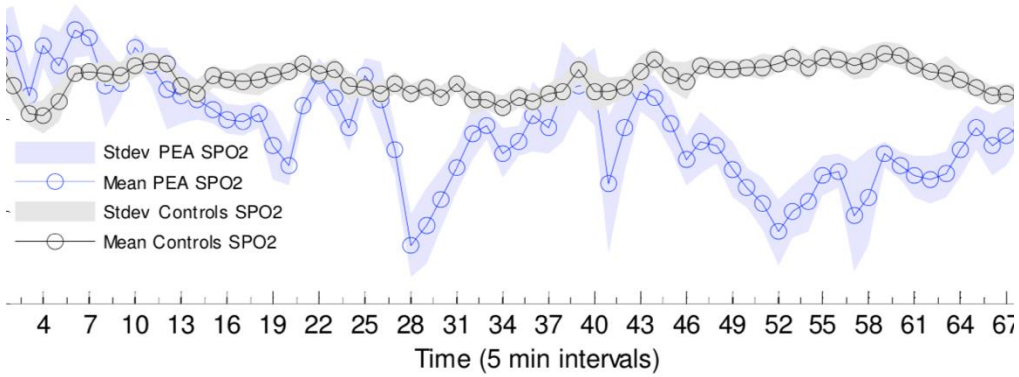

RR vs SpO2
Proportion of Time (%)
1.5
1
0.5
0
55
45
35
25
15
5
RR (breaths/min.)
70
80
90
100
SpO2 (%)



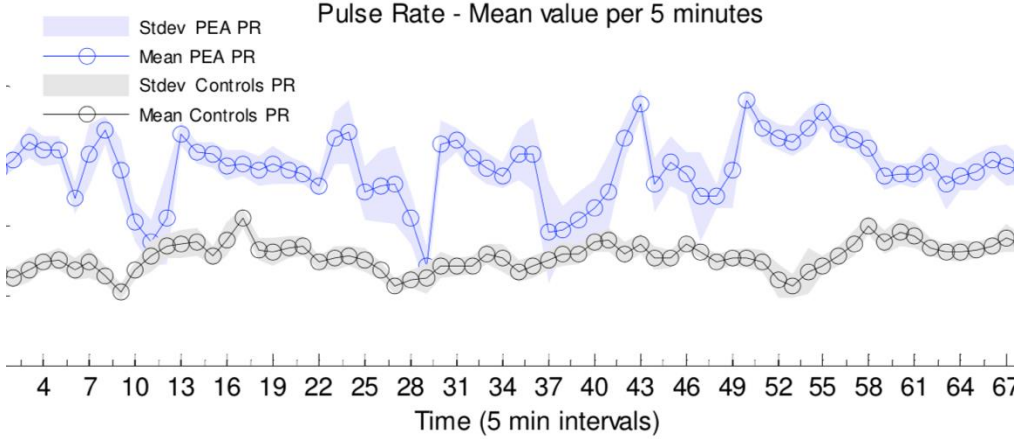
A, The 3 states as identified by the algorithm: desaturation (type I and II), associated recovery, and normal state. Algorithm identified 3 types of desaturation state, associated recovery states, and a normal state. B, The outcomes analyzed: speed, magnitude, and duration of desaturations. Spo_2 indicates peripheral oxygen saturation.

Taenzer, Andreas H. MS, MD*; Perreard, Irina M. PhD*; MacKenzie, Todd PhD†; McGrath, Susan P. PhD*. Characteristics of Desaturation and Respiratory Rate in Postoperative Patients Breathing Room Air Versus Supplemental Oxygen: Are They Different?. Anesthesia & Analgesia 126(3):p 826-832, March 2018.

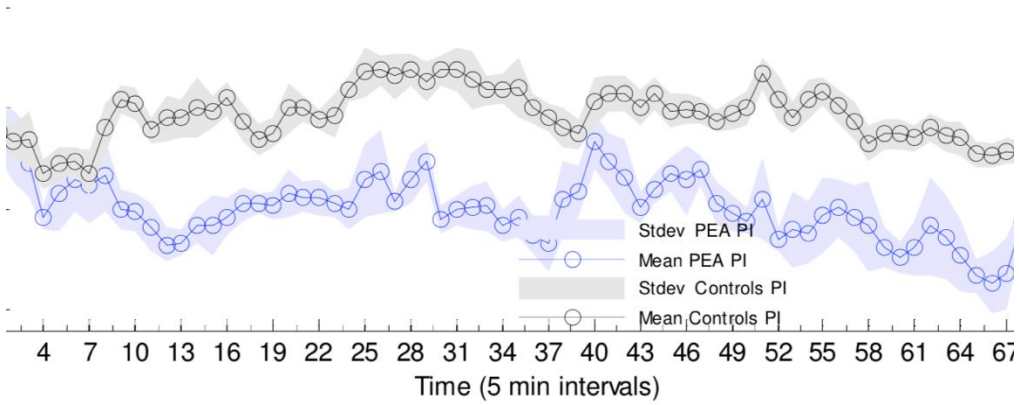
O2 - Meanvalue per 5 minutes



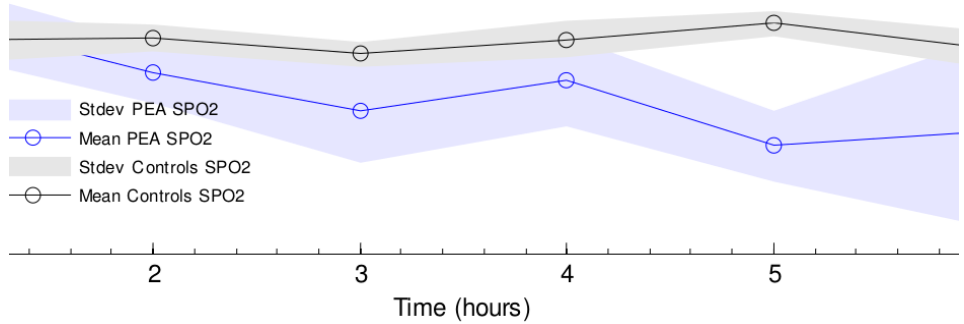
Pulse Rate - Mean value per 5 minutes



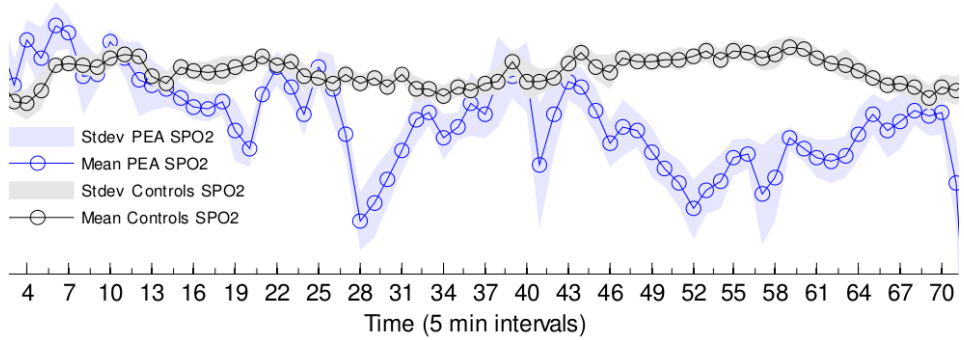
Perfusion Indexx - Mean value per 5 minutes



O2 - Mean value per hour



O2 - Meanvalue per 5 minutes



Sensors

Target Population

Surveillance Plus

Email ataenzer@childrensnational.org

https://github.com/aki-repo/Talks

@ataenzer