



An algorithm to help reduce alarm fatigue

Smart Alarm for Respiratory Analysis™ (SARA) Algorithm

You want to remain vigilant about your patient's safety. But almost every patient-connected device uses alarms. And alarms that aren't clinically significant may cause fatigue. Reducing nonactionable alarms may help preserve your alarm vigilance — and lead to improved patient safety.^{1,2}

That's why we developed the Smart Alarm for Respiratory Analysis™ (SARA) algorithm. The SARA™ algorithm is part of the family of Smart Capnography™ algorithms, designed to facilitate the use of CO₂ monitoring on Microstream™ capnography monitors and to help improve patient safety and clinical workflow.^{3,4}

The SARA™ algorithm is engineered to help clinicians enhance patient safety and improve workflow by reducing nuisance alarms. It is designed to respond accurately to clinically significant events.

The SARA™ algorithm is only available on capnography monitors with Microstream™ technology.

Alarm fatigue is a patient safety concern

Between 85 and 99 percent of alarms don't require intervention.³

But every day nurses experience thousands of alarms which may lead to alarm fatigue. The ECRI Institute identifies alarm fatigue as a top ten patient safety issue list for 2019.⁴

Some possible consequences of alarm fatigue include:

- A mortality rate of approximately 6.5 percent⁵
- Burnout for nurses is at a rate of 49 percent for those under 30 and at 40 percent for those over 30⁶
- Staff turnover consumed more than a five percent loss to one major medical center's annual budget⁷
- It can cost \$36,567 to recruit and replace just one nurse⁸

The Microstream™ capnography monitoring system should not be used as the sole basis for diagnosis or therapy and is intended only as an adjunct in patient assessment.

1. Weinger MB. Dangers of postoperative opioids. *APSF Newsletter*. Winter 2007. 2. Overdyke FJ. Continuous oximetry/capnometry monitoring reveals frequent desaturation and bradypnea during patient-controlled analgesia. *Anesth Analg*. 2007;105(2). 3. The Joint Commission. Medical device alarm safety in hospitals. *Sentinel Event Alert*. 2013;50:1-3. 4. Health Devices. 2019 Top Health Technology Hazards. ECRI website. <http://www.ecri.org>. 2019. 5. Patient Safety in Healthcare, Forecast to 2022. Frost & Sullivan; 2018. 6. Holdren P, Paul DP, Coustasse, A. Burnout syndrome in hospital nurses. Paper presented at: BHAA International 2015 in Chicago, IL. March 2015. 7. Waldman JD, Kelly F, Arora S, Smith HL. The shocking cost of turnover in health care. *Health Care Manage Rev*. 2004;29(1):2-7. 8. Lewin Group. Evaluation of the Robert Wood Johnson Foundation Wisdom at Work Initiative: Assessing the Direct Costs of RN Turnover. RWJF Website. <http://www.rwjf.org>. Published January 1, 2009.