Virtually every patient-connected device uses audible alarms to notify caregivers of a change in patient condition or in device status. However, numerous alarms that are not clinically significant are a distraction to busy caregivers. Reducing distractions from clinically insignificant alarms helps preserve caregiver alarm vigilance, leading to improved patient safety.\textsuperscript{1,2}

Smart Capnography™ is a family of algorithms designed to simplify the use of CO\textsubscript{2} monitoring on Microstream\textsuperscript{®}-enabled patient monitors to improve patient safety and clinical workflow.\textsuperscript{3,4}

Smart Alarm for Respiratory Analysis (SARA)\textsuperscript{5} utilizes Smart Capnography alarm management technology to recognize and reduce clinically insignificant respiratory alarms, while accurately reflecting the patient’s condition and preserving clinically significant alarm vigilance.

SARA can be found only in Microstream\textsuperscript{®} Capnography-equipped patient monitors.

\textbf{HOW DOES SARA HELP?}

\textbf{Improves patient safety}
- Provides a more accurate indication of patient ventilatory status changes
- Accurately responds to clinically significant events

\textbf{Improves patient compliance}
- Patient’s sleep may be interrupted less frequently because fewer alarms are generated during unstable respiratory patterns such as snoring and periods of pain

\textbf{Benefits clinicians}
- Reduces distractions and time spent responding to clinically insignificant alarms
- eCO\textsubscript{2} monitoring helps increase patient safety by alerting clinicians to changes in respiratory status
**Clinical Validation**

With SARA, respiration rate (RR) alarms were reduced by 53% overall, and short duration alarms, lasting less than 10 seconds, were reduced by an additional 19%. **No significant RR alarms were missed with SARA.** See Figure 1 for the comparison of reduction of RR alarms and alarm duration.⁶

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**Figure 1:** Comparison of alarm events both with and without SARA. Fifty six monitoring periods at 2 hours with the low respiratory rate alarm set at 8 breaths per minute.

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**CLINICAL STUDIES COMPARING SARA WITH EXISTING ALARM ALGORITHMS HAVE SHOWN²⁻⁶:**

- SARA creates fewer alarms overall
- SARA creates alarms for all significant events recognized by the existing algorithm
- SARA provides a clearer indication of patient ventilatory status changes

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⁶ Colman J, Cohen J, Lain D. Smart Alarm Respiratory Analysis (SARA) used in capnography to reduce alarms during spontaneous breathing. Supplement to ANESTH ANALG, April 2008, Volume 106, No. 4S, Abstract S-10.