Other technologies that measure respiratory rate are not able to discern obstructed breaths. Oxygen saturation is difficult. Previously, no technology provided continuous, real-time, non-invasive measurements of respiratory patient safety. Post-operative pain management continues to present significant challenges, particularly in patients

Improved respiratory assessment could prevent complications associated with opioid pain management and improve patient safety. Post-operative pain management continues to present significant challenges, particularly in patients

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In 25 ambulatory volunteers (average age 34 years, average BMI 24.8 kg/m²) were collected simultaneously during seventy-five 30-second breathing tests from 25 ambulatory volunteers (average age 34 years, average BMI 24.8 kg/m²) during normal and obstructed breathing (3–5 attempts breaths in 15 seconds). Figure 1 shows the positioning of the RVM Electrode PadSets. Subjects were instructed to practice this closed glottis breathing while being monitored by spirometry (showing minimal air exchange during obstructed breathing). Subjects were coached until this breathing pattern was learned or they were excluded from the study. With the recommended electrode placement and calibration algorithms, the RVM and spirometric measures of MV were highly accurate during normal breathing (accuracy (RMS error) of 8.2 ± 0.8%)

In 25 ambulatory volunteers (average age 54 years, average BMI 24.8 kg/m²), after initial calibration with the Morgan spirometer, RVM derived TV readings were highly accurate during normal breathing (accuracy (RMS error) of 8.2 ± 0.8% for TV and 3.4 ± 0.2% for flow; mean ± SEM) and strongly correlated with spirometry data (r=0.99, Figure 2, Panel B). Correlation plots of simultaneous RVM measurements (red trace) for normal (blue trace) and obstructed breathing (r=0.99 and r=0.97, Figure 2, Panel A). During obstructed breathing (no airflow shown on spirometer) RVM TV readings decreased from "normal" values of 1300 ml/min, down from the first 15 seconds of the test to 1050.20 ml during simulated obstructed breathing (approaching anatomic dead space), 70.0 ml/min. During obstructed breathing (no airflow shown on spirometer) RVM TV readings decreased from "normal" values of 1300 ml/min, down from the first 15 seconds of the test to 1050.20 ml during simulated obstructed breathing (approaching anatomic dead space), 70.0 ml/min. In normal (blue trace) and obstructed breathing (Panel A). During obstructed breathing (no airflow shown on spirometer) RVM TV readings decreased from "normal" values of 1300 ml/min, down from the first 15 seconds of the test to 1050.20 ml during simulated obstructed breathing (approaching anatomic dead space), 70.0 ml/min. Normal breathing is shown in Figure 1, Panel A. During obstructed breathing (no airflow shown on spirometer) RVM TV readings decreased from "normal" values of 1300 ml/min, down from the first 15 seconds of the test to 1050.20 ml during simulated obstructed breathing (approaching anatomic dead space), 70.0 ml/min.

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