



Site: Evaluations were conducted at Providence Healthcare’s Pulmonary Rehabilitation Center under the oversight of Michael Harvey, CRT, RCP. Test subject was a female severe Asthma patient.

Scope: To determine the effectiveness of the patient’s prescribed oxygen conserver, Invacare’s Precision Medical “Homefill” unit and the SmartDose Oxygen Dosing Device. The patient performed like activities under controlled conditions. Performance variables measured include: Oxygen saturation (SaO₂), Breath Rate (BPM), Inhale-to-Exhale Ratio (IE), Heart Rate (HR), and the delivered O₂ Volume to the patient (ml). The performance variables were collected and displayed “real time” via Inspired Technologies’ Clinical Oxygen Dose Recorder (CODR). The duration of exercise and the Patient’s physical state were recorded.

The Precision Medical doser was set on “3” and delivered a bolus ranging from 40 at rest to 20 ml during exercise. The SmartDose doser was set on “2” and delivered a base bolus of 32 ml at rest and auto-adjusted up to 70 ml during exertion.

Results: The patient walked 720 feet with the Precision Medical conserver and 900 feet with the SmartDose doser. The saturation levels were, on average, **9 percent higher** with the SmartDose doser than the Precision Medical.

One point to note was that the patient spent a significant amount of time talking during the SmartDose exercise period and was quiet for the Precision Medical exercise period. The talking resulted in higher than normal recorded breath rates. Typically, when talking, more mouth breathing occurs which detracts O₂ delivery from the cannula. Despite the talking, the SmartDose doser achieved superior saturation results.

Conclusions: Patient required more oxygen at exercise and less at rest. Current device does the opposite (high at rest and lower at exercise). To stay saturated, the current device is set for exercise and then gives more than required at rest, decreasing ambulation time. The SmartDose device, by matching O₂ delivered with patient need, will result in higher overall patient saturations, and additional conservation will result, especially during inactive periods.

Recommendation: A follow-up with the patient on SmartDose at a lower base setting of “1”. The patient would receive a 16 ml bolus at rest and would auto-adjust, based on exertion, up to either a 32 or 48 ml pulsed bolus. The goal of this second study is better conservation of the oxygen.

The recorded data is shown in figures 1 and 2. Figure 1 represents the first exercise period on the Precision Medical Homefill conserver. Figure 2 is Inspired Technologies’ SmartDose doser.

Figure 1: Recorded Data from the Invacare Homefill unit's Precision Medical Conserver

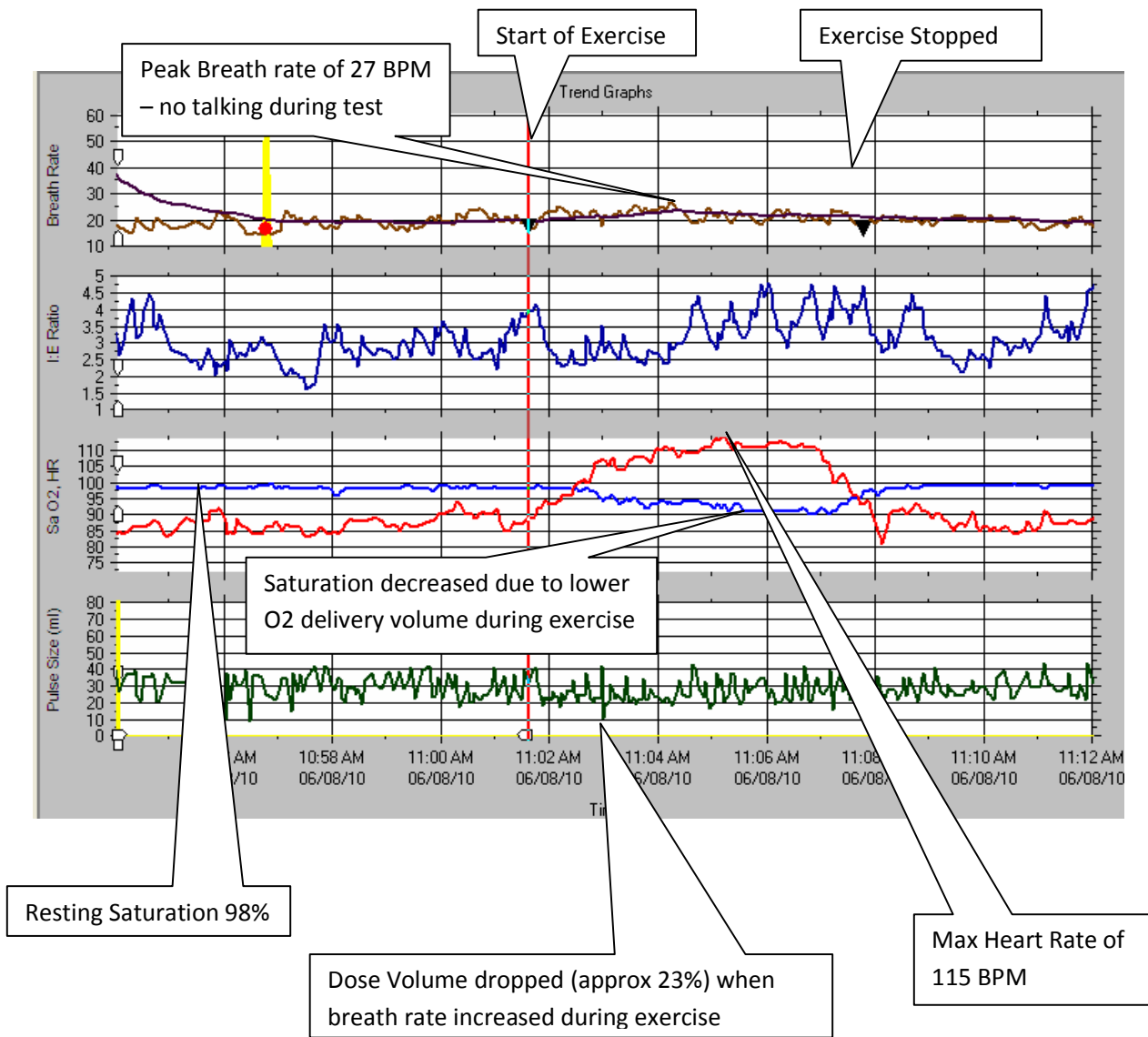




Figure 2: Recorded Data from the Inspired Technologies' SmartDose Oxygen Doser

