This study utilizes the ExSpiron Respiratory Variation Monitor's (RVM) continuous, accurate, real-time measurements of minute ventilation (MV), tidal volume (TV) and respiratory rate (RR) to assess the adequacy of ventilation during upper endoscopy and to determine if RR measurements alone are sufficient for accurate assessment of respiratory status. By examining the sufficiency of continuous RR measurement as an indicator of adequate ventilation in the endoscopy suites, we aim to determine if there is need for collection of MV data for a more comprehensive assessment of respiratory status. In order to achieve this, digital respiratory traces were collected from 51 patients undergoing upper endoscopy using an impedance-based RVM. Baseline MV ($MV_{BASELINE}$) for each patient was derived from a 30 second period of quiet breathing prior to sedation. RR values were compared to the MV measurements and sensitivity and specificity of RR as a predictor of inadequate ventilation (value defined as less than 40% of patient's baseline) were calculated. Analysis on all measurements reveals that although MV by definition is a function of RR (MV=TV*RR), there is a weak correlation between an MV measurement and its corresponding RR measurement. Simulating a variety of RR alarm conditions showed that a substantial fraction of low MV measurements remain undetected. With a RR cutoff of 8 breaths per minute (bpm), >70% of all MV measurements <40% of $MV_{BASELINE}$ would be missed. Decreasing the RR cutoff to 4 bpm misses nearly 90% of MV measurements <40% $MV_{BASELINE}$. A patient alarm based on RR alone (6 bpm) would miss > 82% of all instances of low MV, while < 40% of all RR alarms would coincide with a low MV. Hence, low RR measurements alone do not reflect episodes of low MV and are not sufficient for accurate assessment of respiratory status.