

## Lung Compliance Changes = Oxylator BPM “Rate” Changes

Before the Oxylator Technology, the ‘feel’ of the ‘bag’ offered a way for caregivers to determine lung compliance changes, however, this *subjective ‘feel’* of the bag varies widely with levels of experience. These varying experience levels of the ‘feel’ of the bag are, as well, affected by the use of different manufacturers’ bags, how often one has bagged patients, slick bag surfaces due to fluid contamination, a stiffer bag caused by low environment temperatures, etc., etc. With the BVM, it is understandably difficult to teach and achieve a common or ‘across-the-board’ level of understanding of changes in lung compliance. We feel that, at the very least, the wide-spread use of the Oxylator EM-100 / EMX will increase the ‘overall’ level of understanding of patient lung compliance changes in the pre-hospital emergency environment; thus replacing the *subjective ‘feel’* with the more easily taught and learned *objective ‘I’* (inhalation) time change.

Once the caregiver has adjusted the Oxylator EM-100 (it delivers a consistent 600 cc/sec.) or the Oxylator EMX (it delivers a consistent 500 cc/sec.) to attain the 1.5 to 2 second inhalation time (‘I’ time) for the patient, the user will provide a consistent ventilation (EM-100 = ~900 to 1,200 cc/ml, EMX = ~750 cc to 1,000 cc/ml each breath for the patient. When the caregiver notices a BPM rate change or a shortening or lengthening of the ‘I’ time (inhalation time), he or she should be alert for the following possible causes of this compliance change. The Oxylator Technology simply tells the caregiver more about their patient.

### Shortening of the ‘I’ time:

- Positional change of the patient that offers an increased cm/H<sub>2</sub>O resistance to adequate lung ventilation
- An ‘overall’ stiffer lung....possible increased fluid levels in the lung or a partial obstruction or occlusion
- A possible ‘collapsed’ lung
- Positioning of ET tube into right main stem bronchi
- Etc.

### Lengthening of the ‘I’ time or no cycle:

- Positional change of the patient that offers less cm/H<sub>2</sub>O resistance to adequate lung ventilation
- Has the ‘cuff’ possibly deflated? Has the ET tube become dislodged? Are you filling the stomach with air? Check the cuff’s inflation, and then observe how much length of tube protrudes from the mouth of the patient. If the cuff is adequately inflated, and there seems to be no abnormal tube length protruding from the patient’s mouth, and there still is an extended lengthening of the ‘I’ time, then consider the following:
- Possible disconnect or some other leak within the airway system?
- Is O<sub>2</sub> tank capacity below 50 PSI? This would slower flows & stretch ‘I’ times
- Possible pneumothorax?
- There is a possibility that the particular drug administered to improve the patient’s lung compliance is now taking effect.
- Etc.