Educational Objectives

At the conclusion of this workshop, the participant will understand:

- The physiologic considerations unique to ventilating the pediatric patient in the operating room
- The limitations of traditional anesthesia ventilators when used to ventilate pediatric patients
- The features of newer anesthesia ventilators which improve their performance for ventilating pediatric patients
- The indications for, and limitations of, different modes of ventilation including volume controlled ventilation, pressure controlled ventilation and pressure support ventilation.

Workshop Plan

This workshop will combine a limited amount of lecture type material with hands on demonstration of the features of various ventilators that can be used to ventilate patients in the operating room. The demonstration will utilize a test lung to be able to simulate different ventilation scenarios and to compare the functionality of the various anesthesia ventilators. This is not intended to be a product comparison workshop where the capabilities of different products are assessed. The goal is to clearly demonstrate how the features of the new ventilators function and to contrast the new ventilators with both traditional anesthesia ventilator technology as well as intensive care ventilator technology.

Part 1: Physiology of ventilation (15 minutes): This content will be delivered in a lecture type format with the goal of educating the audience about the unique aspects of ventilating a pediatric patient in the operating room. The presentation will be brief and targeted at reviewing those aspects of ventilation that present unique challenges when caring for the pediatric patient in the operating room.

Part 2: Review of anesthesia ventilators and delivery systems (45 minutes). The primary goal of this portion of the workshop is to demonstrate the functional distinctions between different types of anesthesia ventilators. Both the traditional and modern anesthesia ventilators will be demonstrated. A typical intensive care unit ventilator will also be demonstrated to emphasize both the similarities and the differences between an ICU ventilator and a modern anesthesia ventilator. This portion of the workshop will utilize a
lung simulator to simulate ventilation scenarios with each ventilator, and a respiratory mechanics module to document the performance of the ventilators. An interactive session is planned whereby the audience can suggest clinically relevant alterations in ventilation and observe the effect on ventilation.

Part 3: Modes of Ventilation (30 minutes): This session will be a tutorial on three modes of ventilation – volume controlled, pressure controlled and pressure support ventilation. Each mode will be demonstrated with attention to the pressure and flow waveforms that result. The features, limitations and clinical indications for each mode will be described and compared. The impact of changing different ventilation parameters for each mode will also be demonstrated.

Part 4: Clinical vignettes and discussion (30 minutes): A series of cases will be presented to stimulate discussion about different modes of ventilation. To the extent possible, the ventilation scenarios will be simulated as part of the discussion.