

**Slide1:**

In this webinar we shall learn about oxygen Analyzer:

Oxygen is the most commonly used drug in the NICU. Inappropriate oxygen therapy affects the outcomes of neonates. Too little oxygen (Hypoxia) results in higher mortality and neuro-developmental sequelae. Too much oxygen results in ROP and BPD. Hence oxygen analyzer or FIO<sub>2</sub> monitor is desirable which helps in analyzing oxygen concentration delivered to the babies.

**Slide 2: Equipment:**

Flo<sub>2</sub> analyzer measures the concentration of oxygen in the inspired air. It has galvanic cell and a sensor. Galvanic sensor is an electrochemical sensor which is a small partially sealed cylindrical device that contains two dissimilar electrodes immersed in aqueous electrolyte KOH.

**Slide 3: Principle**

As oxygen diffuses through semi-permeable membrane installed on one side of sensor, the oxygen molecule at cathode gets reduced to form positively charged hydroxyl ion. This hydroxyl ion migrates to the sensor anode where an oxidation reaction takes place. Oxidation –Reduction reaction generates electric current proportional to oxygen concentration in the sample gas. The current generated is measured and conditioned with external electronics and displayed on digital meter in percentage.

**Slide 4: Calibration**

For calibration, one should switch on the oxygen analyser and the sensor should be exposed to the atmosphere. Ideally the displayed value should be 21% representing the concentration of oxygen in the atmospheric air. If it does not show 21% then the control knob is rotated so that it reads 21%.

The instrument has an accuracy of  $\pm 2\%$ .

**Slide 5: How to use Oxygen analyser?**

After calibration, place the sensor in oxygen hood away from the oxygen inflow end of the tubing whose concentration is to be measured. Wait for 5-20 seconds as this is the usual time between placement and detection of the reading. This time is called as Response time. Then read the displayed value, which is the concentration of oxygen.

**Slide 6: Precautions while handling the Oxygen analyser**

Do not pull or bend the sensor as this is the most important and extremely fragile component of the equipment. One should always calibrate the equipment before each measurement. Do not leave oxygen monitor stored with power switch on. Sensor fluid will freeze at low temperature and ignite at high temperature hence avoid high or low ambient temperature where the oxygen analyser is kept.

**Slide 8: Thank you**

