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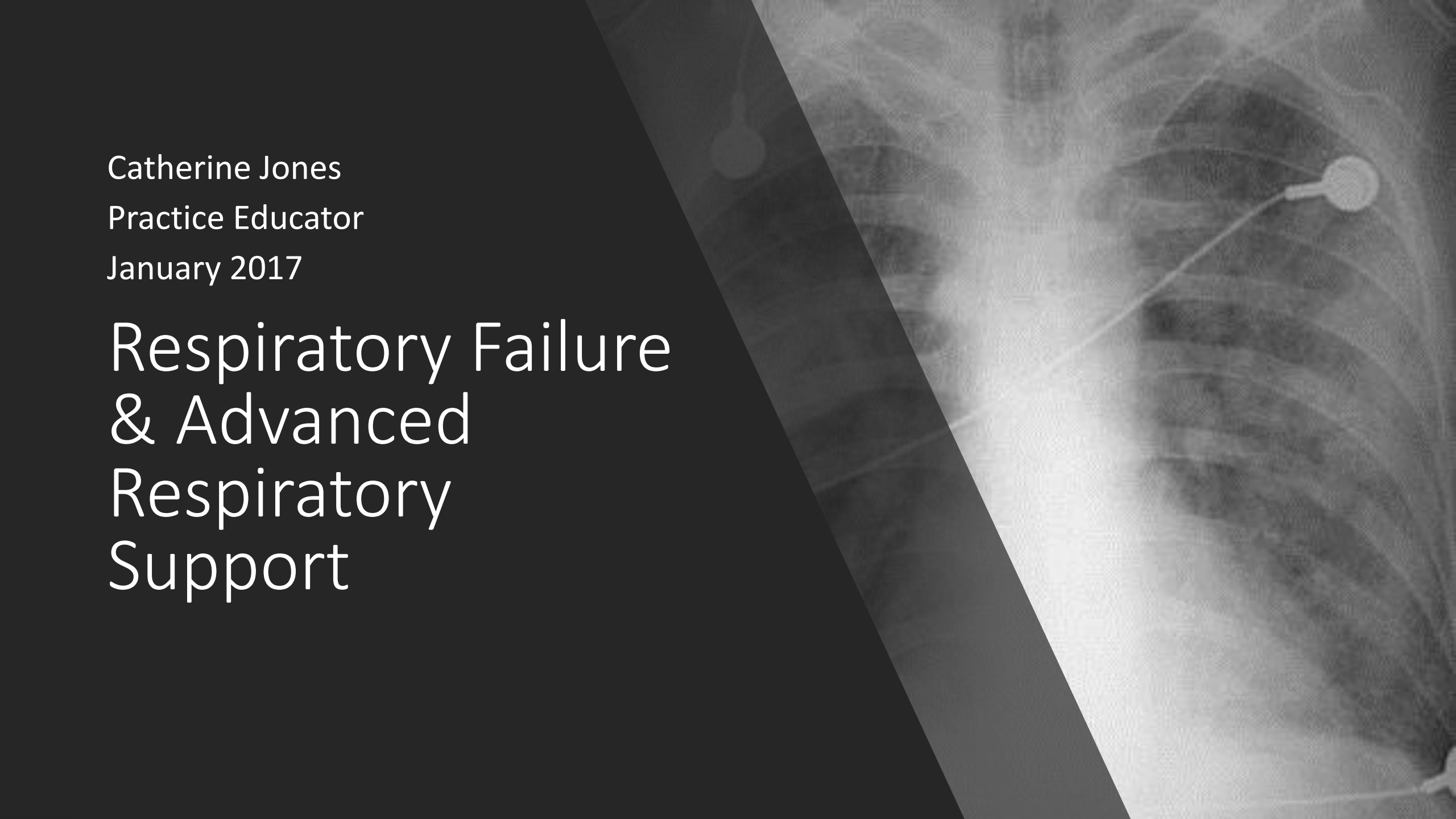
Respiratory Failure & Advanced Respiratory Support



Oxygen Therapy

Oxygen Therapy

- BTS Guidelines 2008
- Use for hypoxamia only
- Record SpO2
  - Target 94-98% for acutely ill
  - Target of 88-92% for hypercapnic respiratory failure (e.g. COPDs, morbid obese, chest wall deformities, neuromuscular deformities)
  - Target 92-96% for COVID
- Record delivery system, flow rate, % & sign on med chart

Delivery Devices

Non-Invasive Ventilation

High Flow Nasal Cannula

- Delivers ***heated & humidified high flow oxygen*** (up to 60L/min) via nasal cannula.
- Provides low level of CPAP that helps to keep the lungs open

CPAP:

- Continuous Positive Airway Pressure
- Blows a stream of gas into lungs to maintain a positive pressure during both inspiration & expiration.
- Helps to hold the lungs open & stop from collapsing

BiPAP:

- Blows a stream of gas into lungs to maintain a positive pressure during expiration and additional pressure during inspiration
- Flow of gas delivered to patient's airway until predetermined inspiratory pressure is reached.
- Supports breath delivered to patients reducing work of breathing

Ensuring Patient Comfort

- Ensure good fitting mask
- Adequate humidification
- Reduce skin irritation
- Prevent nasal bridge pressure sores
- Reduce leaks near eyes
- Regular change of position
- Communication issues
- Avoiding sleep deprivation
- Nutritional supplements

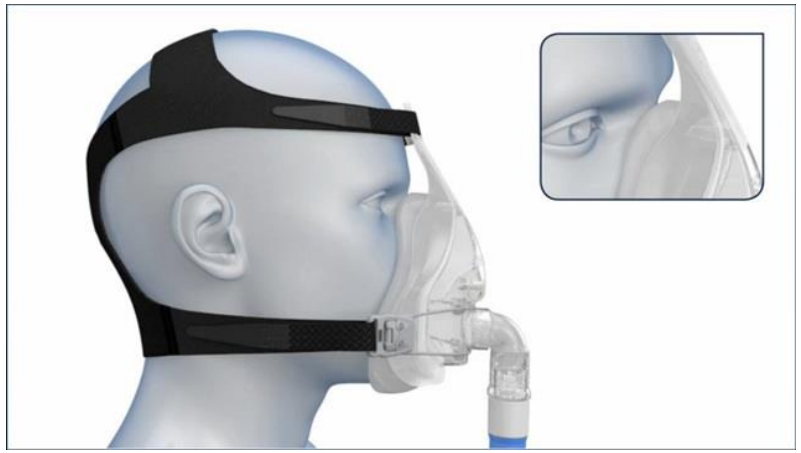
Monitoring?

- Mask or circuit leaks
- Alarm settings
- Comfort
- Synchrony
- Leakage
- GCS/AVPU
- RR, SpO2 & Work of Breathing
- BP, Heart Rate & Rhythm
- Blood gas analysis
- Tidal volume, Minute Volume & pressures

Bi-level ventilators

(can deliver BiPAP & CPAP)

NIV INTERFACES



Mechanical Ventilation

Modern Ventilators

Full Ventilation

Modern ventilators can support the patient via various sophisticated modes, from full ventilation to extubation

Weaning

Invasive Ventilation

- Via ET tube or Tracheostomy tube
- Short term or long term
- Indications
  - ***T1 & T2RF – unable to maintain gas exchange, Respiratory +/- cardiac arrest, Reduced GCS, airway compromise,***
- Contraindications
  - ***Futility***
- May require sedation
- Safety…equipment, checks, care bundle, documentation, patient assessment

Questions ?

Iron Lung Ward 1950's

References

- British Thoracic Society Standards of Care Committee (2002) Non-invasive ventilation in acure respiratory failure. *Thorax;* **57:** 192 – 211.
- O'Driscoll et al (2008) Guideline for emergency oxygen use in adult patients. *Thorax;* **63:** Supp VI.
- Coombs et al (2013) Assessment, monitoring & interventions for the respiratory system. In Mallett, Albarron & Richardson Eds: Critical Care Manual of Clinical Procedures & Competencies. (Wiley & Sons, West Sussex)
- Intensive Care Foundation (2015) Handbook of Mechanical Ventilation – A Users Guide (Intensive Care Society, London) file:///C:/Users/User/Downloads/Ventilation%20handbook%20(1).pdf (downloaded August 2016)