Oxygen & Inhalation Therapy/Trachs/Code Blues

Central Nursing Orientation
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Oxygen Therapy

- Review Basic Delivery Devices
- Limitations and Indications for each
- LHSC P&P
Nasal Prongs

- Limitations
- Indications
Venti-Mask

- Limitations
- Indications
High Flow Oxygen Devices

Flow

Time

Peak Flow
Spont breathing
High Humidity

- Limitations
- Indications
Other Masks with HH
High FiO2

- Limitations
- Indications
- Concerns
High Flow H-H

- Limitations
- Indications
Assessing Oxygenation

- Patient Assessment (hypoxemia)
- Blood Gas Analysis
- Pulse Oximetry
PaO₂ vs. SpO₂

**PaO₂**
- Obtained from a blood sample
- Measured Partial Pressure of Oxygen in PLASMA
- Does not care about hemoglobin

**SpO₂**
- Non-Invasive measurement
- Measures the amount of oxygen attached to hemoglobin
- Only cares about % of functional hemoglobin
PaO2

Pros

- Accurate (if blood sample is good)

Cons

- Blood needs to be drawn, therefore increased risk to patient
- CAP vs ART sample is less accurate when PaO2 >60 mmHg
- Amount of oxygen reaching cells in mostly dependant upon hemoglobin (97%)
SpO2

Pros

- Non-invasive
- Shows % of oxygen saturation therefore more closely tracks oxygen delivery (vs PaO2)

Cons

- Requires good cardiac output (pulse wave signal), light, motion and even nail polish may make results questionable
- Does not know Hemoglobin level, just reports % that have O2 attached
Key landmarks on the oxyhemoglobin dissociation curve.
A, In the normal oxyhemoglobin curve, hemoglobin is 50% saturated at a PO₂ of approximately 26 mm Hg. The PO₂ necessary to obtain 50% saturation is called the P₅₀.
B, The normal PO₂ of mixed venous blood is 40 mm Hg. Therefore, the normal saturation of mixed venous blood is 75%.
C, A critical point to remember in clinical practice is that at a PO₂ of 60 mm Hg, saturation is still 90%. Saturation falls quickly when PO₂ falls below 60 mm Hg.
Highlights from Breathing Easier

1. Oxygen is a drug, must have a clearly defined goal and must not be set up without the order of a physician.

2. RRT to be notified with all O2 setups. (Including those from the OR or ER.) RRT will see the patient within 6-8 hours. A text page is OK to notify RT if page is not urgent.

3. If > 50% is required, set up non-rebreather mask and notify RRT to come immediately.
Highlights from Breathing Easier

4. RRT must be consulted if aerosol humidity is required.

5. If patient is on Hi-Flow, place patient on non-rebreather for transport. (set at 15 lpm). Check cylinder contents prior to all transports.

6. RRT will see all patients on >50% daily, at minimum
7. RN will titrate O2 to room air on those patients deemed non-acute. RRT will clearly identify these patients via verbal and written communication. (Patients on home O2 are titrated to home level unless otherwise indicated) Turn flowmeter off if O2 is not being used.
8. Some patients (complex surgical patients) may have orders not to titrate O2 for 48-72 hours.

9. RRT will continue to see trach patients on a regular basis (ENT Excluded).
Highlights from Breathing Easier

10. RRT is always available for consult.

11. O2 should be discontinued if no longer needed.

12. RT to be consulted for Medical Air
Highlights

Breathing Easier package can be found online at:

www.lhsc.on.ca/priv/p_monitr/educate.htm
www.lhsc.on.ca/priv/forms/e_forms.htm
# NS5650
A Very Basic Introductions to Trachs

- Indications
- Locations
- Properties
- Speaking Valves
- LHSC P&P
Indications

- Obstruction
- Tracheal Toilet (suctioning)
- Long Term Ventilation
- Prevent gross aspiration
Location

- 2nd or 3rd tracheal ring interspaces
- Open Surgical vs Bedside (percutaneous)
Parts of a Trach Tube

- **Connector**
  - Standard for bagging
- **Flange**
- **Shaft**
  - Fenestrated vs Non
  - Inner Cannula vs Non
- **Cuff**
  - Different materials
  - Pilot line
- **Obturator**
  - For reinsertion
  - Kept at bedside along with spare trach
Trach Tube Classification

- Trade Names
  - Shiley
  - Bivona
  - Portex

- Material Used
  - Metal vs plastic vs silicone
  - Disposable vs Non-Disposable
Trach Tube Classification

- Cuffed vs Uncuffed
  - Silicone
  - Foam
  - Traditional
Trach Tube Classification

- Properties
  - Cuffed vs Uncuffed
  - Fenestrated
  - Adjustable Flange
  - Armored
  - Cannulated vs non
Speaking Valves

- Purpose/Indications
- Concerns/Dangers
- LHSC P&P
Securing Trach Tubes

- Ties usually all that is needed
- No need for dressing (if bedside trach)
Inhalation Therapy

- Medications
- Method of Delivery
- LHSC P&P
METERED DOSE INHALER DEVICE

“Spacer device with a mouth piece”

1. remove cap
2. shake
3. attach puffer to spacer
4. exhale
5. seal lips on mouth piece
6. press puffer once
7. inhale slowly and deeply
8. hold breath for 10 seconds
9. repeat as many times as prescribed. Wait 30-60 seconds between inhalations.
“Open Mouth Technique”

1. remove Cap
2. shake
3. exhale
4. hold puffer 2 fingers from mouth
5. start to inhale and press puffer once
6. continue the slow deep breath
7. hold breath for 10 seconds
8. exhale and repeat as many times as prescribed
Wet Aerosol Therapy

- Common Medications
- Indications
- Concerns
LHSC Policy

- RT to be contacted for all inhalation therapy
- RT will assess
- RT will follow;
  - Acute
  - Non-bronchodilators
  - Concerns with technique
- All others RN will be notified who will be notified
LHSC Medical Emergency Response System

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Topics

- Priorities for an (adult) Cardiac Arrest at LHSC (ABCDs)
- Response Team (composition and roles)
- Cardiac Arrest Cart (Contents)
Priority # 1

ABCs

- Recognize Situation
- ABCs
- CPR (prn)
- If alone and no one near call 55555 then CPR
Good Quality Compressions

- Rate - 100/minute
- Depth - one third to one half circumference of chest
- Ratio compressions to ventilations 30:2
- Reassess every 2 minutes (time to switch compressors)
Remember

- Personal Protective Equipment
  - Surgical Mask with shield and gloves if bagging
  - N95 masks, gowns and full face shields also available on cart
Priority # 2
Call 55555

1. Emergency (Code Blue or Pre-Arrest)
   i. Adult vs Paed
2. Hospital (e.g. University Hospital)
3. Zone (A as in Alpha)
4. Floor
5. Room Number
6. Department
Priority # 3
Get Arrest Cart/Defibrillator

- Get the Cardiac Arrest Cart
- Clear room/Area
Priority # 4

Prepare for defibrillation

- **Attach Leads**
  - “RA” right upper chest, “LA” left upper chest, “LL” left leg (left lower chest under rib cage)
  - or white = right side, red= ribs, black = smoke over fire = left side

- **Turn the defibrillation unit on by turning the knob to the red “Defib” zone.**

- **Apply the gel defibrillation pads to the patient’s chest**
Remember Quality Compressions

- Ensure backboard under patient (found on back of arrest cart)
- Rate - 100/minute
- Depth - one third to one half circumference of chest
- Ratio compressions to ventilations 30:2
- Reassess every 2 minutes (time to switch compressors)
Defibrillator

Top, Left, Front

- The most common ECG rhythms found in adults suffering sudden cardiac arrest are:
  - Ventricular Fibrillation
  - Ventricular Tachycardia
- Treatment for those rhythms is Defibrillation
- Successful defibrillation decreases with time (7%-10%/minute)
LHSC Cardiac Arrest Response Team (adult)

- CCU Resident = Team Leader
- ICU/CCTC Resident = Airway
- Senior Medical Resident = Lines
- Respiratory Therapists = Airway, assist
- CCU RN = Peripheral I.V.s, Meds, assists
- Pastoral Care
- Staff RNs from Floor = Documentation, assist
LHSC Cardiac Arrest/Pre-arrest Response Team (paediatric)

- PCCU Resident
- Paeds CTU Resident
- PCCU RN
- Paeds ER RN
- Paeds RRT
Cardiac Arrest Cart
Top to Bottom, Left to Right, Front to Back
Defibrillator
Top, Left, Front

- Always turn on to “Defib”
  - Defaults to lead II and 200J
- Paddles release from monitor with thumb switch
Airway Drawers

- Intubation Equipment
- Resuscitation Bags
  - Adult (right)
  - Paed (left)
Needle Drawer

- Left to right, front to back
- I.V. catheters
  - 26 to 18 gauge
  - Cleansing solution
  - Tourniquets
  - Gauze
- Needles, Syringes
- IO Needles
- Blood Gas Kits
Solution Drawer

- front to back, left to right
- Normal Saline 1L, 500mL, 250mL
- Solution Sets
  - Continu-Flo
- Amio/phenyl kit
- Anaesthesia Set
Drug Box

- Left to right, front to back
- To be removed from drawer
Central Lines/Misc

- Central access
  - (percutaneous lines)
  - Sterile gloves
  - Saline flush
  - Transparent dressings

- Anaphylaxis Kit

- Broslow Tapes

- External defib/pacer pads

- BP Cuff
Post Resuscitation Care

- Premixed Dopamine on IV pole
Documentation

- Found on top of cart
- Document every event
  - Left to right
  - Use tabs on left side for specific assessment or interventions, (i.e. Vitals, rhythm, medications)
Documentation con’t

- Blank rows for less used medications
- Blood work code at bottom
- Record names of people present
- Signatures of Team Leader and Recorder
Feedback

- Please complete for EVERY cardiac arrest or pre-arrest
- Used for QA, follow up from events
CPR
Code Blue Priorities

Compressions

Phone 55555

Ready to defibrillate

Resuscitation CQI Committee Poster April 2008