Hyperbaric Chamber Emergency Procedures

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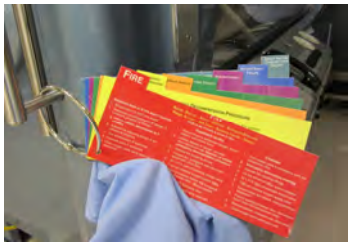
HBO
EMERGENCY PROCEDURES

1

Emergency Procedure Cards
posted at each chamber



Safety Drills Conducted & Documented Monthly

2

EMERGENCY DECOMPRESSION PROCEDURE

Any situation where rapid patient access is crucial

Examples:
*CARDIAC ARREST
*EXSANGUINATION (bleeding out IV line)
*VENTILATOR DISCONNECT

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EMERGENCY DECOMPRESSION PROCEDURE

1. Set the chamber pressure to zero
2. Inform patient to NOT hold breath
3. Turn master valve to EMERGENCY VENT
4. **Press EMERGENCY VENT 3 secs on/ 3 secs off, repeat until you reach 1 ATA**
5. Open door and remove patient when pressure indicator shows black
6. **Consider STAT chest X-ray if pulmonary barotrauma is suspected**

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EMERGENCY VENT SETTING

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FIRE SAFETY

Rescue
Alarm
Confine
Extinguish/Evacuate

Pull pin
Aim hose
Squeeze handle
Sweep

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FIRE SAFETY (continued)

Actions to take during the event of a fire should be determined by:
- –the size and proximity of the fire
- –the patient census/acuity,
- – the current staff capability


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FIRE SAFETY (continued)

Fire in the Adjacent Area or if fire alarm system alarms:

- ✔Ensure doors to HBO unit are closed
- ✔Determine proximity or degree of danger;
- **If imminent**, proceed as follows:
  1. Inform patient; "I'm taking you out, breath normally. I will not leave you"
  2. Decompress at 5psi/min
  3. Activate fire signaling device, if not already in progress

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FIRE SAFETY (continued)

4. Don the smoke hood, if warranted
5. Evacuate area, if warranted
6. Close the oxygen zone valve upon exit, if warranted


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FIRE SAFETY (continued) In the HBO Facility

1. **Rescue** those in immediate danger. Alert patient in chamber of plan to abort tx; "I'm bringing you out, breathe normally, I will not leave you"
2. Assess degree of danger. Don smoke hood, if needed. Decompress at 5psi/min or initiate emergency decompression procedure if indicated
3. At 1ATA, turn off chamber, open door & rescue patient. Close O2 valve at chambers
4. **Activate** fire signaling device
5. **Contain** fire by extinguisher or by closing the door and evacuating the unit
6. Close oxygen zone valve upon **exit**



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FIRE SAFETY

Fire in the Chamber (Extreme Danger)

1. Turn master valve to emergency vent; set pressure to zero
2. Push and Hold or Flip Automatic Switch to Emergently decompress chamber
3. Activate fire signaling device. Avoid standing at ends of chamber
4. Don smoke hood, have fire extinguisher ready, open chamber door, remove patient
5. Shut off oxygen at chamber
6. Shut dept doors and turn off zone valve upon exiting
7. Seek proper medical care for patient once in a safe area





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MECHANICAL PROBLEMS

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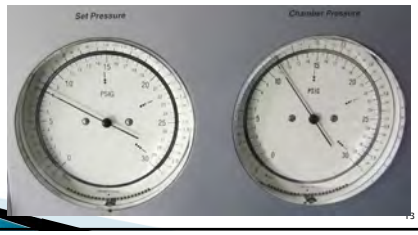
Scenario

- You are treating a patient at 2 ATA (14.7psig).
- During a safety check you notice that now the SET PRESSURE gauge is reading 8psig and the CHAMBER PRESSURE gauge is reading 11psig and each are steadily dropping.
- *Can you explain what has happened and explain how you would respond next?*



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OXYGEN SUPPLY FAILURE

Hospital sensors detect loss of oxygen pressure, facility alarm is activated

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OXYGEN SUPPLY FAILURE (continued)

-Without causing undue concern, inform patient that the chamber is decompressing. Caution the patient NOT to hold their breath.

-Depending on location of leak, the chamber may decompress at a rate of 3-5psi/minute

-Turn SET PRESSURE gauge to zero

-At 1 ATA , turn off MASTER VALVE and remove patient from chamber

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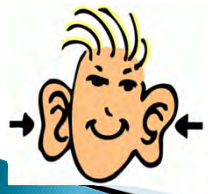
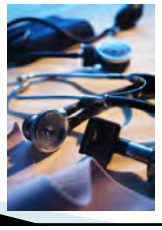
OXYGEN SUPPLY FAILURE (continued)

-Assess patient for possible barotrauma; inform physican

-Report failure to safety director and facility engineering





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DOOR SAFETY PIN JAMMED

If the chamber door will not open with the chamber pressure gauge showing zero, the pressure safety lock pin may be jammed in the extended position.

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RELEASE CHAMBER SAFETY LOCK PIN

1. Insert a blunt instrument into the hole.
2. Push safety lock pin into the retracted position.
3. Note incident in the chamber maintenance log and inform safety director.

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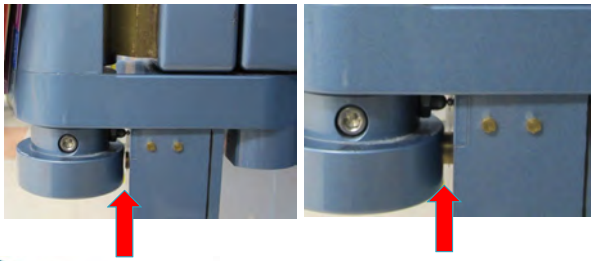
Chamber Safety Pin Engaged
Pressurizing for Treatment



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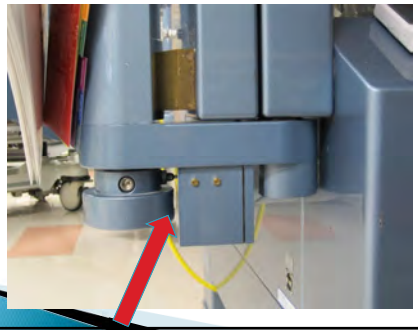
Chamber Safety Pin
Disengaged When Not Pressurized



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Blunt Instrument Entry

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COMMUNICATION FAILURE

1. Use cue cards to advise pt of communication failure.
2. Assess pt's level of comfort or anxiety.
3. Notify physician; determine whether to continue with treatment.

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Have A Back Up Plan!

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COMMUNICATION FAILURE
(continued)

4. If treatment is to be aborted, begin normal ascent while communicating with the pt via cue cards.
5. Note incident in the chamber maintenance log and inform Safety Director.

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Document Event into Chamber Log

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PATIENT RELATED EMERGENCIES



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SCENARIO #1

You are treating a 80y/o male with a history of diabetes and an acute necrotizing infection with fever of 101°F. The pretreatment glucose was 135. The EKG alarms; his heart rate has gone from 59bpm to 130bpm. He complains of anxiety and seeing flies inside the chamber with him.

1. *What do you suspect is happening?*
2. *What is your first action?*

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OXYGEN TOXICITY

Signs and Symptoms

***CON (convulsions)**
***V (visual/auditory hallucinations)**
***I (irritability)**
***N (nausea/vomiting)**
***T (tachycardia/twitching)**
***E (ear tinnitus)**
***D (dizziness/disoriented)**

OR ***VINTED C***

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OXYGEN TOXICITY (continued)

1. Immediately convert patient to air break; note time of complaint. Notify physician.
2. Within 1-2 minutes of pt breathing air, ask pt if symptoms have resolved, improved, remained the same or worsened.
3. If pt complaint has **resolved**, have pt complete entire 10 min air break. The physician decides whether to modify or abort therapy.
4. If pt complaint or signs and symptoms are **unresolved;** check with physician for plan to modify or abort treatment.
5. If decompression is planned, maintain patient on air break during ascent. Staff must maintain direct visual observation of patient throughout ascent.

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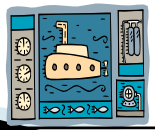
OXYGEN TOXICITY (continued)

IMPORTANT NOTE:

Whenever a patient is ACTIVELY Seizing…STOP!
DO NOT alter chamber pressure!!!



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SCENARIO #2

You are treating a 67y/o male patient with a foot wound. This is his 10th treatment and he has tolerated all previous treatments without any complications. At the end of this treatment, you start decompression from 14.7psi (2 ATA).

At 10psi the patient signals for your attention and then complains of shortness of breath and a sharp stabbing pain to his chest.

1. What do you suspect has happened?
2. How do you intervene to best help your patient?

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PNEUMOTHORAX

Signs and Symptoms

*sudden, stabbing chest pain
*uneven chest excursion during respiration
*deviated trachea (tension)
*acute ECG changes
*increasing respiratory distress, SOB
*distended neck veins (tension)

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PNEUMOTHORAX (continued)

1. Immediately halt further decompression; note time of complaint
2. Notify hyperbaric physician
3. Increase pressure slightly to help alleviate symptoms
4. Inform pt of suspected pneumothorax and its required management

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PNEUMOTHORAX (continued)

5. Prepare chest tube tray (possible needle aspiration)
6. Begin controlled decompression of patient as ordered by physician
7. At 1 ATA, turn off master valve, remove patient from chamber
8. Have supplemental oxygen mask available
9. Assist physician manage patient
10. Order STAT chest x-ray

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SCENARIO #3

A 78y/o female has come in for her 6th treatment and is noted to be alert and oriented upon initial assessment.

During the treatment you are observe your patient from chamber-side at a 15 minute wellness check and notice that she is drooling and is unresponsive to verbal commands. The EKG monitor alarms and displays a heart rate of 39bpm and is steadily declining. There are no visible signs of respirations.

1. What do you suspect is happening?
2. How do you respond?

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CARDIAC ARREST

1. Notify physician and activate hospital code blue system; note time of occurrence
2. Turn set pressure to zero, begin controlled decompression at 5psi, or as ordered
3. Consider emergency decompression procedure if patient stops breathing, observe patient continually
4. Remove patient, start CPR
5. Prior to defibrillation, move pt away from the chamber
6. Remove pillow, mattress, linen and gown from pt and stretcher (or if possible move pt to another stretcher)
7. Assist code team as required
8. Complete documentation as time permits

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CARDIAC ARREST (continued)

NOTE: Consider chest tube set up and STAT chest x-ray

NOTE:
Defibrillation/Cardioversion should be held until the patient is moved away from the chamber entrance and all oxygen saturated linens and mattress are removed

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