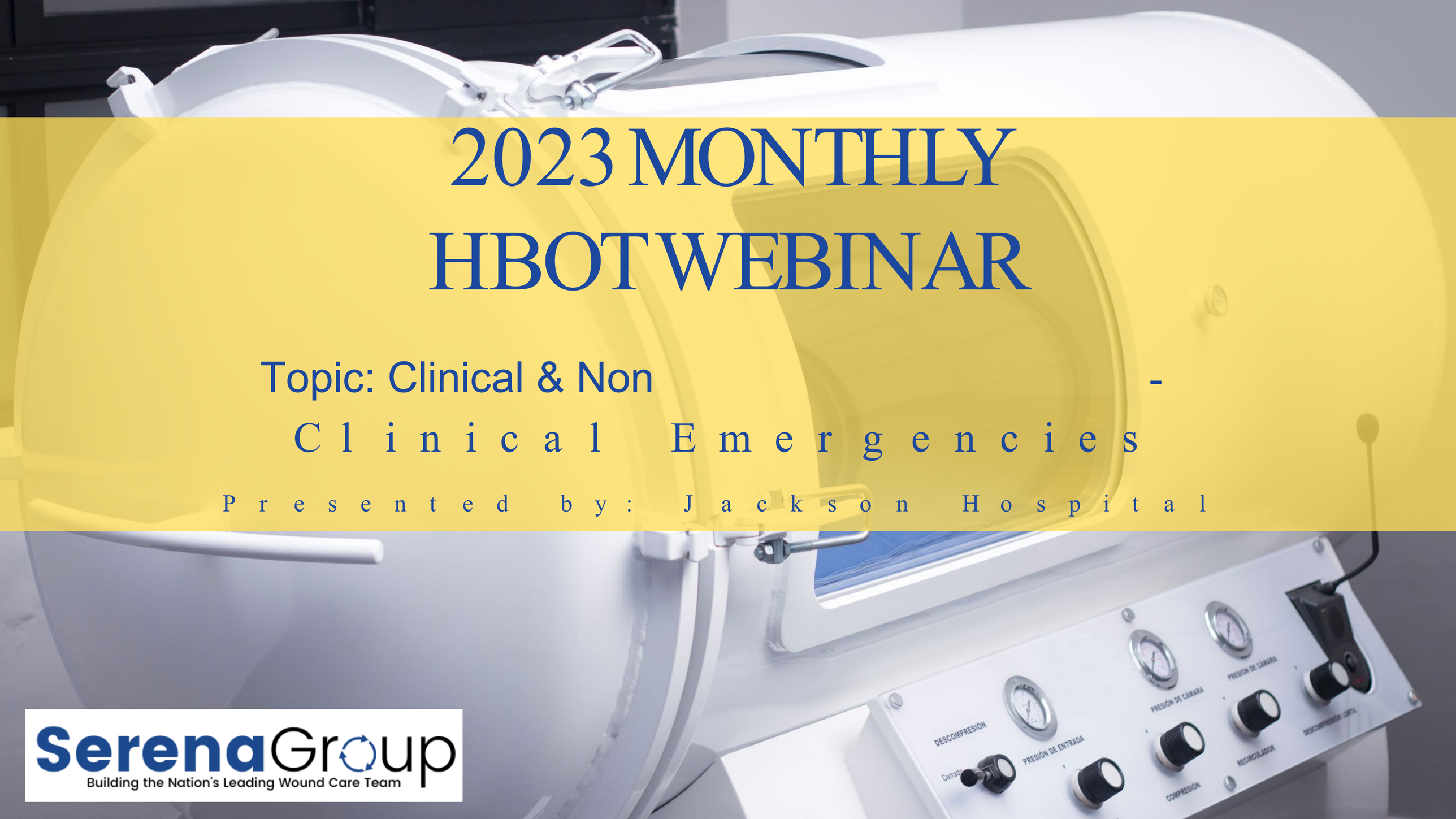

2023 MONTHLY HBOT WEBINAR

Topic: Clinical & Non - Clinical Emergencies

Presented by: Jackson Hospital

SerenaGroup
Building the Nation's Leading Wound Care Team

EMERGENCY!!!

- Every emergency should be handled in a calm, collected, and comprehensive manner. STOP! and take your pulse.
- How do we do this? We practice, practice, practice!
- Per SerenaGroup policies and procedures emergency drills are done quarterly and fire drills semi annually.
- Hospital and facilities may require special or other procedures – make sure you are familiar with both and implement them accordingly.

EMERGENCY!!! (Cont.)

- Seizures, Respiratory Distress, Hypoglycemia, and Oxygen Toxicity are emergencies that could lead to death or injury.
- Other emergencies such assevere weather, fire, active shooter, and evacuations are equally important.
- Know how to handle all emergencies in case you are faced with them!
- Drill cards should be located on each chamber, these are valuable tools to help keep your mind clear during an emergency.
- Each center should have a safety binder with all drills performed and maintained by the Safety Director.

Dr ill Car ds

Pneumothorax

Signs and Symptoms:

- Sudden, stabbing chest pain
- Sudden shortness of breath
- Uneven chest excursion during respiration
- Increasing respiratory distress
- Deviated trachea
- Distended neck veins
- Acute cardiovascular changes

1. Halt further pressure reduction immediately. Note time and complaint
2. Notify hyperbaric physician
3. Increase pressure slightly to relieve symptoms
4. Prepare chest tube tray
5. Once all necessary thoracenthesis equipment is assembled, decompress patient as ordered
6. Inform patient of what is suspected and its likely required management
7. Order STAT chest x-ray

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Oxygen Toxicity

Premonitory signs & symptoms of oxygen toxicity:

1. Immediately convert patient to air breathing. (Note complaint and time of occurrence)
2. Within 1-2 minutes of patient beginning air breathing, ask patient if complaint has resolved, improved, remained the same or worsened
3. If patient complaint/problem has resolved/improved - have patient complete an entire air break (10 minutes); the decision to continue or abort therapy will rest with the hyperbaric physician. It is important that staff maintain direct visual observation of patient throughout the ascent
4. If patient complaint/problem is unresolved or unchanged return patient immediately to surface pressure while patient continues breathing from air mask
5. With seizure activity DO NOT reduce to increase pressure until free air movement is clearly established

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Uncontrollable Depressurization

Should the automatic pressure control system malfunction and the chamber starts depressurizing perform the following steps:

1. Notify the patient that the chamber is depressurizing
   a. Warn not to hold breath
2. Flip the system NO/OFF switch to the OFF position
3. Adjust the rate of depressurization with the VENTILATION CONTROL valve
   a. The rate of depressurization can be slowed slightly by turning the ventilation control valve fully clockwise, to the minimum setting
4. When chamber pressure reaches zero (0), open the chamber door

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Oxygen Leak

- Pressurize the chamber to 30psig (3 ATA)
- Use snoop or an equivalent leak testing solution
  - (a few drops of soap or detergent mixed with water for example)
- Leak-check all control and hose connections
- Tighten all connections that leak
- If unable to stop leaking, contact National Safety Director

WARNING!

Before tightening the leak fittings, make sure that all pressure is relieved

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Cardiopulmonary Arrest

- Activate hospital code system. Note time of occurrence
- Turn set pressure to zero
- Emergency decompress the chamber. Observe patient continually
- Move patient away from chamber
- Remove stretcher mattress, sheets, gown and blankets from patient and stretcher (or patient may be moved to another stretcher if available)
- Assist code team as required
- Document on code record.
- Complete charting as time permits

NOTE: Defibrillation/Cardioversion should be held until the patient is clear of the chamber entrance and all linens and mattress removed

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FIRE

RACE = Rescue, Alarm, Contain, Escape/Extinguish

In Hyperbaric Facility:

- Put on smoke hood
- Turn Chamber oxygen valve off
- Remove anyone in immediate danger
- Activate hospital alarm
- Contain fire (extinguish with hand held equipment)
- Inform patient
- Turn chamber master valve off - remain by chamber
- When immediate flames contained, open door and remove patient
- Evacuate room and close doors
- Turn off main zone value (in hall)

In-Chamber Fire:

- Do not remain at either end of the chamber
- Emergency decompress the chamber
- Turn chamber oxygen value off
- Activate hospital alarm
- Unplug and/or turn off all electrical equipment
- Notify medical director and nurse manager

In the immediate/adjacent area:

- Call security
- Ensure doors to the HBO room are closed
- Inform patients and decompress at 5 psi/min
- Evacuate area if warranted
- Resume treatments when possible, and when cleared by hospital emergency personnel

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Drill Cards

Emergency Decompression

Any situation where it is necessary to have the most rapid access possible to the patient:

1. Set chamber pressure to zero
2. Inform patient
3. Turn master valve to EMERGENCY VENT 3 sec on/3 sec off
4. Open door when pressure indicator shows black
5. Remove patient, proceed as ordered and patient's condition dictates
6. Consider STAT chest x-ray to rule out pulmonary barotrauma

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Safety Pin Jam Communication Failure

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.
To release the safety lock pin:

1. Insert a blunt instrument (pencil, etc.) into the hole
2. Push safety lock pin into the retracted position.
3. Note this in the maintenance log, and inform nurse manager

Communication Failure

1. Use cue-cards to advise patient of communication failure
2. Begin ascent to surface pressure, continue to communicate with patient via cue-cards
3. Report failure to the nurse manager and Clinical Engineering

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Failure of Oxygen Supply

In the event that the oxygen supply/storage system is depleted or interrupted during operation, perform the following procedure:

1. Notify the patient that the chamber is depressurizing
   a. Depressurization will already be in progress - when loss of supply pressure occurs, the chamber will automatically begin depressurizing by venting off through the ventilation control valve
2. Flip the system ON/OFF switch to the OFF position
3. Adjust the rate of depressurization with the VENTILATION CONTROL valve
   a. The rate of depressurization can be slowed somewhat by turning the ventilation control valve fully clockwise to the minimum setting
4. When chamber pressure reaches zero (0), open chamber door

Uncontrolled Pressurization

If the automatic pressure control system malfunctions and the chamber starts pressurizing, perform the following steps:

1. Flip the system ON/OFF switch to the OFF position
   a. This will stop chamber compression and start the decompression of the chamber
   b. The rate of decompression can be controlled by opening (increase) or closing (decrease) the vent value
2. Notify the patient that the treatment has been aborted, and that the chamber is depressurizing
3. Adjust the rate of depressurization with the VENTILATION CONTROL valve
4. When chamber pressure reaches zero (0), open the chamber door

Fir e Dr ill (Bi-Annual)

FIRE DRILL OBSERVATION & EVALUATION

Drill Date: ___/___/_____ Time: _____ Center: _____
Scenario: _____
Drill Activity Level: ☐ Verbally Communicated ☐ Demonstrated & Timed

PASS	FAIL	N/A	COMMUNICATION
☐	☐	☐	Emergency phone number was called or simulated
☐	☐	☐	Alarm activated or simulated
☐	☐	☐	Staff alert and participating appropriately
☐	☐	☐	Fire alarm sounded and heard
☐	☐	☐	Visual alarm seen
			LIFE SAFETY
☐	☐	☐	Smoke hoods donned or simulated
☐	☐	☐	Doors in area closed (place wet blanket/sheet at base of door)
☐	☐	☐	Smoke doors shut
☐	☐	☐	Halls/Corridors clear of all items
☐	☐	☐	Patients and staff accounted for
			STAFF KNOWLEDGE
☐	☐	☐	Location of smoke hoods
☐	☐	☐	Location of fire extinguishers
☐	☐	☐	Location of alarm pull stations or how to activate phone system
☐	☐	☐	Knowledge of smoke compartments
☐	☐	☐	What is your fire plan (RACE)
☐	☐	☐	How to operate extinguisher (PASS)
☐	☐	☐	Evacuation equipment (i.e. Evacuation Chair, Paraslyde, etc.)
☐	☐	☐	Evacuation meeting location
☐	☐	☐	Evacuation routes
☐	☐	☐	Location of medical gas shut off valves
☐	☐	☐	Location of Fire Plan

Chamber 1 starting pressure/depth: _____
Chamber 2 starting pressure/depth: _____
Chamber 3 starting pressure/depth: _____
Chamber 4 starting pressure/depth: _____

Total time to evacuate: _____

Circle one: Drill Passed / Drill Failed

If failed, please note why: _____

Comments: _____

Fire Drill Participation Sign-In Sheet

First & Last Name (Printed)	Position

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Emergency Drill

(Quarterly)

EMERGENCY DRILL OBSERVATION & EVALUATION

Drill Date: ___/___/_____ Time: _____ Center: _____

Scenario: _____

Drill Activity Level: ☐ Verbally Communicated ☐ Demonstrated & Timed

PASS	FAIL	N/A	COMMUNICATION
☐	☐	☐	Emergency phone number was called or simulated
☐	☐	☐	Alarm activated or simulated
☐	☐	☐	Staff alert and participating appropriately
☐	☐	☐	Simulate communication and explanation to patient

			LIFE SAFETY
☐	☐	☐	Halls/Corridors clear of all items
☐	☐	☐	Patients and staff accounted for

			STAFF KNOWLEDGE
☐	☐	☐	Location of alarm pull stations or how to activate phone system
☐	☐	☐	Evacuation equipment (i.e. Evacuation Chair, Paraslyde, etc.)
☐	☐	☐	Evacuation meeting location
☐	☐	☐	Evacuation routes
☐	☐	☐	Appropriate and correct responses to the scenario
☐	☐	☐	Verbalized or practiced decompression specific to the scenario
☐	☐	☐	Location of chest tube tray
☐	☐	☐	Location of defibrillator
☐	☐	☐	Safety measures taken or simulated if defibrillation is required

Circle one: Drill Passed / Drill Failed

If failed, please note why: _____

Comments: _____

Emergency Drill Participation Sign-In Sheet

First & Last Name (Printed)	Position

SerenaGroup
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Preventing Fires

- Mandatory No Smoking/Oxygen in use signs
- Prohibited items poster easily seen
- Checklist reviewed with each patient each dive
- Grounding in place
- Anti static flooring and cleaner
- Hyperbaric only linens used (100% cotton)
- Fire drills performed
- Daily and Weekly maintenance/checks done with any deficiencies reported appropriately.
- Annual maintenance

Preventing Hypoglycemia

- Checking BGL pre and post dive
- BGL above 100 mg/dl, or whatever level the overseeing physician is comfortable with, in most cases 110-120 mg/dl.
- Depending on how well the pt has control on their DM as well as what medications were taken and what was eaten prior to tx, this can change the reaction of their BGL during the tx.
- Glucerna is a great option for diabetics because it is designed to slowly raise BGL and maintain for 2 hours.

Preventing Oxygen Toxicity

- Prevent by treating pts at 2.4 ATA or below to lower the likelihood, unless higher ATA is required.
- Air breaks incorporated in the tx. SerenaGroup recommends one 10-minute air breaks, halfway through treatment***
- Know the signs, to include. Blurry vision, coughing, chest pain, confusion, dizziness, feeling of unease, muscle twitching in hands and face, nausea, seizures (late sign), throat irritation, and trouble breathing.

Preventing Barotrauma

- Pts should be treated at a standard rate of 1.5 psi/min unless otherwise ordered by physician.
- Lower dive set rate if pts have difficulty with ears, tooth squeeze, or sinus issues.
- If a pt experiences respiratory distress abort tx.
- If pt is complaining of ear pain, lower the pressure in the chamber and help guide the pt to equalize the pressure, pressure must be 1 psi lower at least for ears to equalize. If pt is able to equalize, then tx may be continued.
- It is suitable to attempt 3 times before aborting tx.


QUIZ

Question 1

Per SerenaGroup guidelines, how often should a fire drill be performed?

a. Monthly
b. Quarterly
c. Biannually
d. Yearly

Answer 1

Biannually

Question 2

Name 3 measures taken to prevent fires in the chamber room.

Answer 2

- Mandatory No Smoking/Oxygen in use signs
- Prohibited items poster easily seen
- Checklist reviewed with each patient each dive
- Grounding in place
- Anti static flooring and cleaner
- Hyperbaric only linens used (100% cotton)
- Fire drills performed
- Daily and Weekly maintenance/checks done with any deficiencies reported appropriately.
- Annual maintenance.

Question 3

Who has the responsibility of maintaining the hyperbaric centers safety Binder?

Answer 3

The Safety Director

Question 4

An announcement comes over the loudspeaker to initiate lockdown procedures. The hyperbaric technician should

a. Emergently decompress (2 minutes)
b. Decompress the pt at a normal rate of 1.5 psi/min
c. Decompress the pt at an increased tolerated rate
d. Verify why the facility is being locked down and where the threat is to determine if your area is threatened or at risk and to what degree of risk

Answer 4

Verify why the facility is being locked down and where the threat is to determine if your area is threatened or at risk and to what degree of risk

Question 5

If you suspect oxygen toxicity, you should put the pt on an air break and abort the tx.

True or False

Answer 5

True

THANK YOU


DESCOMPRESION
PRESIÓN DE ENTRADA
PRESIÓN DE CAMARA
PRESIÓN DE CAMARA
RECIRCULACION
COMPRESION

Next Month

- June Hyperbaric Safety Webinar
- Topic: Diabetes Management in Hyperbaric Patients
- Presenter:
- Date: 6/20/2023, 12 pm est.

Patient Name: _____

SerenaGroup Hyperbaric Oxygen Therapy Checklist

Hyperbaric Oxygen Therapy - Eval, Criteria and Pre-Treatment Checklist (Refer to either NCD 20.29 or regional LCD for correct ICD 10 codes)

Consult must be done, and each Pertinent Criteria below MUST be clearly described in Hyperbaric Evaluation (for Intellicure, located in Impression Tab)

Actinomycosis

- Need — Prolonged administration of antibiotics
- Need — Must document that disease is refractory to antibiotics and surgery.
- Need — Documentation of actinomyces israelii infection

Crush Injuries and Suturing of Severed Limb

*** RE-EVAL after 12 treatments**

- Need — Documentation of loss of function, limb or life being threatened
- Supports — TCOM <30 mm/Hg

Diabetic Foot Ulcers (regardless of Grade)

***RE-EVAL Q 30 Days - Must show signs of measureable improvement to continue past 30 days**

- Need — Documentation of Type I or Type II diabetes with lower extremity diabetic wound
- Need — Documentation of Wagner III or higher
- Need — Documentation of standard wound care for 30 days with no measureable signs of healing

Standard wound care must include all the following:

- Need — Vascular Assessment and correction of issue
- Need — Optimization of glucose & education
- Need — Optimization of nutritional status & education
- Need — Debridement by any means to remove devitalized tissue
- Need — Maintenance of a clean moist wound bed
- Need — Appropriate offloading
- Need — Treatment to resolve infection
- Support — ABI >.6

Diabetic Ulcer Wagner III

- Need — Documentation of one or more: Osteitis, Osteomyelitis, Tendonitis, Abscess, Pyarthrosis

Diabetic Ulcer Wagner IV

- Need — Documentation of Wet or Dry gangrene of the toes or forefoot

Diabetic Ulcer Wagner V

- Need — Documentation of gangrene involving entire foot

- YES / No — **Absolute Contraindications**
  NOTE- Can't Treat until corrected
  Untreated Pneumothorax

- YES / No — **Relative Contraindications**
  Note- Does not preclude treatment

Acute Peripheral Arterial Insufficiency

- Need — Documentation of sudden occlusion of a major artery-Which:
- Need — Vascular study to confirm i.e. CTA/MRA/Arteriogram
- Need — Revascularization Candidate Yes / No

*** If NO: reason in Hyperbaric evaluation note**

- Supports — In Chamber TCOM to show response to O2 w/ 1st TX

Acute Traumatic Peripheral Ischemia

- Need — Documentation of loss of function, limb, or life threatened (i.e. injury that compromises circulation)
- Supports — TCOM <30 mm/Hg, LUNA, SPP/PVR

Gas Gangrene- A48.0

*Adjunct to antibiotic therapy & surgery

- Need — Clinical sign and symptoms
- Supports — X-ray findings

Progressive Necrotizing Infections

- Need — Documentation of laboratory reports that confirms the diagnosis of progressive necrotizing infection
- Need — Culture or gram stain that confirms diagnosis of Meleney Ulcer

Skin Graft/Flap Failure

- Need — Documentation of graft date
- Need — Documentation of compromised state of graft site

Complications of reattachment Extremity or Body Part

- Need — Documentation of flap date
- Need — Documentation of compromised state of flap site

Chronic Refractory Osteomyelitis

- Need — Definitive evidence condition is chronic and unresponsive to conventional therapy i.e. ABX and wound care
- Need — Definitive imaging (i.e. MRI, X-ray, Bone Scan) and bone culture with C&S
- Need — Failed antibiotic regimen of at least 6 weeks
- Need — Bone debridement (when possible)

Osteoradionecrosis

- Need — Documented date and anatomical site of prior radiation treatments include number of treatments
- Need — Diagnosis from referring physician
- Need — Plan to or documented debridement/resection of Non-viable tissue if present in conjunction with antibiotics

Soft Tissue Radionecrosis-Late Effects of Radiation

- Need — Documented date and anatomical site of prior radiation treatments, including number of treatments and cumulative dosage (i.e. Gray, centi-gray, ray, etc.) treatments include number of treatments
- Need — Documentation of treatment with conventional therapy

# of New/Active HBO Patients	20
# of New HBO Pts with HBO Checklist Completed	20
% of New/Active HBO Pts with Approved HBO Form Completed	100%

Housekeeping Items

- Air breaks, everyone is following a different guideline. SerenaGroup's recommended protocol is 2.4 ATA for 90 minutes with one 10 minute air break (15-45-10-45-15). It is important that patients receive 90 MINS AT PRESSURE, this does not include travel time. If you are currently doing 40-10-40 we should discuss this with the medical director.

- Summer heat is just around the corner! The temperature outside should not have any significant impact on the Oxygen's temperature coming into the chamber. However, your patients may feel approximately 10 degrees warmer inside the chamber versus the chamber room. So, if you keep the chamber room at 70 degrees, it is not uncommon for the real feel temperature in the chamber to be 80 degrees. This is why we keep our chamber rooms cool.

- Medicare Advantage Pre-Auth Tracking forms – has anyone had any medicare advantage plans taking greater than 72 hours to respond to your pre-auth request?

Round Table Discussion