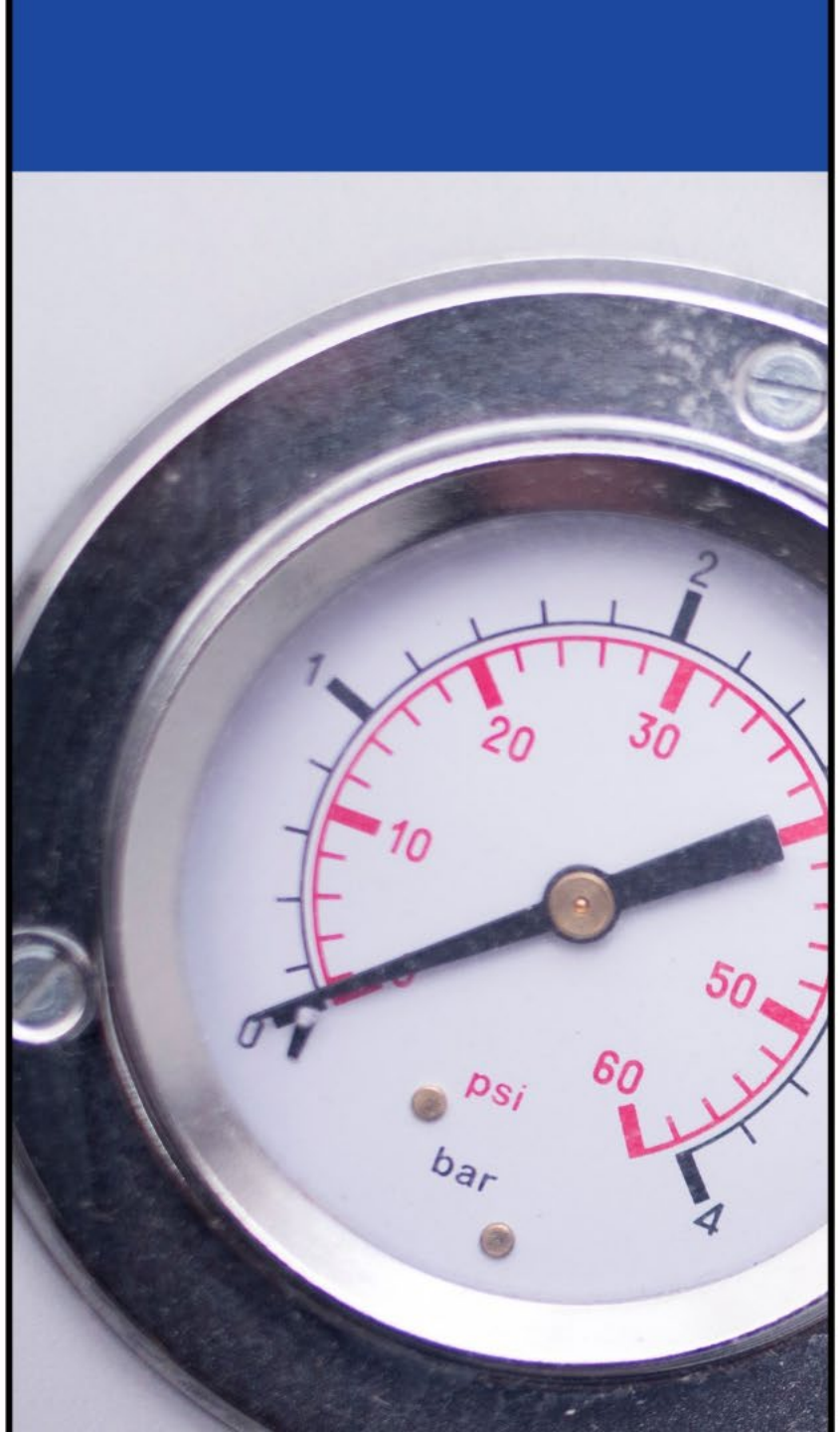
APRIL 2022 MONTHLY HBOT WEBINAR

To Dive or NOT to Dive?



PRESENTED BY DEBORAH WOUND AND HYPERBARIC CENTER

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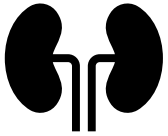
Comorbidities Overview

- **Comorbidities** are an additional complication to a patient.
- Understand the risk to the patient and how it can be reduced to protect them.
- Pre-treatment testing to help rule out contraindications that may put a patient at risk.
- Working with your overseeing physician to create safe, effective treatment protocol for patients with comorbidities to produce better outcomes.

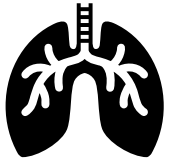
Comorbidities and Risks

- **COPD (Chronic Obstructive Pulmonary Disorder)** is a respiratory disorder that may have the potential rare side effect of pulmonary barotrauma from lung overinflation. HBOT patients with this comorbidity are at risk for air trapping during decompression with active bronchospasm, mucous plugging and bullous lung disease.
- **CHF (Congestive Heart Failure)** is a condition in which the heart doesn't pump blood as well as it should . Patients with ejection fractions less than 30% are at higher risk for CHF exacerbation and acute pulmonary edema during treatment due to fluid shift because of the pressure increase and decrease. Patients should not be fluid overloaded and a pre-treatment echocardiogram should be considered.

Comorbidities And The Risks



Renal Dialysis – Patients receiving dialysis are at higher risk of HBOT complications due to sudden fluid shifts from volume overload causing pulmonary edema.



Patients on regular **Long-Term Use of High-Flow Oxygen** are at risk of Pulmonary Oxygen Toxicities which could burn the lungs.

Comorbidities And Risks (Drug Risks)

Patients actively being treated for cancer can be eligible to safely receive HBOT although some of the medications may be contraindications which can be discussed during pre-treatment exam.

- **Bleomycin**: Chemotherapy. Pulmonary toxicity is the reason concurrent use of bleomycin and hyperbaric oxygen therapy is contraindicated. *It is considered safe to proceed with hyperbaric oxygen treatment if it has been at least three to four months post bleomycin administration.*
- **Doxorubicin**: Chemotherapy. Cardiac toxicity is the reason concurrent use of doxorubicin and hyperbaric oxygen therapy is contraindicated. *It is considered safe to proceed with hyperbaric oxygen treatment if it has been at least three days post doxorubicin administration.*
- **Cisplatin**: Chemotherapy. Impaired wound healing is the reason concurrent use of Cisplatin and hyperbaric oxygen therapy is contraindicated. *Proceed with treatment in emergent situations and when it has been an extended period from cisplatin administration.*
- **Disulfiram**: Chemotherapy. Blocks superoxide dismutase, which is *protective against oxygen toxicity*
- **Sulfamylon:** Antibacterial agent used in burn patients must be removed before treatment in the Hyperbaric chamber. Impaired wound healing and increased risk of oxygen toxicity is the reason *concurrent use of Sulfamylon and hyperbaric oxygen therapy is contraindicated.*

Pre-treatment Procedures for Success!

- ✓ Always ensure the clearing HBO physician is aware of patient's comorbidities both verbally and by providing all relevant labs, testing and records.
- ✓ Discuss treatment protocol with physician, such as treating at 2.0 ATA
- ✓ Complete all pre-treatment testing ordered in a timely fashion so that it may be carefully reviewed, considered and signed off on by physician.
- ✓ Obtain additional clearances from patient's specialists (cardiac, pulmonology, cardiology, oncology, endocrinology) if requested by clearing physician.
- ✓ Be vigilant during treatment! Watch patient carefully and abort treatment safely is there are any signs of respiratory distress or unusual behavior and address concerns with overseeing physician (whether concerns present pre-tx, during tx, or post tx)

Safe Treatment Protocols

- The clearing HBO physician will determine the treatment protocol. The general recommendation from SerenaGroup for patients that are NOT deemed "at risk" is 2.4 ATA for 90 minutes with two 5 minute air breaks at a rate set of 1.5 psi/min
- "At-risk" patient's treatment plan should be modified to 2.0 ATA (a therapeutic treatment pressure that does not require air breaks) to lower the likelihood of HBOT side effects.
- Rate set should be lowered when patients are new to treatment and are still adjusting to pressure differentials
- Rate set should be lowered when patients have potential air-trapping diseases
- Dr. Serena, Matt Schweyer (SerenaGroup's National Safety Director), and Ally George (Hyperbaric Educator) can work with physicians to answer any questions and achieve best HBOT practices.


QUIZ

Question 1:

A patient with a history of CHF comes in and the physician cleared them for treatment. You take their blood pressure, and it is 225/110 whereas their BP at every other treatment has been between 112-140 systolic and 70-90 diastolic. What should you do ***first***?

A. Dive the patient but keep a watchful eye.

B. Chart the BP and make sure the physician signs off on it when they complete the notes.

C. Notify the physician for further instructions before diving the patient.

D. Wait 15 minutes and retake the BP.

E. Do not treat the patient that day.

Answer 1

- ***FIRST***, C
- Notify the physician for further instructions before diving the patient.
  - After notifying the physician, he or she may say to wait 15 minutes and retake the blood pressure or to not treat them today, but as technicians our first step is to notify the physician.

Question 2

"At-Risk" patients should be treated at _____ ATA unless otherwise determined by the clearing physician.

Answer 2

- 2.0
- If a patient is deemed "at-risk" their treatment protocol should be modified.
- 2.0 ATA is a therapeutic treatment pressure and does not require air breaks.

Question 3

For what comorbidity might a clearing physician request medical clearance by a cardiologist?

Answer 3

- Patients with a history of Congestive Heart Failure

Question 4:

- A patient with COPD and CHF, that has an Ejection Fraction of 40% can NOT receive HBOT.

True or False?

Answer 4

- False
- CHF patients with ejection fractions less than 30%, are at higher risk for CHF exacerbation/acute pulmonary edema during HBOT, therefore should be treated at 2.0 ATA and monitored closely throughout treatments.

To Dive or NOT to Dive

Any questions?

SerenaGroup HBOT Monthly Show Rate

Centers	Program Director	HBO Show Rate
Cleveland Clinic Akron	Nick	
ACMH	Erika	92%
Berkshire	Sean	89%
CHI Health CUMC Bergan	Joe	100%
CHI Health Mercy	Joe	96%
Deborah	Megan	100%
Fairview	Jamie	100%
Henry Ford	Eliece	96%
Jackson	Dean	86%
St. Mary's	Katie	100%
St. Joseph Med Ctr	Christine	100%
Via Christi	Nancy	100%
MH The Woodlands	Andrea	38%
Inspira Health – Elmer	Ally	100%

SerenaGroup Upcoming HBOT Educational Courses

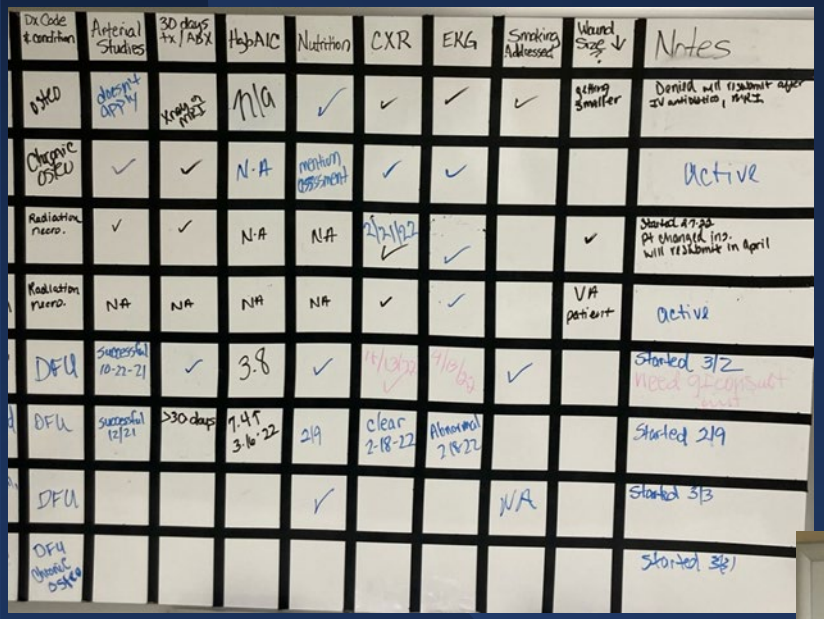
- Introduction to Hyperbaric

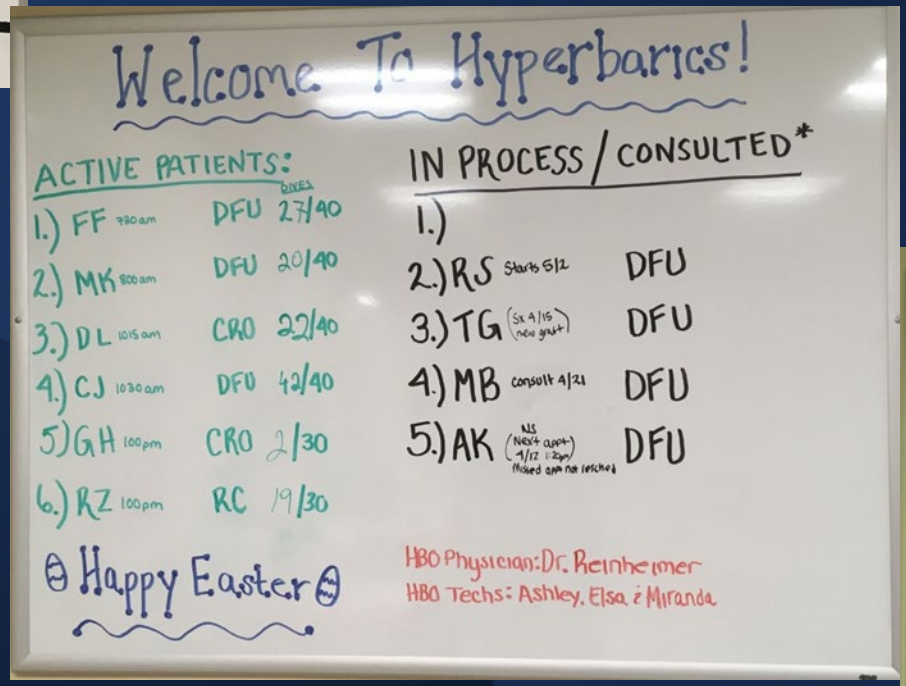
April 21-24, 2022, in Akron, OH

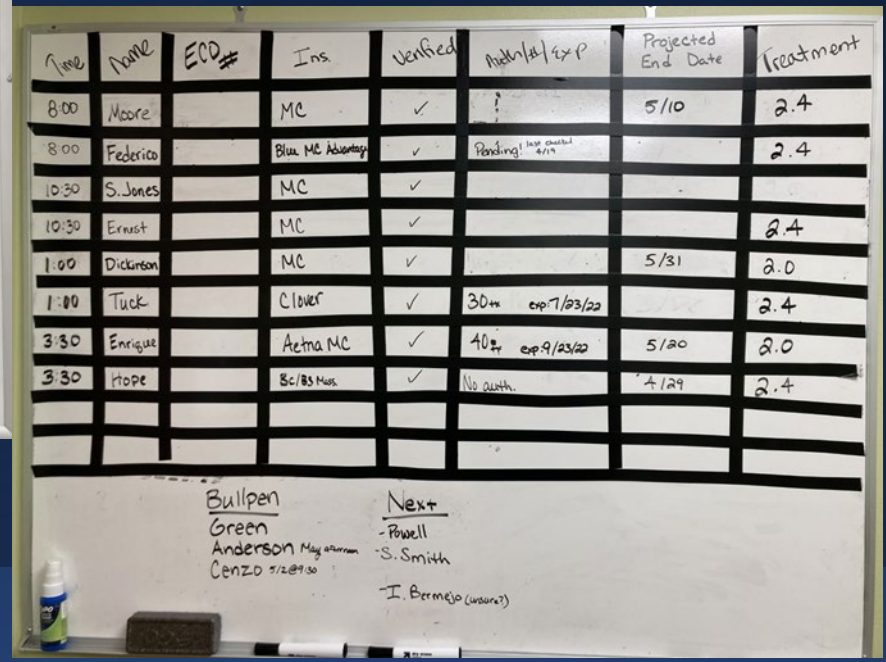
- Introduction to Hyperbaric

June 2-5, 2022, in Omaha, NE

Communication is key!







What's New and Improved!

SerenaGroup
Building the Nation's Leading Wound Care Team

MEDICAL NECESSITY MUST-HAVES: HYPERBARIC OXYGEN THERAPY

PROCESS	DIABETIC FOOT ULCER	ORN/STRI	GRAFT/FLAP	CHRONIC OSTEO
Consult all elements to support medical necessity	1. Thirty days of conventional wound care and what it included (can be from referring provider. 2. Debridements, Antibiotics, Surgical interventions. 3. Include correspondence with whom, what & when for above. 4. Wound Volume currently & that there has been no measureable improvement over the last thirty days. 5. Ongoing wound care- what are you currently doing & photos. 6. Smoking Cessation Education. 7. Glycemic Control & HgbA1C as well as education. 8. ABI or other quantifier of vascular flow.	1. All correspondence with the specialist: (Urology, Oral Surgery, Plastics, etc.) 2. Radiation History-what, where, when, how much. 3. Anatomical Location 4. What care have been delivered & will continue to be delivered. 5. Photos- STRN 6. Procedures-has the patient been scoped? 7. Patients symptoms: -Pain-how much & location -Blood-where? -Urine: how much, clots, frequency. -Stools: consistency, frequency	1. Date & time of Graft/Flap. 2. Anatomical location & type of Graft/Flap. 3. Date compromised & description. 4. All correspondence with specialists. 5. Other clinical correspondence.	1. Diagnostic Imaging- type & in the M/R 2. Labs- what & in M/R 3. ABX-type, course, delivery 4. Wound Care- what care has been delivered. 5. Specialist engaged in care. 6. Smoking Cessation education (if smoker) 7. Glycemic Control, HgbA1C and education (if diabetic) 8. ABI or other quantifier of vascular flow.
Orders	All components of the treatment.	All components of the treatment.	All components of the treatment.	All components of the treatment.
Goals/ Plan of Care	To support Medical Necessity. What is your expected outcome?	To support Medical Necessity. What is your expected outcome?	To support Medical Necessity. What is your expected outcome?	To support Medical Necessity. What is your expected outcome?
Daily Treatment	See template.	See template.	See template.	See template.
Re-Assessment	Most recent wound assessment w/ improving wound volume Off Loading S/C & B/S education Revisit & update the POC	Clinical Improvement: Pain Blood Stools & Urine Revisit & update POC	What does the Graft/Flap site look like? Has it declared itself, did it survive, will the patient be re-grafted? Revisit & update POC	Clinical Improvement Education Improving Wound Volume Revisit and Update POC

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

Relative Risk/Contraindication-Discuss with patient

YES	NO		YES	NO	
		1. Upper Respiratory Infections			10. Viral Infections
		2. Chronic Sinusitis			11. Congenital Spherocyto
		3. Seizure Disorders			12. Asymptomatic Pulmor
		4. Cardiomyopathy / CHF			13. Pregnancy
		5. Uncontrolled High Fever			14. Body Temperature
		6. History of Spontaneous Pneumothorax			15. Blood Glucose Levels
		7. History of Thoracic Surgery			16. History of previous ea
		8. History of Surgery for Otosclerosis			17. Pulse and blood pressu
		9. Claustrophobia			18. Severe Emphysema ar

**Please note that some commercial insurance companies have extended indications and be included in the above CMS guidelines. Case managers will discuss these on a case-by-c physician during work up for HBOT based on the coverage guidelines of the patient policy*

Required Pre-Treatment Testing

Test	Date Performed	Notes
Chest X-Ray		
EKG		

**Completed within 6 months for asymptomatic patients is acceptable. Obtain record/resu cleared by the hyperbaric physician before the first treatment.*

Hyperbaric Evaluation Physician Notes- if a decision to not treat is decided please prov below

_____ _____
Date/Time **Physician Signature**

_____ _____
SerenaGroup Chief Quality Officer **SerenaGroup Medical D**

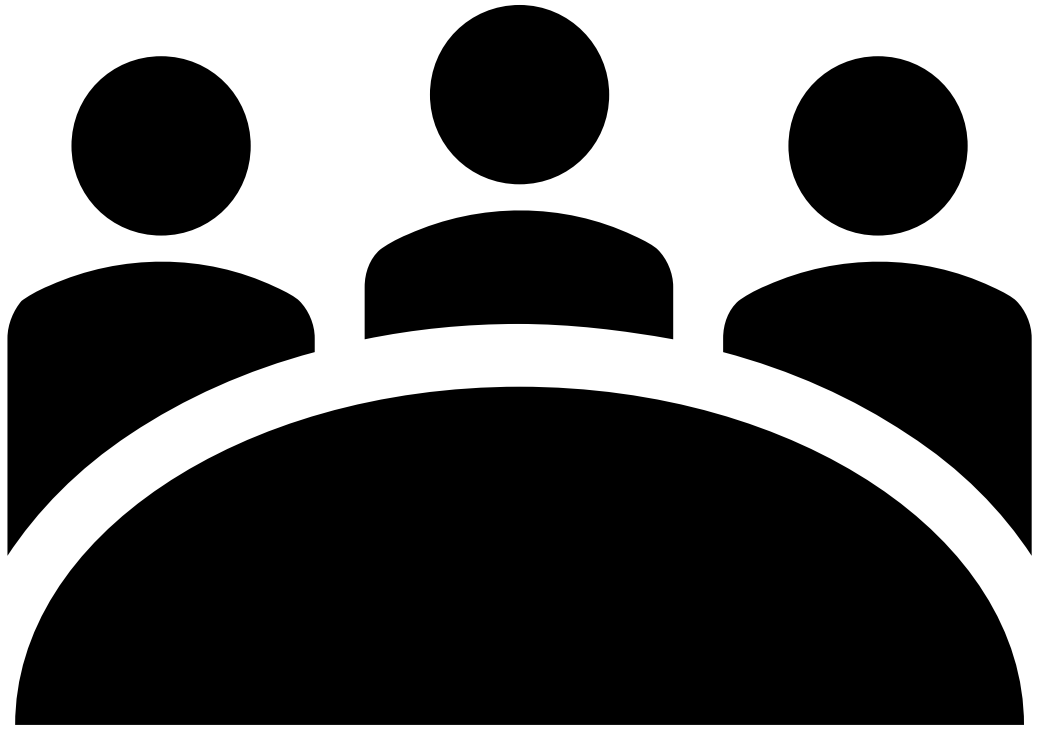
_____
This form was completed by

NOTE TO CLINICIANS: Once this form is completed, it needs to be scanned into the Hos Wound Expert, whichever is appropriate

Round Table Discussion

-Chamber room safety is our responsibility

-Anything else



Next Month's Presenter

DATE: May 17, 2022

PRESENTING: Jackson Hospital

TOPIC: Clinical and Non-Clinical Emergencies

SerenaGroup HBOT Contact Information

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