National Board of Diving & Hyperbaric Medical Technology

Hyperbaric Monoplace Facility Accreditation Surveyor Manual

Post Office Box 758, Pelion, South Carolina 29123
Office +1.888.312.2770 · Fax +1.866.451.7231
www.nbdhmt.org

Contents

Introduction

The National Board of Diving & Hyperbaric Medical Technology (National Board) is pleased to announce the introduction of a hyperbaric facility accreditation program.

With over four decades of hyperbaric operations and safety leadership and a cadre of highly regarded subject matter expert surveyors, the National Board is uniquely positioned to execute this important undertaking.

Displaying the National Board's accreditation seal is verification that a hyperbaric facility has been formally evaluated, that its documented operational and safety policies and procedures are found to be compliant, and most importantly, being applied consistent with prevailing regulations, codes, standards and authoritative guidelines.

Background

Hyperbaric medicine enjoys almost two centuries of practice. First proposed in 1664, functional multi-occupancy chambers were introduced in the 1830's. Air was both the chamber compression and occupant breathing medium. Proposed uses were entirely speculative and unlikely to have resulted in meaningful clinical gain. During the latter 19th century, however, and based on sound mechanistic rationale, hyperbaric chambers were employed as primary therapy for mass transit tunneling and bridge caisson compressed air activities that resulted in decompression sickness and the chamber continues to represent primary therapy.

Oxygen eventually replaced air as the breathing/treatment medium. This led to the identification of additional therapeutic mechanisms associated with hyperbaric hyperoxic exposure and a broadened list of uses. Design and operational characteristics of the multi-occupancy chamber have remained largely unaltered over the ensuing years, such that it is arguably the oldest medical technology in unchanged state today. A single occupancy chamber was introduced in the 1950s and has evolved as the most common hyperbaric delivery system in the United States.

Hyperbaric chambers support naval and military aviation operations, professional, commercial, scientific and recreational diving activities and are found in specialized research settings. They have been increasingly incorporated into mainstream medical practice, both in hospitals and within hospital-affiliated free-standing clinics. There are also examples of independently operated hyperbaric programs. In each of these settings, the chamber's design, construction, installation and operation are each expected to comply with prevailing regulations, codes, standards, authoritative organizational oversight and best practices. Compliance is not uniform, however, and deficiencies are not always evident or ignored. This has the effect of increasing risk of adverse events in patients and those in proximity to the hyperbaric delivery system. The introduction of hyperbaric chambers, some soft-sided with low operating pressures, not designed to authoritative standards, further increases the risk profile. Manufacturers of these chambers rely on deceptive marketing practices to attract customers who introduce them into unregulated clinics, private offices, spas, fitness centers, offices and even private homes for personal use. Proposed uses of these chamber types are long, likewise promoted on deceptive marketing behaviors, invariably lacking credible scientific support or even sound mechanistic rationale.

The practice of hyperbaric medicine is considered a mastered medical technology only when undertaken by appropriately trained health care professionals employed in regulated health care settings, using compliant chambers. Complications and side effects are uncommon and most resolve without sequalae. There are exceptions, none more potentially devastating than a chamber fire.

The National Board believes that determination of a hyperbaric medicine program's operations, safety and compliance is best assessed through independent authoritative third-party analysis. The National Board is such an authority and offers a hyperbaric facility accreditation program. Operational, safety and compliance metrics are assessed by subject matter experts during onsite surveys that focus on tracer-like activities, and a detailed remote review of program documentation.

- Sample monthly/periodic safety drills, topics and attendance log documentation.
- Most recent hyperbaric chamber evacuation drill documentation.
- Recent monthly staff meeting topics and attendance log documentation.
- Sample monthly/periodic chamber maintenance logs.
- Chamber manufacture's service history records, last visit.
- Compressed gas cylinder transfer, handling, storage and use policy.
- Nursing assessment policy and sample redacted nursing assessment.

Confidentiality of Survey Process

All information and documentation related to the accreditation survey is considered confidential by the National Board. Its use will be strictly limited to the accreditation process and not otherwise disclosed unless required by law.

Accreditation Committee Role and Guidance

The accreditation committee comprises three appointed members, including one Chair. Additionally, one alternate member is selected to avoid any conflict should one of the committee members have an active professional relationship for a program under review.

Depending on the volume of accreditation survey requests, it may prove desirable to rotate accreditation committee members to avoid the review process becoming individually too burdensome.

The accreditation committee will be provided an access link to each facility's "off-site" survey review documentation, which will have been submitted at least 60 days prior to their scheduled survey dates. This documentation can be reviewed independently and as time allows.

On-site review findings become immediately available to the accreditation committee upon completion. They should be reviewed and a decision rendered to the full Board within ten (10) business days. Committee members are expected to discuss review material among themselves, coordinated by the Chair. They may also choose to contact one or both survey team members if there are any points of clarification that would prove helpful during deliberations.

The committee will come to a majority decision from one of the options noted below which they will then indicate on the Accreditation Committee Decision Form.

1. Accreditation recommended.
2. Accreditation recommended pending minor requirements, which are listed.
3. Accreditation recommended pending significant requirements, which are listed.
4. Accreditation denied, with major shortcomings listed.

Even where accreditation is recommended, committee members may identify opportunities that could enhance even fully complaint/high performing programs. Opportunities may also be suggested by the survey team members in their submitted reports.

The accreditation committee's decision is forwarded to the Board's remaining members who will vote on to accept this decision, or otherwise. A majority vote (four) of the remaining seven members will prevail. The decision should be rendered within five (5) business days of receipt of the accreditation committee's recommendation.

FACILITY SURVEYOR SELECTION CRITERIA

Minimum Requirements:

1. CHT/CHT-ADMIN and/or CHRN/ACHRN/CHRN-C
2. Minimum 10 years' employment experience within the hyperbaric discipline
3. Current professional behaviors align with those of the National Board
   Notably, they do not work in, or otherwise are associated with, facilities actively promoting off-label/otherwise unproven conditions.

One or more of the following as a basis for subject matter expert definition:

- Committee member: NFPA/ASME-PVHO/UHMS Safety Committee, other authoritative organization
- Board member NBDHMT/BNACB
- Author or co-author, of a peer-reviewed medical or technical journal publication Author or co-author of a hyperbaric-related textbook chapter
- Faculty member, accredited introductory/advanced hyperbaric training course Invited plenary session speaker, authoritative hyperbaric-related organization

Offsite Survey Review

Candidates will submit the documentation below for surveyor review. Surveyors are provided access to documentation for candidates under active review via Sync, a HIPAA compliant share drive, folder names **NBDHMT Accreditation Program.** Each candidate program will be under their own named subfolder(s), i.e. **Accreditation Application Documentation/*'applicant'.***

Item	Description
1	Policy and Procedure Manual and Treatment Tables.
2	Sample redacted consultation and patient informed consent.
3	Hyperbaric facility emergency procedures.
4	Inside attendant health screening policy (multiplace chamber programs).
5	Medical Staff Office Hyperbaric Physician Credentialing Policy (hospital affiliated facilities).
6	New employee orientation, staff competencies and provider/staff continuing education logs.
7	Quality Assurance Performance Improvement plan.
8	Infection control policy.
9	Sample monthly/periodic safety drills, topics and attendance log documentation.
10	Most recent hyperbaric chamber evacuation drill documentation.
11	Recent monthly staff meeting topics and attendance log documentation.
12	Sample monthly/periodic chamber maintenance logs.
13	Chamber manufacture's service history records, last visit.
14	Compressed gas cylinder transfer, handling, storage and use policy.
15	Nursing assessment policy and sample redacted nursing assessment.

Surveyor On-site Policy and Procedure Guidance

Given the prestige/high standing of subject matter experts invited to be surveyors, it is unlikely that professional standards of behavior and dress code will need to be emphasized while representing the Board. For completeness, however, surveyors are expected to be respectful and courteous to client personnel. They should avoid condescending, patronizing or superior behaviors, and endeavor to foster positive rather than intimidating interactions. Surveyor appearance must be consistent with conservative professional expectations of the traditional health care setting. A surveyor identity badge must be worn while on client program property.

Consistent with Board's Position Statement 2022-01, client program operations personnel should be encouraged to achieve certification in hyperbaric technology/hyperbaric nursing if they have not already done so. As several certification options exist, this recommendation must not involve promotion of the Board's pathway as this could be considered biased/self-serving. The Board has consistently committed itself to the highest ethical standards, and this widely recognized ethical footprint must not be compromised. Client offers to pay for lunch or dinner are to be respectfully declined.

The accreditation survey process is based upon published authoritative standards and regulatory requirements. While recognizing each surveyor's extensive knowledge and experience as the basis for their selection, surveyors are cautioned not to base survey criteria on personal opinions.

For each probe, tracer and observation deemed complaint the corresponding box is checked. This simple checkoff may be all the surveyor considers necessary. There is, however, an adjacent space provided for annotation opportunities. In recognition of surveyor expertise, the National Board encourages any related input. This may extend from comments regarding the utility/value of this aspect of the survey or suggested edits, to identifying an opportunity to enhance even fully complaint performance. Should a given probe, tracer, or observation be deemed non-compliant or otherwise unsatisfactory, related comments must be added in the space provided. Finally, there is a box available for surveyors to add anything else they believe of value as accreditation committee members contemplate survey results.

Should there be any concerning degree of client program frustration/push back/disagreement as to the way a survey is being conducted that does not appear immediately reconcilable, the survey team will pause the survey and contact Board headquarters. One or more members of the Accreditation Committee will be conferenced in and the situation discussed. Collectively, surveyors and committee members are expected to determine the best course of action. This may involve, among other things, making certain accommodations on behalf of the client program or ceasing to complete the survey. Where considered desirable, the Board's president may be brought into this discussion.

Consistent with the survey tool program, collected data becomes immediately available to Board headquarters. Surveyors will not be involved in accreditation decision-making, *per se,* and there will be no program out brief before surveyors depart the client facility. This helps to avoid possible conflict between surveyor statements and the Board's ultimate accreditation decision. The Accreditation Committee will review survey results and arrive at a majority decision as to a recommended accreditation status. The Accreditation Committee is at liberty to contact survey team members during their deliberations should any additional points of clarification be considered helpful. This recommendation is then presented to the full board for final determination, again via majority decision. To avoid incurring marked delays in notifying hyperbaric programs of their accreditation status the Board commits to rendering its decision within 15 business days of survey completion.

On-site Surveys

On-site surveys contained here-in are available on private, password protected webpage www.baromedical.com/nbdhmtsurveys. Password is provided directly to surveyors from National Board administration. Surveys may be completed online via the links provided or by completing the PDF forms and emailing the completed forms directly to the National Board Accreditation Administrator at accred.nbdhmt@gmail.com

Reimbursement for on-site travel survey expenses will be made directly to surveyors upon completion and submission of travel expense report and accompanying receipts, where appropriate.

Accreditation Survey
Class B Monoplace Hyperbaric Delivery System Part 1 General

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Facility Location ◯ In Hospital ◯ Free standing building ◯ Trailer or vehicle mounted

Upload photo(s) chamber ID plate | **Chamber ID 1** | **Chamber ID 2** | **Chamber ID 3** | **Chamber ID 4**

Is the chamber manufacturer's Operations Manual available?

Yes
No

Is a chamber logbook of documents, periodic inspections, servicing and any repairs available?

Yes
No

Was there a review of the most recent manufacturer's periodic service report?

Yes
No

Were chamber-ground checks recorded in the chamber inspection log?

Yes
No

Was there a review or chamber acrylic inspection log?

Yes
No

Is an alternative/emergency power source available to the chamber?

Yes
No

Characterize the condition of the chamber mattresses.

◯ **Poor** ◯ **Unsatisfactory** ◯ **Satisfactory** ◯ **Good** ◯ **Exceptional**

Characterize the condition of the chamber pillow(s).

◯ **Poor** ◯ **Unsatisfactory** ◯ **Satisfactory** ◯ **Good** ◯ **Exceptional**

Characterize the condition of the chamber linens.

◯ **Poor** ◯ **Unsatisfactory** ◯ **Satisfactory** ◯ **Good** ◯ **Exceptional**

Accreditation Survey

Class B Monoplace Hyperbaric Delivery System Part 1 General

Describe patient provided clothing: ☐ **100% Cotton** ☐ **50/50 Cotton Blend** ☐ **No pockets**

Describe any other patient clothing material observed

What is the primary source of oxygen?

◯ **Lox System** ◯ **Dewars** ◯ **HP Cylinders** ◯ **Other** *(Provide details in comments)*

What is the patient ground type?

(Uploaded photo acceptable)

Upload photo(s) patient ground type

(Optional)

Patient Ground **Patient Ground 2**

Is ohmmeter/multimeter calibration in date?

Yes
No

What is the air break assembly type?

(Uploaded photo acceptable)

Upload photo(s) air break assembly

(Optional)

Air Break 1 **Air break 2**

Does facility have in-chamber ECG monitoring capability?

Yes
No

If the facility is ECG monitoring capable, is the Biomed inspection sticker in date?

Yes
No

Does the facility have in chamber tcpO2 monitoring capability?

Yes
No

Characterize the chamber state of cleanliness and determine cleansing and decontamination agent(s).

◯ **Poor** ◯ **Unsatisfactory** ◯ **Satisfactory** ◯ **Good** ◯ **Exceptional**

List cleansing and decontamination agent(s) and additional comments.

Accreditation Survey
Class B Monoplace Hyperbaric Delivery System Part 1 General

Is oxygen supply pressure within manufacturer's range when chamber(s) not in use?

Yes
No

Where more than one chamber is installed, does each chamber have independent exhaust piping?

Yes
No

Is the chamber exhaust(s) termination point at the building exterior?

Yes
No

Is the chamber exhaust(s) termination point clear of possible building re-entry and nearby hazards?

Yes
No

Does chamber exhaust termination point have a protective mesh screen?

Yes
No

Is the chamber exhaust termination point clear of potential hazards, i.e. oriented to prevent ingress of rain, snow, and/or airborne debris?

Yes
No

Does the chamber exhaust termination point have pictograph identified signage prohibiting smoking and open flame and/or reads to the effect of "Oxygen Exhausting NO Smoking"?

Yes
No

Notes and Comments:

Accreditation Survey

Class B Monoplace Hyperbaric Delivery System
Part 2 Hyperbaric Chamber Facility Environment of Care

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

References for this section are:

- Compressed Gas Association, C-4
- National Fire Protection Association 99, 2024 Health Care Facilities Code
- National Fire Protection Association 101, 2024 Life Safety Code
- Undersea & Hyperbaric Medical Society 2004 Hyperbaric Facility Design Guidelines

Expectations: The hyperbaric facility adheres to all relevant state and local building codes and regulations, as it does all relevant state and local fire prevention regulations.

Is there a minimum clearance of 36 inches around any part of the chamber system that defines an exit pathway?

Yes
No

If the chamber control console is integrated into or immediately adjacent to the chamber, is there a minimum clearance of 36 inches between the control console and any obstruction?

Yes
No

Is any fluorescent lighting installed in the room housing Class B chambers located directly over the chambers?

Yes
No

If the room housing the monoplace chamber(s) has an exterior wall window(s), is the chamber protected from direct exposure to sunlight?

Yes
No

Is the room housing the chamber(s) sprinkler protected?

Yes
No

Is an oxygen pressure warning alarm panel installed in the hyperbaric facility to allow audio and visual monitoring by the chamber operator?

Yes
No

Accreditation Survey

Class B Monoplace Hyperbaric Delivery System
Part 2 Hyperbaric Chamber Facility Environment of Care

Is the monoplace chamber capable of depressurizing from 3.0 ATA to ambient pressure in not more than two (2) minutes?

Yes
No

Is respiratory (smoke hood) and eye protection from combustion products or smoke in the event of fouled air available for operations personnel?

Yes
No

Are all gas lines/outlets to the chamber(s) clearly labeled?

Yes
No

Is the time required to evacuate all personnel from the hyperbaric facility with a full complement of chamber occupants at treatment pressure being measured annually?

Yes
No

Is a prohibited items notice readily evident to patients?

Yes
No

During treatment, is the chamber operator physically present and maintaining visual contact with the control panel and visual or audible contact with the chamber occupant(s)?

Yes
No

Additional Comments

Accreditation Survey Supplement Part 1 Gas Cylinders

Transport, Handling, and Use of High-Pressure Gas Cylinders

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

References for this section are:

- National Fire Protection Association 99, 2024 Health Care Facilities Code.
- National Institute of Standards and Technology; Compressed Gas Safety 2020

Direct observation of all aspects listed below may not be possible during the survey. Staff members should, therefore, be questioned as to their understanding of the fundamentals of H.P. gas cylinder safe handling and use for aspects not otherwise observed.

If the hyperbaric facility is the H.P. gas cylinder point-of-delivery, confirm that cylinders are being inspected for correct labeling/ product identifier, hydrostatic or ultrasound test date (most have a 5-year cycle), and verified as free of visible signs of damage.

Are free-standing cylinders properly chained or supported by a proper cylinder stand or cart?

Yes
No

Are restraints being used in such a way that they secure each cylinder individually?

Yes
No

Are cylinders, whether full, in use, or empty, restrained on a transfer cart or fixed object by racks or chains?

Yes
No

Are cylinder valve protection caps in place and hand-tightened, except when in use or connected for use?

Yes
No

Are cylinders moved by hand truck or cart?

Yes
No

Are carts and hand trucks for cylinder transfer constructed for the intended purpose, self-supporting and provided with appropriate chains or stay?

Yes
No

Are cylinders not seen to be dragged, rolled on their sides, or allowed to strike each other forcefully?

Yes
No

Accreditation Survey Supplement Part 1 Gas Cylinders

Transport, Handling, and Use of High-Pressure Gas Cylinders

Are cylinders being rolled on their bottom edges more than 5-10 feet?

Yes
No

For longer distances, are cylinders being transported by cart or vehicle equipped to secure cylinders in place?

Yes
No

Are cylinders only being moved/transported with the regulator removed and cylinder valve protection cap properly secured? *Note: It is acceptable to move or relocate a cylinder within an individual space (single room) without removing the regulator providing the cylinder is secured and transported on a stable cart.*

Yes
No

Are cylinder contents briefly vented to remove any rust/other debris prior to attaching a regulator or hose/piping?

Yes
No

Do gas supplies from cylinders include a particulate filter to protect downstream piping system components?

Yes
No

Have training procedures for safe handling of compressed gas cylinders been provided?

Yes
No

Additional comments:

Accreditation Survey Supplement Part 2 Emergency Drills

Selected In-Chamber & In-Facility Emergency Drills

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Opportunities may not present themselves during the site survey for staff to conduct various emergency drills.

The intent of this section, then, is to determine operations personnel knowledge of their program's emergency procedures. These procedures have been provided to Board headquarters in advance of the site survey. So, too, documentation of the program's periodic safety/emergency drills. These materials will be reviewed and made available to survey team members for reference as operations personnel describe what actions they are expected to take during various adverse events. Ideally, this questioning should be extended to as many staff members as possible.

- ☐ **Patient complaint of chest discomfort/breathing difficulties during chamber decompression.**
- ☐ **Sudden change in patient status; consistent with the VENTID-C acronym.**
- ☐ **Patient seizure while at treatment pressure.**
- ☐ **A report of fire/fire alarm sounding in proximity to the hyperbaric facility.**
- ☐ **Fire in the chamber.**
- ☐ **Process in place for timed egress.**
- ☐ **Loss of patient communications (monoplace chamber).**
- ☐ **Loss of oxygen supply.**

Additional comments:

Accreditation Survey Supplement Part 3 Patient Interaction
Patient Interaction

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

The questions below are answered based upon patient responses only.

The intent of this section is to determine a patient's overall perception of delivery of their care. Answering the questions below offers insights into a patient's awareness of such things as their potential benefit, associated risks, safety-related concerns, and level of hyperbaric provider involvement.

Does the patient know the condition for which they are being treated?

Yes
No

On the first visit to the hyperbaric program, did a hyperbaric doctor/nurse practitioner, or physician assistant ask patient about medical history, perform examination, and discuss the potential benefits of hyperbaric oxygen therapy for their condition?

Yes
No

Was the patient briefed on risks, potential complications, and side effects that may be experienced during hyperbaric oxygen treatments?

Yes
No

Was the patient taught what items not to bring into the chamber, and does someone provide periodic reminders of prohibited items?

Yes
No

Does the patient see a hyperbaric doctor/nurse practitioner, or physician assistant during each visit for hyperbaric oxygen therapy?

Yes
No

Does a hyperbaric doctor/nurse practitioner, or physician assistant speak with and assess the patient each time they come out of the chamber?

Yes
No

Is the patient aware of the procedure if a medical problem occurs after leaving the hyperbaric facility?

Yes
No

Does the patient have any comments about their hyperbaric treatment visits they would like to share?

Yes
No

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

A. Appropriate container(s) for bio-hazard waste (not over filled)

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

B. Appropriate "sharps" container(s) for needles/blades (not over filled)

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

C. Appropriate use of gloves; removal of gloves after contact with body fluids and/ or excretions

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

D. Availability/presence of a licensed hyperbaric-trained staff member

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

E. Clean and used linens and patient- provided clothing stored on appropriate receptacles

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

F. Cleansing/decontamination of the chamber between patient treatments with approved product(s)

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

G. Daily start up procedure & system checks

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

H. Daily shut down procedure

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

I. Disinfection of non-disposable medical equipment

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

J. Extent of provider attendance/supervision, interaction with each patient

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

K. Infection control practices/hand hygiene practices consistent with "Universal Precautions"

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

L. Informed consent process & hyperbaric patient teaching

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

M. Monoplace; all internal monoplace chamber surfaces, mattress, pillow & gurney rails cleaned and disinfected following treatment

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

N. Multiplace chamber inside attendant pre- and post-decompression health screening

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

O. Multiplace chamber inside attendant decompression procedure

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

P. Multiplace chamber seating, cushions cleaned and disinfected following treatment (deck plates, when fitted areremoved for complete cleaning weekly)

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

Q. Multiplace patient BIBS cleaned/sterilized with approved product(s)

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

R. No evidence of food items in patient care areas

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

S. Patient nursing assessment

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

T. Pre-hyperbaric treatment patient assessment

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

U. Pre-hyperbaric treatment safety "time out"

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

V. Patient compression, treatment period & decompression phases

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

W. Post-decompression patient assessment

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

X. Staff member knowledge of current QAPI indicators

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Accreditation Survey
Tracers/Observations

Tracers/observations can be repeated at surveyor discretion, particularly where operations personnel are rotating in these tasks during the survey period.

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Select the practice investigated (select all that apply)

Y. "Go-No Go" checklist reviewed

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Z. Prohibited items authorization form reviewed

○ Poor ○ Unsatisfactory ○ Satisfactory ○ Good ○ Exceptional

Additional comments

Accreditation Survey

Open Surveyor Comments

_____ Inspection Date *(List the start date of onsite inspection of facility)*

_____ Surveyor ID

_____ Facility ID

Accreditation Survey

Open Surveyor Comments

STANDARD: INFECTION PREVENTION CONTROL POLICY DOCUMENTATION

1. The hospital has written policies documenting procedures that will be taken to prevent and control the transmission of infections both within the hospital and between the hospital and other settings.
2. There is a written policy and procedure for the management of patients in the department who are in isolation or have a known communicable disease.
3. The written policy for infection control sets forth hand hygiene guidelines to be followed based upon Centers for Disease Control (CDC) and/or World Health Organization (WHO) hand hygiene guidelines.
4. The infection control program includes surveillance activities to monitor for effective prevention of hospital acquired infections.
5. Infection prevention measures are being taken to maintain a clean and sanitary patient care environment to avoid sources and transmission of infection.
6. Measures are taken to reduce the risk of infection from medical equipment, devices, and supplies.
7. Competency-based training and orientation related to infection control guidelines, policies and procedures are provided to all hospital and contracted personnel working in the department, as well as medical staff working in the department.

Section References

DNV Accreditation Requirements IC.1 Infection Prevention and Control Program SR.1-SR.6

CMS Conditions of Participation for Hospitals, Infection Prevention & Control §482.42(a)(2), §482.42(a)(3), §482.42(c)(2)(iv)

TJC Standards NPSG.07.01.01, IC.01.05.01, IC.02.01.01, IC.02.02.01

- Does the program have a written policy for infection control measures to reduce the transmission of infection?
- Does the program have a written policy for infection control measures that should be taken for patients who are in isolation or have a known communicable disease?
- Does the program have a written policy for hand hygiene?
- Does the program have a written policy and procedure for the cleaning of hyperbaric chambers to prevent transmission of infection?
- Does the program monitor compliance with hand hygiene policies and procedures?
- Hand hygiene includes at least the following:
    - Staff decontaminate their hands (antiseptic hand rub or antiseptic hand wash) after contact with a patient's intact skin (i.e., taking vital signs or lifting/moving a patient).
    - Staff decontaminate their hands after contact with body fluids or excretions, mucous membranes, non-intact skin and wound dressings.
    - Staff decontaminate their hands after removing gloves.
    - Gloves are worn by staff when contact with blood or other potentially infectious materials, mucous membranes, or non-intact skin could occur.
    - Gloves are removed by staff after caring for a patient.
    - Gloves are changed by staff during patient care if they move from a contaminated body site to a clean body site.
    - Gloves are removed by staff & hands are decontaminated prior to obtaining supplies from a clean or sterile area during patient care.
- Are there cleaning logs for each hyperbaric chamber that follow manufacturer's recommended procedure for daily, weekly, and monthly cleaning?
- Cleaning of monoplace chambers between each patient includes at least the following:
    - Gurney rails, mattress, and pillows are cleaned with a disinfectant approved by the chamber manufacturer.
    - The acrylic on the inside of the chamber and the footplate are cleaned with a disinfectant approved by the chamber manufacturer.
    - Linens are removed and clean ones are applied.
- Measures are taken to maintain a clean and sanitary environment for personnel, patients, visitors, contracted personnel, and anyone else in the department?
    - No items are stored under sinks unless a policy permits this.
    - All hard surfaces are cleaned between patients using an appropriate product and following manufacturer's recommended contact time.
    - Low level disinfection is performed on non-disposable medical equipment between patient use for items such as glucose monitors, stethoscopes, BP cuffs, etc.

- High level disinfection is performed on medical equipment such as surgical instruments, etc.
- Linens are stored in a covered area and no strings or parts of the cloth are touching the floor.
- Linens are placed in an appropriate receptacle after use.
- Biohazard waste is disposed of in appropriate biohazard containers.
- Trash and linen hampers are not overflowing.
- Supplies are stored in a clean supply room or other appropriate area that protects them from getting wet or experiencing cross contamination.

- Is there documentation of competency-based training related to infection control guidelines, policies, and procedures for all hospital and contracted personnel working in the department as well as the medical staff in the department?

National Board
Standard: Nursing Assessment and Reassessment

1. A Registered Nurse shall complete an initial nursing assessment of the patient's condition according to the written nursing policies for the organization specific to the area where the services are provided. (Outpatient, clinics, inpatient, etc.).
2. The organization will determine by written policy where the elements of this assessment are documented.
3. The organization will determine by written policy if any data in the nursing assessment(s) is allowed to be collected by someone other than the Registered Nurse, what specific data that would include, and who is authorized to collect it.
4. The nursing assessment will include, but not be limited to:
    a. Admitting problem(s).
    b. Allergies.
    c. Pain history and current status.
    d. Co-morbid conditions.
    e. Current medications (including OTC and illicit drugs).
    f. Fall risks.
    g. ADL/Mobility needs.
    h. Social, cultural, and language barriers.
    i. Abuse or neglect.
    j. Vision and hearing impairments.
    k. Developmental, cognitive disorders.
    l. Emotional, behavioral, and mental disorders.
    m. Nutritional status and dietary requirements; and,
    n. Discharge planning needs.
5. Nursing staff will reassess the patient at regularly defined intervals according to the written nursing policies for the organization specific to the area where the services are provided and if the patient's condition changes.
6. The initial nursing assessment considers the patient's treatment goals and appropriate nursing interventions in response to the identified nursing care needs, which forms the basis of the nursing care plan.
7. Nursing reassessments of the patient's response to interventions and current nursing care needs guides updates to the nursing care plan.

Section References

DNV Accreditation Requirements NS.4 Assessment-Reassessment SR.1-SR.4

CMS Conditions of Participation for Hospitals §482.23(b)(4)

TJC Standards PC.01.02.01, PC.01.02.03, PC.01.02.05, PC.01.02.07, PC.01.02.08

- Does the organization have a written policy for the nursing assessment of new patients?
- Does the organization have a written policy for the re-assessment of existing patients?
- Does the policy state that assessments must be performed by a Registered Nurse?
- Does the policy state if anyone else can collect data to be used by the Registered Nurse in performing assessments, as well as what data they can collect?
- Does the policy state where assessments are to be documented?
- Does the documented initial nursing assessment in the medical record include:
    - admitting problem(s).
    - Allergies.
    - Pain history and current status.
    - Co-morbid conditions.
    - Current medications (including OTC and illicit drugs).
    - Fall risks.
    - ADL/Mobility needs.
    - Social, cultural, and language barriers.
    - Abuse or neglect;
    - Vision and hearing impairments.
    - Developmental, cognitive disorders.
    - Emotional, behavioral, and mental disorders.
    - Nutritional status and dietary requirements; and,
    - Discharge planning needs
- Does the reassessment in the medical record document patient's responses to care being provided?
- Are all nursing assessments and reassessments performed by a Registered Nurse?
- Are all nursing assessments performed at the time intervals consistent with the written policy?

1. The department/program collects data to monitor and improve its performance, patient safety, and overall quality of patient care and operations focusing on high risk, high volume, or problem prone areas.
2. The leadership/governing body determines by written policy the frequency of data collection and reporting.
3. The department/program collects data appropriate to the patient population it serves, including at least the following:
    - 3.1 Complications of treatment.
    - 3.2 Adverse events.
    - 3.3 Significant medication errors.
    - 3.4 Significant adverse drug reactions.
    - 3.5 Patient perception of the safety and quality of care, treatment, or services.
4. The department/program compiles and analyzes data
    - 4.1 Statistical tools and techniques are used to collect and analyze data.
    - 4.2 Data is analyzed and compared over time to determine levels of performance, patterns, trends, and variations.
    - 4.3 Results of data analysis are used to identify improvement opportunities.
    - 4.4 Any identified undesirable variations in performance related to the safety and quality of care will evaluate adequacy of number of staff and skill mix, including nurse staffing, in analysis of possible causes.
5. The department/program improves performance on an ongoing basis.
    - 5.1 The department/program takes corrective action on QAPI undesirable variations.
    - 5.2 The department/program takes additional corrective action when planned improvements are not achieved or sustained.
6. QAPI activities, findings, and plans for improvement are discussed during monthly departmental staff meetings.
7. QAPI reports are shared with the organization's quality committee and Board of Directors, where such exists.
8. The QAPI plan is reviewed and updated annually.

Section References

DNV Accreditation Requirements QM.1 Quality Management System (SR.1-SR.2)

CMS Conditions of Participation for Hospitals §482.54, §482.21

TJC Standards PI.01.01.01, PC.02.01.01, PC.03.01.01

- Does the organization have a written QAPI policy?
- Does the policy state the frequency of data collection?
- Does the policy state the frequency of submitting reports?
- Do the indicators chosen support improvement of patient safety, quality of care, or department operations?
- Is there documented data collection that includes at least the following:
    - Complications of treatment.
    - Adverse events.
    - Significant medication errors.
    - Significant adverse drug reactions.
    - Patient perception of the safety and quality of care, treatment, or services Fall risks.
- Is there a summary report of findings for each indicator data collected?
- Are corrective actions implemented, measured, and monitored for effectiveness?
- Are corrective actions re-measured to ensure sustained improvement?
- Is data collection and reporting consistent with time frames set forth in QAPI policy?
- Are QAPI activities and findings shared in departmental/program staff meetings?
- Are QAPI activities and findings shared with organization's QAPI committee and/or Board of Directors?
- Is the QAPI plan reviewed and updated at least annually?

If the hyperbaric facility is the cylinder(s) point-of-delivery, it should be inspected for correct labeling/product identifier, hydrostatic or ultrasound test date (most have a 5-year cycle and verified free of visible signs of damage). NIST S 7101.61 Rev. 3 Requirements b. (5)b(2). It must be labeled with a product identifier NIST S 7101.61 Requirements b.(5)b.(2)(a)

Free standing cylinders shall be properly chained or supported by a proper cylinder stand or cart. NFPA 99 11.6.2.3(9) Restraints should be used in such a way that they secure each cylinder individually. NIST S 7101.61 Rev. 3 Requirements b (5)(a)i

Cylinders, whether full, in use or empty, should be restrained on a transfer cart or fixed object by racks or chains to prevent being knocked over or falling. NFPA 99 11.3.5.2(9) Cylinders must be moved by hand truck or cart NFPA 99 11.6.2.3(10)

Hand-tightened cylinder valve protection caps should be kept in place and hand-tightened, except when in use or connected for use. NFPA 99 11.6.2.2(4)

Carts and hand trucks for cylinders must be constructed for the intended purpose, be self-supporting and provided with appropriate chains or stay to retain cylinders. NFPA 11.4.3.1.1

Cylinders shall not be dragged, rolled on their sides, or allowed to strike each other forcefully. NIST S 7101.61 Rev. Requirements 3 b.(2)

Cylinders must not be rolled on their bottom edges more than 5-10 feet. For longer distances, cylinders shall only be transported by cart or vehicle equipped to secure cylinders in place. NIST S 7101.61 Rev. 3 Requirements b.(3)(a) & b(3)(e)

Cylinders can only be moved/transported with the regulator removed and cylinder valve protection cap properly secured. It is acceptable to move or relocate a cylinder within an individual space (single room) without removing the regulator providing the cylinder is secured and transported on a stable cart. NIST S 7101.61 Rev. 3 Requirements b.(3).(g)i

Cylinder contents should be briefly vented to remove any rust/other debris prior to attaching a regulator or hose/piping. NFPA 99 11.6.2.2(1)

Gas supplies from cylinders shall include particulate filters to protect downstream components of the piping system. NFPA 99 14.2.1.3.3

Training procedures for safe handling of compressed gas cylinders are required. NFPA 99 11.6.1

National Board
Guidance: Multimeter Calibration

If the multimeter does not provide a means of calibration (common with less expensive models), it is acceptable to test it against another multimeter. Perhaps available within the facility's Biomedical Department or carried by a technician during annual monoplace chamber servicing, perhaps.

It is recommended to only test it for accuracy at 1Ω . Accuracy is not usually stated at such a low resistance, as any slight lack of contact of the probe against the chamber and/or electrical earth point, the resistance of the leads, the surface covering (corrosion or oxidation) on either of the two surfaces, etc., would introduce a level of inaccuracy exceeding the value usually accepted.

The accepted value of a reasonably well-made multimeter, on the resistance setting, would be 0.5 – 1.0% of the reading. That is fine for say a reading of 400Ω (± 4Ω) but of no value where you are measuring 1 Ω or less. 1% of 1 is 0.01Ω but most hand-held multimeters only offer one decimal point – so it could be out by as much as 4% (0.05 would show as 0.1 on the meter, as it rounds up or down).

Even with the most accurate meters, unless the contact points are soldered securely onto the two surfaces, you are going to get some variance.

So, the options are: (1) If the multimeter has a stated accuracy of say 1.0 to 1.5%, and you can zero it, and if the reading is less than 1Ω, then that would be an acceptable value. (2) If it doesn't allow you to zero the reading, then having a second, different brand, multimeter would be sufficient to use it to test the meter. (3) If this is done monthly, there should not be any calibration issue.

Lastly, the valve of 1Ω is purely for control – meaning there is some form of target – which is really zero. Equipment is grounded to prevent damage, stray voltages, and electrocution. However, the only one of these likely to happen (a remote possibility) is electrocution where someone touches the chamber and touches a live, 120 Vac wire attached to an item such as medical monitoring equipment that runs on mains, or the power outlet used to plug in the chamber communications system. The electrical outlet is meant to be fitted with, or connected to, a GFCI, meaning it would trip before anyone is seriously hurt. If not, then there could be an issue. In this case, any value would be acceptable in the 0 – 1000 range. Accuracy is thus moot. A pass or fail reading is needed – meaning something as close to 1 Ω as possible.

It is recommended that two multimeters are available, ideally one with a zeroing capability. When monthly or periodic chamber ground tests are conducted there is something with which to compare the reading.

National Board
Guidance: Safety 'Time Out' Essentials

The purpose of a pre-treatment safety time out is to verify that all necessary steps have been taken to optimize patient and staff member safety. This precautionary measure is undertaken prior to initiating each hyperbaric chamber treatment and its results formally documented by no less than two facility personnel. The following process, created as a checklist, serves to ensure compliance with mandated safety procedures and combat complacency.

The patient(s) identity is confirmed (two points); their vital signs, lung sounds, pain level, and blood glucose level (in diabetics) are assessed and recorded.

The patient is confirmed as wearing hyperbaric facility provided clothing (absence of pockets) and checked to ensure absence of heat generating skin patches.

The patient is screened to ensure absence of personal battery-powered items (hearing aids, biometric sensors of any type, smart glasses; etc.) and any other items consistent with a Prohibited Items checklist.

A patient grounding device is attached and its conductivity confirmed (monoplace chamber operations).

An air breathing assembly is provided, tested and the patient remined of its procedure for use (monoplace chamber operations).

The patient's hyperbaric dosing protocol is confirmed.

National Board
Guidance: Findings of Apparent Health Law Violations

If during the accreditation survey, it appears that the facility or any physician or employee associated with it, may be failing to meet the requirements of any Federal health care law, including but not limited to the False Claims Act, such concerns will be reported to the client facility. It is the obligation of the facility and its Compliance Department to decide as to whether the reported concern amounts to a violation of health care law, and if so, to comply with the reporting requirements of any such health care law. The National Board of Diving & Hyperbaric Medical Technology does not, and is not being contracted to, provide legal advice.

National Board
Accreditation Survey Decisions

The National Board's decision will be delivered within (15) business days of survey completion, as follows:

- Accreditation awarded.
- Accreditation pending resolution of minor deficiencies; no additional site visit anticipated.
- Accreditation pending resolution of significant deficiencies; additional "direct expenses only" site visit may be required.
- Accreditation denied, deficiencies provided. Any re-application must be no sooner than six months from this decision date.