

# ***RBWH Hyperbaric Medicine Service***



## **Patient Information Booklet**

## *Welcome!*

This booklet contains information about Hyperbaric Oxygen Therapy (HBOT), our unit and your treatment process. Please ensure you read through the booklet to make yourself familiar with the information. Use the last page to note any questions you might have so you can ask one of the staff.

## *What is hyperbaric oxygen (HBOT) therapy?*

Hyperbaric oxygen therapy is the breathing of 100% oxygen while inside a treatment chamber, at a pressure greater than sea-level (normal air pressure in Brisbane). This provides the patient with greatly increased amounts of oxygen to their body via their lungs.

Hyperbaric oxygen therapy has long been accepted as the treatment for decompression illness (the “bends”), a complication of diving and much of the terminology and structure of this therapy reflects that history. Research has now demonstrated that hyperbaric oxygen therapy has also improved the outcome and quality of life for patients with many other conditions.

## *What is a hyperbaric chamber?*

A hyperbaric chamber is a pressure vessel built to withstand an increase in its internal pressure. Hyperbaric chambers are generally cylindrical, spherical or rectangular. The RBWH has two different types of chambers.

For most patients, the treatment will normally be carried out inside a multiplace (multi-room) chamber. This chamber is pressurised with air and the patient is given 100% oxygen to breath via a clear hood or a mask. The chamber is constructed of steel with porthole windows. This chamber is rectangular in shape and has 3 compartments or rooms. The main room is referred to as the Main “lock”. It is the one most often used and may accommodate up to 7 patients per treatment compression. Our other smaller room is named the “inner lock”. It is usually reserved for emergency or diving-related injuries. The centre room is the “entry lock”. This room is used as an entrance to the middle and inner locks and has a toilet for use if required during treatment.

The Hyperbaric Medicine Service also has one monoplace (single person) chamber. This is cylindrical and made of a clear specialised acrylic. The patient lies on a purpose built trolley to enter the chamber. This chamber is pressurised with 100% oxygen. Both chambers provide the same therapy and ensure the same outcome.



### *How does hyperbaric oxygen work?*

The air we breathe contains approximately 21% Oxygen and 79% Nitrogen with minimal amounts of other gases. In certain medical conditions extra oxygen levels are required for healing. During HBOT the pressure is increased greater than sea-level and 100% Oxygen is delivered for patients to breathe. Breathing Oxygen under pressure causes a much larger than normal amount of oxygen to be dissolved in the blood and, subsequently delivered to the rest of the body.

The extra oxygen is used by the body in many ways depending on a patient's underlying medical problem. HBOT can provide an important adjunct in

wound healing and treating the late side-effects of radiotherapy. This occurs by several ways including; the stimulation of new blood vessel growth; mobilising bone marrow stem cells to the sites of injury; reduction of swelling; and enhancing the body's immune system which, in turn assists in fighting infection. In diving injuries, there is a reduction in gas bubble size and a reduction in the body's response to that injury.

### *About the treatment*

There are a few different hyperbaric treatment profiles. The treatment profile utilised depends on the condition being treated. Each Treatment Profile includes three phases. The first is the compression (or pressurisation) phase, this is when the treatment compartment is pressurised with air (this takes approximately 15 minutes). The next phase is the oxygen breathing phase which starts when you are delivered oxygen through an oxygen delivery system. The oxygen breathing phase for our most routine treatment is 75 minutes but for those being treated for Decompression Illness, this can be several hours. Lastly, the decompression phase is when the pressure in the treatment compartment is slowly released, at this time the nurse in the treatment with you will also breath oxygen (this takes generally 20 minutes). The total treatment time is almost 2 hours in the chamber.

### *What Conditions can be treated?*

- Air Embolism/Arterial Insufficiencies:
  - Acute Retinal Artery or Vein Occlusion (within 12 hours of onset)
  - Selected Problem Wounds where Hypoxia can be demonstrated
- Decompression Illness
- Carbon Monoxide Poisoning
- Crush Injuries and Skeletal Muscle-Compartment Syndromes
- Clostridial Myonecrosis (Gas Gangrene)
- Compromised Flaps and Grafts

- Refractory Mycoses
- Refractory Osteomyelitis
- Delayed Radiation Injuries (Soft Tissue and Bony Necrosis)
- Idiopathic Sudden Sensorineural Hearing Loss
- Intracranial Abscess
- Necrotising soft Tissue Infections
- Severe Anaemia
- Thermal Burns



The number of treatments you will require varies and depends on the medical condition being treated. On average most patient conditions require 30-40 treatments. We treat 5 days a week, Monday - Friday, with usually one treatment per patient, per day. Usually there are several patients in the treatment compartment at the same time.

Although you will need to attend regularly, treatment times may vary slightly due to the clinical needs beyond our control. To prepare for your daily treatment, we ask you to arrive 30 minutes prior to the treatment start time

for a pre-treatment check where you will have the opportunity to talk to the Hyperbaric Doctor or Nurses about any issues that might arise. Please ask if you have any queries.

### *Preparation for your treatment*

The following recommendations are made to improve the safety, comfort and the benefit you will obtain from the treatment.

- Your fitness for treatment will be assessed by a Specialist Hyperbaric Doctor prior to your first treatment. Subsequent assessments will occur as necessary, but you will be asked every day if you have any change to your general health. General health changes might include for example, developing a cold, having problems with your ears or having new dental work.
- You will be shown how to “clear” (or equalise) your ears. This is a technique used to equalise the pressure on either side of your eardrum to prevent damage to the drum during the initial pressurisation phase of the treatment. By holding your nose closed and then attempting to blow through it, or simply swallowing, air can enter the middle ear cavity via the Eustachian tube. It is only necessary to do this during the compression or pressurisation phase. The hyperbaric nurses are there to help you with this important technique, please do not hesitate to tell them if you are having any difficulties with your ears.
- Plenty of rest and a healthy diet are key elements in the healing process. These are recommended during HBOT. Diabetic patients are encouraged to eat prior to a treatment session. HBOT often causes a drop in blood glucose level. If you are diabetic your blood glucose level will be checked prior to each treatment.
- Smoking or the use of other tobacco products reduces the amount of oxygen carried by the blood, as well as causing blood vessels to narrow. The combination reduces the oxygen delivery to tissues, counteracting the benefit of HBOT therapy. If you are unable to cease smoking this will need to be discussed with the Hyperbaric Doctor prior to a start date being arranged.

- If you have a wound, your dressings will be attended prior to or following your HBOT treatment. All wounds are covered during the treatment.
- To reduce the risk of fire in the chamber certain precautions are taken. You will be provided with specific cotton clothing to wear.

The following items are **not permitted** in the chamber:

- lighters, matches, smoking products
- make-up, perfumes, aftershaves, hair spray / oil
- creams, lotions, linaments, ointments
- petroleum or Vaseline products
- wigs or hair-pieces
- battery-operated / electrical devices
- synthetics (rayon, nylon, etc.), including pantyhose
- hard contact lenses
- excessive paper products including newspapers

**Note:** deodorant is permitted in the multi-place chamber

Please ask the Chamber Supervisors or Hyperbaric Nurses if you are not sure.

### *Are there any side effects?*

Side effects are uncommon but will be discussed with you by the Hyperbaric Doctor. Side effects generally relate to the increase in pressure or the increase in amounts of oxygen. Some patients may also experience visual changes; this is usually temporary and should disappear within a couple of months of ceasing therapy. Your vision will be checked regularly throughout the course of treatment. If at any time during the treatment you feel uncomfortable or have any sensation that is not normal for you, please report it to the Hyperbaric Nurse.

If at any time during the treatment you feel uncomfortable or have any sensation that is not normal for you, please report it to the Nurse.

### *How will it feel during the treatment?*

During the compression phase, it will be quite noisy due to the pressurised air entering the chamber compartment. It will seem warm at first and then the temperature will adjust to a comfortable level. You will feel the change in pressure in your ears, similar to that when descending in an aircraft. Using your effective equalisation technique, you should not have any discomfort. If you do have discomfort, please notify your nurse immediately.

During the decompression phase at the end of the treatment, air is exiting the chamber compartment and the environment becomes colder. You should feel your ears “popping” during this phase and you should not have to actively equalise your ears. In this phase the pressure changes in your ear should feel similar to when you drive up a mountain range.

### *What can I do during the treatment?*

In the multiplace chamber it is possible to read, rest, sleep, watch a movie or listen to a CD through the audio system. Your own electronic equipment cannot be taken into the treatment. In the monoplace chamber no reading material is permitted, you can however watch a movie, rest or sleep.

### *About the staff*

Our Hyperbaric Doctors will initially consult with you regarding your medical history, discuss any risks, determine the need for further investigations, obtain consent from you and initiate your treatment plan. They will regularly review you and your ongoing plan routinely and as required. A Hyperbaric Doctor is always available during a treatment if there are any concerns.

A Registered Nurse who has trained in this specialty will assist with your initial assessment, orientate you to the unit, provide education, particularly regarding equalising your ears, and be with you throughout the treatment. Every day our hyperbaric Nurses will check that you are well and fit for your treatment. At any time if you have any concerns or questions please do not hesitate to ask.



If receiving monoplace treatments a Nurse will provide you with extra education regarding these treatments and how they vary from multiplace treatments. They are in attendance, operating the monoplace chamber from the outside, under the chamber supervisors direction. They are able to hear, see and talk to you during your treatment whenever necessary.

The Hyperbaric Medicine Service has two full time Chamber Supervisors who look after all the technical aspects of the hyperbaric chamber and surrounds. They operate the multi-place chamber and ensure each treatment is carried out in a safe manner. The Chamber Supervisor oversees the monoplace operator and is available to assist at all times. Their role is to look after your safety and that of the Nurses whilst in the hyperbaric chamber. The Chamber Supervisor is able to observe everything through video monitors and microphones located in the chambers, communicating with the nurse through a wireless headset.

The Hyperbaric Medicine Service has other support staff that play an important role in other aspects of your appointment times and treatment. Our administration officer and operational support officer are here full time and will happily assist where necessary.

*For further information*

If you have any questions or need further information, please contact us at:

**Hyperbaric Medicine Service**  
Ground Floor  
Ned Hanlon Building  
Royal Brisbane and Women's Hospital  
Herston  
Brisbane QLD 4029  
Australia

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<b>Phone:</b>	(07) 3646 0241	+61 7 3646 0241
<b>Fax:</b>	(07) 3646 0747	+61 7 3646 0747

*Hours of Operation*

The Hyperbaric Medicine Service operates for routine treatments and assessments between Monday to Friday between 7.30am and 4.30pm with the exception of public holidays.

We provide a 24 hour on call service for acute patients referred for emergency treatment through the Royal Brisbane and Women's Hospital.



**Queensland  
Government**



**Partnering with Consumers** - National Standard 2. (2.4.1)  
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