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**Comment on FAQ: “How would an MD compensate for altitude in a monoplace chamber”**

There are actually two issues here: 1. What is the procedure for dosage (ATA O<sub>2</sub>) when at Altitude; what new pressure should be used? 2. What is the additional decompression risk to an Internal Chamber Assistant (IA) if using a Multi-place chamber in Altitude?

For the patient there are no decompression obligations due to the fact the patient is breathing pure O<sub>2</sub> and his internal dissolved Nitrogen is significantly reduced. However, at altitude, he/she may not be getting the correct dose at pressure when using a gage pressure gage! If the chamber has the over-pressure capability, then take the chamber to a new over-pressure that gives the actual desired ATA of PO<sub>2</sub>. This can be done by utilizing an accurate absolute pressure gage, the other is with a calculation of the needed overpressure. The adjustment is based on the local sea level barometric pressure at or close to the site of the chamber and the altitude correction factor at the site of the hyperbaric chamber.

DCAP<sup>1</sup> uses the following equation: Altitude Correction Factor =  $(1 - \text{elev}/145530)^{5.25486}$

Where elev is Local elevation in feet; Denver, CO is approximately 5,000 feet; the factor being 0.832

So in Denver (if the reported sea level barometric pressure is 30.21) the atmospheric pressure is:

(sea level barometric pressure/standard sea level pressure) \* Altitude Correction Factor

$(30.21/29.92) * 0.832$  or 0.840 atm; the over pressure would be 0.160 atm, or 5.3 fsw or 2.35 psi

Issue 2 is more complex for a multi-place Hyperbaric chamber, and needed some DCAP<sup>1</sup> study. DCAP predicts requiring decompression stops for the IA, both at sea level and at altitude (longer stops) with breathing AIR as the background gas mixture. As well, the Maximum Likelihood of pDCS is greatest with neither decompression nor O<sub>2</sub><sup>3</sup>. Decompression computations indicate that the IA would require O<sub>2</sub> administered according. We would recommend O<sub>2</sub> breathing for the IA at the end of the WH 20 psi treatment protocol; the IA decompression protocols presented in UHM 2014, Vol. 41, No. 6 – “ALTITUDE DECOMPRESSION TABLES FOR HBO<sub>2</sub> ATTENDANTS”<sup>2</sup> are sufficient for the AI during HBO treatments.

1. Hamilton, R.W., Jr., D.J. Kenyon, Decompression Computation and Analysis Program, June 2004, Hamilton Research, Ltd. , pages 1 to 10
2. UHM 2014, Vol. 41, No. 6 – “Altitude Decompression tables for HBO<sub>2</sub> Attendants”
3. Email from Dave Kenyon to Jim Bell on file “Analysis of WH HBO treatment table for the IA”