

relatively expensive in South Africa and obtaining reimbursement will remain an ongoing challenge. Treatment costs range from \$88 (in the military setting) to \$130 (in the private sector) – including physician supervision. For this reason, Third Party payers approve the acute indications more easily, as these involve a smaller number of treatments. The chronic UHMS HBO indications often require significant motivation and are less readily approved. These include (in decreasing order of resistance) chronic refractory osteomyelitis, selected problem wounds (almost exclusively diabetic wound problems) and radionecrosis. Some medical aids have unfortunately made policy decisions against reimbursing for HBO and it has become an important objective for SAUHMA to reverse this by distributing scientific evidence for HBOT, cost-effectiveness, as well as creating mechanisms and safeguards to prevent abuse of the therapy. The goals of SAUHMA are very similar to the UHMS and at present, only the UHMS indications are endorsed.

While the road ahead is by no means easy, it is likely that private HBOT will become firmly established in South Africa over the next 5 years, and that its primary application will preferentially evolve towards the more acute UHMS indications.

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## Letters to the Editor

### Thoughts regarding air-integrated versus separate-second-stage octopus supplies

Dear Editor,

Acott has previously discussed problems with buoyancy compensators (BCDs).<sup>1</sup> In the recent review of regulator incidents by Goble and Acott they state ‘The combination of a second stage regulator and a low-pressure BCD inflator as the ‘spare’ regulator is extremely difficult to use...’<sup>2</sup>

In an out-of-air (OOA) emergency, the air-integrated (Air2) alternative air source is definitely an inferior solution. If you are also wearing a dry suit, it becomes virtually unmanageable. An Air2 should never be fitted without a pull dump cable in the BCD deflator hose, to enable dumping the BCD without removing the Air2 from the mouth. However, this is a heavy task loading in a difficult circumstance, increasing the probability of an uncontrolled rapid ascent.

Another drawback of the Air2 configuration is the high probability that the unit is not serviced annually. Divers also tend to forget to cap the hose fitting, so water can enter the air barrel. If it is disconnected in sea water it must be thoroughly rinsed in fresh water to avoid corrosion.

On the other hand, proper gear maintenance and dive planning will make it extremely unlikely that you will need

to share air, as first stages rarely fail catastrophically. An advantage of the Air2 is that it teaches donating the primary, which I believe is the proper method, since odds are the stricken diver will go for the primary in any case. Therefore, despite Acott’s concerns, for no-decompression diving at recreational depths an Air2 is an acceptable compromise, provided students are taught properly how to use it and are warned of its limitations.

The most suitable open-water rig is a short-hose second stage hung from the neck with a bungee cord as a secondary or ‘octopus’ and a 2 m primary wound once around the neck. It is the primary that is donated in an OOA emergency and the donor takes the secondary. With this arrangement, there is plenty of hose for the recipient, reducing stress and allowing a controlled ascent, even from depth. This is the method favored by the GUE agency, and is an offshoot of the Hogarthian rig evolved for use in cave diving.

#### References

- 1 Acott C. An evaluation of buoyancy jacket safety in 1,000 diving incidents. *SPUMS J* 1996; 26: 89-95
- 2 Goble S, Acott C. Regulator incidents: 52 incidents from the Diving Incident Monitoring Study. *SPUMS J* 2003; 33: 30-34

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### Reply from Dr Christopher J Acott

Thank you for the opportunity to reply to Mr Bloede's letter. Whilst I cannot add much, some points need to be emphasised.

The original Air2 leaked and was responsible for some OOA or low-air situations even with the divers regularly checking their contents gauges (I personally am included in these data). There have been no more reports received about this problem in the past five years.

The original Air2 could not be used with a dump cable in the deflator hose. Even if it now can be used, any emergency situation that requires one diver to remove their second stage from their mouth for buoyancy control is dangerous, because it is associated on many occasions with a rapid ascent. The donor in the management of an OOA situation must maintain any buoyancy compensator auto inflation/deflation device in a readily available position. This has been highlighted in the Diving Incident Monitoring Survey (DIMS) data.

A lack of servicing was highlighted in the DIMS data but this is also a problem of 'octopus' regulators in general. Because they are rarely used there is no need to service them! Unfortunately, a lack of proper gear maintenance and dive planning are common contributing factors in the DIMS reports. DIMS also showed that in the OOA and low-air situations a failure to check the contents gauge was the main cause.<sup>1</sup>

From the DIMS data I do not believe that an Air2 or similar device employing a combination of a second stage and inflation/deflation device is safe even in 'no stop' recreational diving. The management of any emergency situation must use the 'KISS' principle and having a dual role for any piece of equipment is dangerous.

#### Reference

- 1 Acott CJ. Incident reporting: out of air and diving safety. In: Cimsit M, Aktas S, Aydin S, eds. *Proceedings of the XXth Annual Meeting of the European Underwater and Baromedical Society on Diving and Hyperbaric Medicine*. Istanbul: Hyperbaric Medicine and Research Centre [HITAM], 1994: 32-41

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Letters, scuba, equipment, emergency ascent

## The Abacus Project, Canada

Dear Editor,

Thank you again for providing the means through the *SPUMS Journal* to bring the Abacus Project to the attention of researchers and practitioners interested in dive safety. I appreciate being given permission to reproduce our *SPUMS Journal* article.<sup>1</sup> The paper is available as a PDF file, which includes a revised membership application form for SPUMS that fits on a single page when printed. The SPUMS web site URL on the application page is hot-linked.

Recently, the UCBC sponsored a cold-water diving safety symposium as part of Underwater BC 2003. The Vancouver Aquarium and Marine Science Centre donated a booth to the Abacus Project, and we had tremendous interest in the results from the public. We distributed 800 copies of the article and a summary sheet of the results. The amount of interest took us by surprise.

I have stayed pretty neutral in public on my views about whether the results indicated diving is a high- or low-risk activity. Only one person thought the rate of decompression illness was high. Several family members of divers commented they found the results reassuring. Just about everyone seems to find the incidence lower than they would have guessed.

Have you heard anything or had any comments or reactions from the Journal subscribers?

#### Reference

- 1 Ladd G, Stepan V, Stevens L. The Abacus Project: establishing the risk of recreational scuba death and decompression illness. *SPUMS J* 2002; 32: 124-128

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#### Editor's note:

The authors have copies of all the documents they developed, examples of correspondence, protocols, etc., in other words a manual of sorts, available for anybody interested. They had hoped that their investigation would spark debate over the methodology and/or create interest in doing similar studies elsewhere. The interest generated in British Columbia by this research project is in somewhat stark contrast to the response generated amongst our nearly 1000 subscribers to the majority of articles in this journal. Is there anyone out there?

#### Key words

Letters, epidemiology, recreational diving, accidents