

off its rest and was damaged by flying debris later. It was, however, still largely intact. The acrylic was blackened on the inside and both the exhaust valves had opened and passed the soot containing gas as planned, but of course they could not cope with the exhalation of the huge amount of gas of an explosion.

### Seechrist chambers

The Chief Executive of Seechrist, David Bush, spoke and stated that they had over 700 chambers around the world that had been in use for 20 years. He said that no patient had ever previously been injured.

Seechrist were originally told there had been no fire, therefore initially sent a letter out advising stopping all use of their chambers because of the possibility that the hull had failed. They immediately contacted the Federal Drug Authority (FDA), who later complimented the firm on its responsible and professional approach to the whole thing.

It was quickly established that the chamber had failed in a manner in which it should. Seechrist chambers are constructed in accordance with the requirements of PVHO (Pressure Vessel for Human Occupancy) Division of the ASME (American Society Mechanical Engineers) standards for a chamber building. This requires that it should fail in such a way that the hull of the chamber does not explode or disrupt.

Since this incident, many people have tightened their procedures and have found errors. One patient was trying to get in complete with cigarettes and a lighter! Some units, particularly in Japan, are now trying to use metal detectors such as the portable ones used at airports. They would pick up the iron filings in a package such as the "Kairo".

A few units have changed to compression with air, with oxygen breathing by mask or hood, but this demands meticulous attention to the mask or hood fit to control leakage and the oxygen percentage in the chamber. The Japan Hyperbaric Society, after its review, still recommends compressing all patients in oxygen in these chambers.

Seechrist pointed out that the very small number of other incidents that have occurred in their chambers have not resulted in patient injury and that each has been due to a different problem, none of which has been due to their equipment failing. There have been two or three abnormal events such as unexplained decompressions, though these were put down to inadvertent operator error when investigated.

This is the only major accident for this firm in 20 years with over 700 chambers in operation and with many millions of patient treatments.

There has never been a validated failure of a Seechrist chamber nor an injury resulting from a problem.

### Conclusion

A full report will be put out shortly, probably in October. An abbreviated report will appear in the next edition of *Pressure*.

The meeting was given an extremely frank and very detailed verbal report. It illustrated, once again, that recompression of patients, within a hyperbaric facility, in a high oxygen concentration is not without risk. However, the Chief Executive Officer of Seechrist pointed out that any form of compression therapy runs the risk of decompression injury such as barotrauma, even though the risk is very small.

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*A verbal report of this incident was presented at the Hyperbaric Technicians and Nurses Association (HTNA) Meeting in Hobart in August 1996.*

## MEDICAL CERTIFICATES AND NEW DIVING LEGISLATION IN QUEENSLAND

John Hodges

### Key Words

Legal, medicals, medical standards, occupational diving.

### Introduction

For the last six years, Queensland's workplace health and safety legislation for underwater diving at a workplace required compliance with *AS 2299 - Occupational Diving*. This is no longer the case with new legislation which came into effect on 2 July 1996. The new legislation, the *Workplace Health and Safety (Underwater Diving Work) Compliance Standard 1996*, has specific requirements about certificates of medical fitness to dive for people doing any underwater diving work.

### Who has to hold a medical certificate?

Employers, self-employed people and workers who do any type of underwater diving work must hold a current "certificate of medical fitness to dive". This applies across the board to all types of diving work, not to members of the public doing recreational diving or other non-work activities. Examples of underwater diving work include underwater filming for a movie, fish collecting, scrubbing the hull of a ship and training recreational divers.

While the compliance standard is effective from 2 July 1996, people doing the following types of underwater diving work are not required to hold a current "certificate of medical fitness to dive" until 2 July 1997:-

- people who conduct recreational diving or training to go recreational diving (for example, dive instructors and dive masters who conduct these activities as part of their employment)
- people who take souvenir photographs, films or videos of people doing recreational diving (for example, this covers a person who takes underwater photos of people doing recreational diving and sells those photos to the people doing the diving).

It is the responsibility of the employer to make sure his or her worker holds a current certificate of medical fitness to dive. Employers and self-employed people must also hold a current certificate if they are going to do any underwater diving work.

### What is a current certificate?

A current certificate is one that is less than 12 months old and has not expired, been revoked or superseded. People doing underwater diving work will need to have an annual medical examination to obtain a "current" certificate.

A "certificate of medical fitness to dive" is a certificate that:

- a is issued by a doctor who has satisfactorily completed training in diving medicine approved by the Board of Censors of the South Pacific Underwater Medicine Society; and
- b contains the following information:
  - the name of the person who holds the certificate;
  - the date the certificate was issued;
  - shows that the person is medically fit to dive according to the fitness criteria in AS 2299-1992 *Occupational Diving*, appendix A, paragraph A3;
  - any limitations on diving imposed by the doctor.

If the person is under the age of 18, the doctor may issue a certificate despite the minimum age of 18 for a diver being stated in AS 2299 - 1992, appendix A, paragraph A3. However, the certificate must show either:

- that apart from being under 18, the person is medically fit to dive in accordance with AS 2299 - 1992, appendix A, paragraph A3 and no limitations on diving are needed even though the person is under 18; or
- that apart from the limitations on diving stated on the certificate, the person is medically fit to dive in accordance with AS 2299 -1992, appendix A, paragraph A3. The certificate must show which, if any, of the limitations are imposed because the person is under 18.

While the AS 2299-1992 fitness criteria specify a minimum age of 18 for divers, the compliance standard allows people under the age of 18 to hold a certificate of medical fitness to dive as there are circumstances where a person under the age of 18 may wish to do underwater diving work. For example, a 16 year old actor may be required to do underwater diving scenes for a film and therefore would need to hold a certificate of medical fitness to dive. Whether a person under 18 is declared fit to dive or not is a matter for the doctor's discretion. The type of diving work the person intends to do may be a relevant factor in assessing whether the person is fit to dive.

As employers, self-employed people and workers doing underwater diving work in Queensland must hold a certificate that shows the above information, it would be most useful if doctors issuing certificates to these people make sure all the relevant information is shown on the certificate.

### Training in diving medicine

The compliance standard requires the certificate to be issued by a doctor who has satisfactorily completed training in diving medicine approved by the Board of Censors of the South Pacific Underwater Medicine Society (SPUMS). This is more specific than previous legislation which did not make an explicit statement about the experience in underwater medicine a doctor required to issue a diving medical certificate.

At present, doctors who have satisfactorily completed any of the following training may issue a certificate of medical fitness to dive:

Royal Adelaide Hospital Basic Course in Diving Medicine and the Advanced Course in Diving and Hyperbaric Medicine

Royal Australian Navy Basic Course, Advanced Course or the Medical Officers Underwater Medicine Course

- Diving Medical Centre Medical Examiner Course
- Fremantle Hospital Medical Assessment of Divers Course
- Royal New Zealand Navy Basic Course
- Christchurch Hospital Basic Course
- Institute of Naval Medicine (UK) Medical Examiner Course
- United States Navy Diving Medical Officer Course

If the Board of Censors of SPUMS approves any new training in diving medicine, these courses will also be covered by the compliance standard.

Because SPUMS recommends courses of 10 days duration or more as the most appropriate training for carrying out AS 2299-1992 medical examinations, it needs to be noted that the compliance standard permits a doctor with any training in underwater medicine approved by the Board of Censors to issue certificates of medical fitness to dive, and that not all approved courses meet the recommended training period of 10 days.

Brochures about diving medicals and construction diving work are available from the Division of Workplace Health and Safety.

Copies of workplace health and safety legislation can be ordered through the Division or from GOPRINT (telephone 07 3246 3399 or facsimile 07 3246 3534). The Division of Workplace Health and Safety is now on-line. Workplace health and safety legislation can be accessed on the Division's homepage via the Internet. Home page address <http://www.gil.com.au/va/whs-home/whs/htm> .

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## SPUMS NOTICES

### CORRECTIONS TO SPUMS JOURNAL SEPTEMBER 1996

#### A REVIEW OF THE SHARPENED ROMBERG TEST IN DIVING MEDICINE

Ben Fitzgerald  
 SPUMS J 1996; 26 (3): 142-146

On page 144 Table 4 was missing some results. The corrected Table 4 is printed below.

**TABLE 4**

#### SHARPENED ROMBERG TEST SCORE IN DIVING PATIENTS WITH AN ABNORMAL RESULT (LESS THAN 30 SECONDS) BEFORE HYPERBARIC TREATMENT (HBO) AND AT DISCHARGE.

	Number	Pre-HBO Best [mean]	Pre-HBO Best [S D]	Discharge Best [mean]	Discharge Best [S D]
Total	17	5.94	7.93	50.88	18.01
20-40 years	9	8.11	9.31	57.56	7.33
Over 40 years	8	3.50	5.66	43.38	23.62

On page 145, right hand column, paragraph 2, there is mention of Appendix B. This is an editing error which occurred when Appendices A and B were included in the text.

Since publication of this paper Dr Fitzgerald has moved to 5/47 Bramston Terrace, Herston, Queensland 4006, Australia.