Dear Editor,

I read with appreciation David Elliott’s synopsis of our first report on this project.1 Three reports have now been compiled, which can be found on the Health and Safety Executive’s website,2–4 and I write to summarise our findings to date. We studied United Kingdom professional divers who had passed a fitness-to-dive medical before 1991. In the first report there were three main conclusions. The major factors affecting health-related quality of life were work-related accidents for both divers and the control group of offshore workers. There was a very high prevalence of noise-induced hearing loss (close to 50%) in both groups with a weak association with saturation diving in divers. Eighteen per cent of divers as opposed to 6% of control subjects reported cognitive complaint which was associated with work as a welder and diving experience. Cognitive complaint was associated with a moderate reduction in health-related quality of life of the same order of magnitude as that associated with loss of a spouse or divorce but there was no evidence that there was more work-related disability in divers.

A follow-up study considered welding fume as a possible causative factor for cognitive complaint and looked again at the data from the first study to determine possible causative factors.2 There was no relationship between exposure to welding fume and cognitive complaint in divers, implying that divers who weld are exposed to something else that increases risk of cognitive complaint.

In further analysis of the data from the initial study, it was clear that cognitive complaint was associated with experience of the oilfield diving techniques, saturation, mixed-gas bounce and surface-oxygen decompression diving in unadjusted models. When the analysis was adjusted for possible causal factors other than diving, however, only mixed-gas bounce remained associated with complaint. Other significant associations were with work as a welder, neurological decompression illness, more than one report of exposure to contaminated breathing gas and reported exposure to “a lot of petrochemical solvents or paints”.

The present picture regarding cognitive complaint in UK professional divers is of an effect associated with oilfield diving but not necessarily with the act of diving itself since, although there was an association with neurological decompression illness, there were more important relationships with reports of exposure to toxins at work. There was a robust relationship, however, with experience of mixed-gas bounce diving. Although this technique is infrequently used in industry, this does have implications for ‘techie’ divers and deep, mines-clearance divers.

A follow-up study is planned to look at progression and to try to get a quantitative estimate of toxin exposure, but it may well be that improved occupational hygiene in oilfield diving will be the most effective means of improving safety for the profession.

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References

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DVD review

The duty of care

Produced by PADI Asia Pacific, Training and Education Department, 2004
Far North Queensland Film Company
Length: 66 minutes
Price: AUD18.69
Available on request from PADI Asia Pacific
Website: <www.padi.com>

The duty of care is a sobering insight into a civil court case resulting from a hypothetical diving accident. In the accident, inexperienced diver “Mark” was undertaking his first deep dive on a PADI Advanced Open Water course. He experienced problems with excessive air consumption, which led to an out-of-air ascent and, ultimately, his death. Introduced by Richard Evans (Quality and Risk Management, PADI Asia Pacific), the court case provides an excellent forum to present the facts of the accident, and to examine the events before and after the diver’s death. A number of errors were highlighted that led to dive instructor “Roger” receiving a finding of negligence against him. The courtroom scene is given authenticity by contributions from magistrate Trevor Black and barrister Kevin Priestley, and by PADI staff who perform roles in the case.

Mark had limited diving experience before enrolling in the course. He had problems with his buoyancy on a navigation dive the day before the accident. This initial dive was not directly supervised by Roger, but instead supervision was delegated to “Jim”, a divemaster. Jim noted Mark’s problems but did not communicate these to Roger, and Roger did not specifically inquire about any difficulties with the students before embarking on the deep dive the next day.

Before the deep dive Mark said he was nervous, but was not fully interrogated by the instructor. During the descent, Mark had difficulty with ear clearing, contributing to a delayed ascent and increased air consumption. His instructor did not confirm that Mark was OK before completing the descent. The dive was planned for 28 metres but reached 32 metres; beyond the limit of the PADI standard. Air consumption was not checked in any of the students until it was discovered that Mark had 70 bar left in his cylinder.

At this point Roger delegated “Yuki” (another inexperienced student) to accompany Mark to the surface. The instructor did not accompany the divers during the ascent. They ascended away from the anchor line and during the ascent, Mark ran out of air, attempted unsuccessfully to buddy breathe with Yuki, and then made an uncontrolled ascent to the surface. He was unconscious, and then sank before the dive boat could rescue him.

The court found that Roger had a duty of care to Mark, and that he failed to properly supervise and monitor Mark’s dive. It also expressed concerns regarding Mark’s failure to follow PADI standards. A ruling of negligence followed.

Nearly half the DVD is devoted to commentary by experts, including Dr Simon Mitchell (Diving Medicine Specialist), Chris Coxon (Dive Safety Expert, Queensland), Sharon Daniels (Clinical Psychologist), Michael Gatehouse (Solicitor and Diving Litigation Specialist). They all make the point that it would have been easier to defend Roger had he followed the PADI standards. David Strike (author of Diving and the media) provides perspective and advice on how to deal with the media. A useful contribution is also made by insurance executive Rob Veal, who points out the need for insurance and the likely cost of this event if individuals are not insured. The expert commentary finishes with a description of the aftermath of a dive accident, demonstrating how stressful and protracted the process can be for those involved, and the impact on all concerned.

Overall the DVD is a quality production and is relevant to the Australasian situation. It provides a detailed insight into diving risk management using the practical example of a fatal diving accident. The DVD would be suitable for all industry participants who derive their income from instructing or leading dives, and should also be of interest to recreational divers in general, because it covers the responsibilities that buddies have towards each other.

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Key words
Video (and DVD) reviews, recreational diving, legal and insurance, PADI, general interest

Diving-related fatalities resource

The coronial documents relating to diving fatalities in Australian waters up to and including 1998 have been deposited by Dr Douglas Walker for safe keeping in the National Library of Australia, Canberra. Accession number for the collection is: MS ACC 03/38.

These documents have been the basis for the series of reports previously printed in this Journal as Project Stickybeak. They are available free of charge to bona fide researchers attending the library in person, subject to an agreement regarding anonymity.

It is hoped that other researchers will similarly securely deposit documents relating to diving incidents when they have no further immediate need of them. Such documents can contain data of great value for subsequent research.