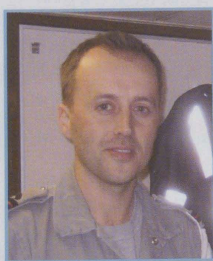


Medical Officer Underwater Medicine Course – 16 to 27 Nov 2009

LEUT Peter Smith RAN



LEUT Peter Smith is a medical officer at the Submarine and Underwater Medicine Unit (SUMU). He is currently studying for his postgraduate qualification in diving and hyperbaric medicine, with a special interest in oxygen diving. He is also a very part-time anaesthetic registrar, and at the time of writing is deployed to the

MEAO in HMAS TOOWOOMBA in support of OP SLIPPER and anti-piracy operations. In a previous life, he was a Psychologist in the Navy Reserve.

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The Medical Officer Underwater Medicine (MOUM) course is a two week residential course which provides the basic skills required to diagnose and manage specific medical problems associated with the marine hyperbaric environment. While the course focuses on diving medicine, it also includes medical aspects of submarine service, as well as some discussion of hyperbaric treatment applications in a broader environment. The course also teaches assessment of fitness for military diving, as well as broader civilian requirements for diving. This includes statutory requirements.

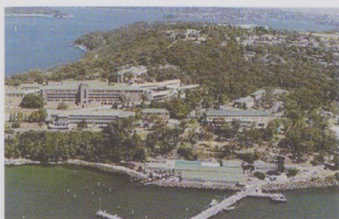
The MOUM course is an integral part of the initial training continuum for full time RAN Medical Officers, and it is required for progression to Clinical Level 2 (CL2). It is also a recommended clinical course for the other Services and there is strong demand for positions on it.

The MOUM course is an accredited component of the coursework element of the Diploma in Diving and Hyperbaric Medicine. Civilian medical practitioners and military doctors from other nations may also attend. However, there is often a waiting list. The RAN Underwater Medicine Medical Officer's



Course intersects with the Prince of Wales Hospital (POWH) Hyperbaric Medicine course: the Navy course focuses on diving medicine and fitness assessment, together with other applications of hyperbaric oxygen therapy. The complementary POWH course has a significant emphasis on hyperbaric medicine, while also covering diving medical assessments, diving physiology and medical management of diving-related problems.

The course itself is conducted by the RAN Submarine Underwater Medicine Unit (SUMU), which is located at HMAS Penguin



on Sydney Harbour's Middle Head Peninsula. While most of the course is conducted on site, it includes a half-day tour of the POWH Hyperbaric Unit and an afternoon teaching session there.

The course includes lectures, small group activities, clinical scenarios and practical components. The practical activities include familiarisation with diving equipment and the opportunity for supervised dives with SCUBA air and re-breather sets, as well as a dry dive in the SUMU recompression chamber. The course is informally assessed throughout and then by a final written examination.



The teaching faculty is highly regarded and includes numerous visiting authorities on diving medicine, various subject matter experts and often international speakers.

The syllabus aims to cover most aspects of diving medicine and begins with an introduction to the relevant laws of physics. Diving physiology, particularly its cardiovascular and respiratory aspects, is an

important part of the course. Participants are introduced to the theory and operation of diving equipment, different types of diving, and the demographic aspect of diver populations.

The pathophysiology of diving and a discussion of specific diving illnesses take up much of the course. Specific diving problems covered include decompression illness (DCS), cerebral arterial gas embolism (CAGE), barotraumas (in all its manifestations) and gas toxicities (oxygen, carbon monoxide, carbon dioxide, nitrogen narcosis). The curriculum also includes marine-related medical problems: near-drowning, salt water aspiration syndrome, hypothermia, and marine envenomation. Aetiology, risk factors, diagnosis, treatment and outcomes are discussed for each subject area.

Submarine medicine is discussed, including fitness for submarine service, the submarine environment and health effects. The physiological consequences of sudden changes in pressure during submarine operations and in escape, methods of submarine escape and rescue, pressurised escape training and treatment of submarine casualties are important parts of that module.

Other areas covered include causes of death in diving, practical workshops covering diving medical examinations, practical simulated activities including retrieval of casualties and full management of recompression treatment, occupational diving. There is some discussion of tactical diving, including mixed-gas and oxygen diving.



Comparisons of different treatment regimes to manage diving casualties in both well resourced and isolated environments are made. Controversial topics such as a shared-risk approach to diving examination, as well as different approaches to asthma, diabetes and other diving contraindications are also discussed.

Attendees wishing to participate in the practical diving activities, including the chamber dive, must have a 'fitness to dive' certificate prior to attending the course. For military members, this requires examination and certification from a qualified MOUM. Civilian attendees need an equivalent civilian fit-to-dive certificate from a South Pacific Underwater Medicine Society (SPUMS)-registered diving doctor. Failure to obtain a 'fit to dive' certification prior to the course does not preclude an applicant from completing the course, but will prevent that person from gaining the practical experience of the dives.

The MOUMC attracts a large number of interested applicants from various clinical backgrounds with only 25 places available on offer.

Successful completion of the course means that participants can conduct diving and submarine medicals, as well as diagnose and initially manage diving and submarine related illnesses and injury. They may also apply for recognition by SPUMS and the Royal Australian College of General Practitioners. The