

**What You Need To Know:
Diving Medicine and the Role of the Family Physician**

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The role of diving and hyperbaric medicine in Singapore is not well established. This may be due to the lack of awareness and accessibility to training in this discipline. Currently the expertise lies mainly with the medical officers in the Singapore Navy. With the increasing number of recreational divers⁽¹⁾, primary health care doctors, especially general practitioners (GPs), will likely do more pre-diving assessments to determine fitness to dive and encounter diving related problems in their practice.

In a survey done by the Naval Medicine & Hyperbaric Centre among family physicians registered with the College of Family Physicians in 1997⁽²⁾, the (summarised) results showed that:

- κ 116 (61.1%) had done a diving medical assessment for recreational divers;
- κ 20 (10.5%) had done examinations for commercial divers;
- κ 7 (3.7%) knew the absolute contraindications to diving;
- κ 173 (91.1%) felt they lacked adequate knowledge to manage diving related problems, and
- κ 146 (76.8%) expressed the need for CME in diving and hyperbaric medicine.

It is compulsory for compressed air workers to undergo pre-employment and periodic examinations by law in Singapore⁽³⁾. Professional divers in the navy also require similar examinations. There is currently no legislative requirement for medical screening in recreational divers.

This however does not exclude the relevance of basic diving medical knowledge for GPs. It is the opinion of the authors that family practitioners do have a role in the local diving community. The respondents in the survey have shown significant encounters with diving cases, but have also revealed a gap in the knowledge in assessing fitness to dive and management of decompression illness. Whether GPs are deficient in the other aspects of diving medicine such as the management of dangerous marine animal bites or stings and management of barotrauma, will require further evaluation.

The main role of GPs in diving medicine is largely in the prevention and management of diving accidents and diving related conditions⁽⁴⁾. They also have some responsibility in the follow-up of these patients post-treatment.

The prevention of diving related conditions/accidents

There is usually a requirement for potential divers to have a medical examination prior to starting diving lessons. This is usually on the diving school's own initiative to prevent diving incidents (and perhaps liability claims). GPs thus have a role in screening diving candidates to assess for contraindications to diving (examples include psychological immaturity in young divers to manage a diving emergency and poor cardiovascular fitness to overcome work in diving) and for medical conditions which may be aggravated by the diving environment (a good example is that of asthma, which may be aggravated by multiple triggering factors)^(4,5). The risk of an accident is reduced by certifying them unfit or giving the appropriate medical advice and precautions during diving.

The GP will also need to moderate various drug usages in divers to minimise adverse drug effects or interactions which may compromise the diver's performance and safety. It is therefore necessary for GPs to be aware of diving illnesses and to be able to prescribe with care for divers to avoid harmful side effects.

Local knowledge of diving sites (such as geography, nearest recompression chamber facility and modes of evacuation) can also be useful when advising novices and preparing them for a diving emergency. As some dive sites in South East Asia have a risk of communicable diseases such as malaria and typhoid, preventive medicine advice and immunisation is a relevant area for the diver in Asia.

During a diving incident/accident

Divers get into trouble at sea or in lakes and 'local GPs' on-site are often involved in the first aid treatment and making a correct diagnosis. The GP would need to be able to contact expert advice about further treatment and decide on how to act on his advice. This usually involves organising transport, stabilising the patient's condition for transfer, arranging for recompression therapy, giving oxygen and fluids and keeping clinical records of the patient's condition, drugs and fluids administered⁽⁴⁾.

In general, recreational divers from Singapore would dive in sites outside the country due to the lack of 'exciting' diving spots locally. These divers would often present late and it may be difficult to elicit a past history of diving (days before) and diagnosis becomes more challenging. A high index of suspicion is warranted to avoid missing diving related problems.

The lack of diving medical awareness could also result in the GP referring a case of diving accident to the hospital when the patient would probably have benefited from a referral directly to the diving physician. This delay could affect the prognosis in decompression illness even with definitive recompression therapy⁽⁶⁾. It is thus important that the family physician recognises a medical condition related to diving; and even if the GP does not have the means to manage the condition, he/she should be able to seek advice and make the appropriate referral.

After a diving incident, the patient needs to be followed up to detect residual disease, its recurrence and sometimes delayed complications of the disease (eg. personality changes and dysbaric osteonecrosis in decompression illness). If the patient wants to return to diving, he will be assessed on fitness to dive. In these aspects, referral to a diving physician may be necessary.

There may be a role for GPs in the prevention and management of diving accidents even though the number of diving cases seen may be small. There is however, some evidence that the current knowledge base in diving medicine may be inadequate to evaluate fitness to dive and manage diving accidents. It would be useful for CME in diving and hyperbaric medicine to be developed for GPs.

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