# Does self-certification reflect the cardiac health of UK sport divers?

Marguerite St Leger Dowse, Matthew K Waterman, Christine EL Penny and Gary R Smerdon

**Abstract**

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**Background:** Since 2009, the United Kingdom diving incident data show an increasing number of fatalities in the over-50s age group. Previous studies also suggest some divers take cardiac medications. Since 2001, diving medicals have not been mandatory for UK sport divers. Instead, an annual medical self-certification form, submitted to their club/school or training establishment, is required. We documented in a survey of UK sport divers the prevalence of cardiac events and medications and the frequency of medical certifications.

**Methods:** An anonymous on-line questionnaire was publicised. Measures included diver and diving demographics, prescribed medications, diagnosed hypertension, cardiac issues, events and procedures, other health issues, year of last diving medical, diagnosed persistent foramen ovale (PFO), smoking and alcohol habits, exercise and body mass index.

**Results:** Of 672 completed surveys, hypertension was reported by 119 (18%) with 25 of these (21%) having not had a diving medical. Myocardial infarction 6 (1%), coronary artery bypass grafting 3 (< 1%), atrial fibrillation 19 (3%) and angina 12 (2%) were also reported. PFOs were reported by 28 (4%), with 20 of these opting for a closure procedure. From 83 treated incidences of decompression illness (DCI), 19 divers reported that a PFO was diagnosed.

**Conclusions:** Divers inevitably develop health problems. Some continue to dive with cardiac issues, failing to seek specialised diving advice or fully understand the role of the diving medical. Physicians without appropriate training in diving medicine may inform a diver they are safe to continue diving with their condition without appreciating the potential risks. The current procedure for medical screening for fitness to dive may not be adequate for all divers.

**Key words**

Health surveys; recreational divers; cardiovascular; medicals – diving; fitness to dive

## Introduction

Undertaking a diving medical when starting recreational scuba diving and thereafter at intervals determined by age (every five years to age 40, every three years to age 50, and thereafter annually) was mandatory in the United Kingdom (UK) until the year 2000. From 2001, recreational dive agencies in the UK required club divers to annually self-certify the state of their health by submitting a UK Sport Diving Medical Committee (UKSDMC) questionnaire to their club, and for dive school participants to complete a Recreational Scuba Training Council (RSTC) medical statement at each level of training.[1–4] Answering "*yes*" to any question requires a diver to seek advice from a physician. The UKSDMC form requires this to be from a diving physician, whilst this is unspecified on the RSTC form. The system is not nationally regulated or uniform, and the data are not collated centrally. Some divers may conceal health conditions which they perceive may threaten the acceptance of their ability to dive. Lack of knowledge concerning the physiology of diving by a diver, or a physician untrained in diving medicine, may place a diver at risk, with the potential interaction of a medical condition and the diving environment inadvertently going unrecognised.

The average age and the socioeconomic status of sport divers in the UK have changed over time.[5,6] There is now an older diving population who have access to technical diving equipment, allowing deeper, longer and more remote dives.[6] Since 2009, the British Sub Aqua Club's (BSAC) annual diving incident data show that the proportion of divers over 50 years of age is increasingly represented in the mortality data. Over the last five years, between approximately half and three-quarters of annual fatalities have been from this age group, though this may be a reflection of the average age of the diving population.[6] In contrast, UK mortality rates from coronary heart disease (CHD) have fallen in recent years, potentially attributable to improved treatment and risk factor modification.[7–9]

Two separate studies of UK sport divers regarding drug and alcohol usage showed 9% and 10% of the study participants were taking cardiac medications for either primary or secondary disease prevention.[10,11] Data concerning the national usage of primary and secondary disease prevention medications for cardiovascular disease (CVD) and CHD in the general population is less clear, and is not directly comparable owing to differing methods of data collection.[12–14]

The recent, apparent increase in mortality rates in the older diver age group and the consistent reports of cardiac medication usage in divers challenge the evaluation by specialists in diving medicine and the efficacy of self-declaration. The aim of this study was to gain an insight into the general cardiac health of UK sport divers, along with the manner and frequency of fitness-to-dive assessments. The study did not attempt to evaluate the risk associated with cardiac health and diving incidents but, rather, to question whether the UK self-certification and diving medical statement are reliable indicators of diver health over time.

## Methods

An anonymous, observational, on-line questionnaire* was compiled using a combination of demographic questions designed, validated and used in previous field data studies.[5,10,11] The survey was available for completion for five months from August 2013 and was publicised through the DDRC Healthcare website, diving exhibitions and social media. Divers were free to participate at will and were not actively recruited.

Fixed-option questions included basic diving demographics (affiliation, year of first dive, year of most recent dive, total dives since learning, dives in the last twelve months, maximum depth ever dived), physician-prescribed medications, diagnosed hypertension, other health issues, year of last diving medical, first degree relative under 60 years of age with a history of cardiovascular issues, events and procedures, diagnosed persistent foramen ovale (PFO), PFO closure, smoking and alcohol consumption, exercise and body mass index (BMI; $\geq$ 30 kg·m$^{-2}$ defined as overweight). Free-text answers provided the opportunity for divers to list current medications. Information was also gathered regarding situations leading to the diagnosis of PFO, and free text for other cardiovascular issues. The divers were also asked how they perceived their health condition and/or medication affected their ability to dive safely. In addition, divers were asked if they had ever had physician-diagnosed and treated decompression illness (DCI), or if they had experienced signs and symptoms they considered to have been DCI but had not sought advice.

The survey was successfully piloted for comprehension and data integrity. All data were anonymous, and checks for possible duplicate entries by scrutinizing and comparing dates of birth, gender, and diving demographics were carried out. Descriptive statistical analysis was used where appropriate. Data, where appropriate, are reported as median. Ethical opinion was sought from the National Health Service (NHS), Health Research Authority, NRES Committee South West, Cornwall and Plymouth, and written confirmation received that ethical review was not required.

## Results

A total of 685 responses were received of which 13 were discarded owing to incomplete data, leaving 672 records (males 76%, females 24%; aged 12 to 78 years, median 46) to be analysed. Diving experience was from < 1 to 60 years (median 12). The approximate number of dives since learning to dive was from 5 to 15,000 (median 400) with a collective total of 609,000 dives. The number of dives in the last twelve months ranged from 0 to 980 (median 45). Maximum depth ever dived was from 4 to 207 metres of water (mw, median 50).

### GENERAL HEALTH

Fifty (7%) of respondents were current cigarette smokers (1–30 per day), with 228 (34%) ex-smokers, having smoked between six months and 45 years ago. Within that group, 69 (30%) had ceased smoking within the last five years. Alcohol was regularly consumed by 462 (69%) of respondents (1–70 units per week). Of the 672 respondents, 175 (26%) exercised most days, 266 (40%) said they exercised three to four times a week, with the remaining 231 (34%) taking little or no exercise at all. Only 218 (34%) had a normal BMI, with 426 (66%) overweight or obese; two females were underweight and 26 respondents did not record their data. Of the 672 respondents 226 (34%) reported two or more of the four health risk factors: current cigarette smoking; exceeding the recommended upper weekly limit for alcohol consumption; exercising less than three to four times a week and a BMI $\geq$ 30 kg·m$^{-2}$.

Asked if respondents' blood pressure, cholesterol, and blood glucose had been checked in the last 12 months, 240 (36%) said all three had been checked and 280 (42%) reported having one or two checked. No checks at all in the last 12 months (or no record) were reported by 155 (23%).

### HYPERTENSION

Physician-diagnosed hypertension was reported by 119 (18%), with 41 (34%) of this group either having no diving medical for more than 10 years or none at all. A broad range of cardiac medications had been prescribed to 60 of these 119 (50%, Table 1) whilst exercise, weight-loss, and dietary changes had been recommended by their physician for the remaining 50%. Thirty-four (29%) belonged to technical diving organisations.

### CARDIAC MEDICATIONS

Categories of cardiac medications reported by 60 respondents are shown in Table 1, with some respondents using more than one category. Not all respondents who reported cardiac issues, events and procedures ($n$ = 64) gave detailed information regarding their medications. Of the 19 respondents reporting atrial fibrillation, none specified whether they were anticoagulated with a coumarin (warfarin/acenocoumarol) versus a novel oral anticoagulant (dabigatran/rivaroxaban/apixaban).

### CARDIOVASCULAR ISSUES, EVENTS, AND PROCEDURES

There was a total of 64 (10%) in this group, with 14 of the 64 reporting more than one issue, event or procedure; five of this sub-group had either no medical or none for more than 10 years. Details are provided in Table 2. Four of the

* **Footnote:** A copy of the questionnaire is available from the authors on request.

**Table 1**
Respondents reporting use of cardiac medications ($n$ = 60); some respondents reported more than one category

| Categories | |
|---|---|
| Angiotensin converting enzyme inhibitors/ Angiotensin-II receptor antagonists | 47 |
| Lipid lowering agents | 17 |
| Unspecified anticoagulant | 14 |
| Antiplatelet drugs: aspirin (11) clopidogrel (3) | 14 |
| Diuretics | 4 |
| Calcium-channel blockers | 2 |
| Beta-adrenoceptor blockers | 3 |
| Alpha-adrenoceptor blockers | 3 |
| Anti-anginals | 1 |

six respondents reporting myocardial infarction had been treated with stents; one who was a technical diver reported having suffered three episodes of infarction and had logged 120 dives in the last 12 months. All three coronary artery by-pass grafting respondents were males, aged 55, 68 and 70 years. All were experienced divers with ≥ 1,200 dives, two being technical divers. Two had been cleared for diving by their cardiologist and the third had sought advice from outside his home area. A respondent aged 65, who reported having 8 stents, had logged 20 dives in the last 12 months and 1,500 dives in 26 years. He stated "*I am an Advanced Instructor and do about three trimix dives per annum to extreme depths between 60 to 80 metres*". One respondent, aged 54, reported an implanted pacemaker which had been fitted in 2010 (manufacturer and model undisclosed). He had 22 years' experience, averaging approximately 29 dives a year and had logged 35 dives in the last 12 months. His last diving medical was in 2011.

PERSISTENT FORAMEN OVALE

PFOs were reported by 28 of the 672 respondents (4%; age 32 to 63 years, median 47) with a diving experience of 1 to 41 years (median 14). Twenty of these proceeded to PFO closure and 16 returned to diving. Seven of the eight who did not undergo closure returned to diving. PFO after an episode of DCI was diagnosed in 22 of the 28 PFO respondents. Of the remaining six, three had been tested due to migraine and three did not specify. Of the 11 technical divers, eight opted for closure.

The majority of divers who had a procedure to close their PFO did so for one of the following reasons: in order to continue diving; to avoid a possible stroke; to avoid another DCI and to avoid making major changes to dive profiles. The 16 divers who returned to diving after PFO closure had logged a collective total of 2,683 dives post closure, (range of 15–400, median 90). The maximum depths dived ranged from 25 to 65 mw (median 43.5 mw). Six respondents changed their diving practices and continued to dive without PFO closure and reported more conservative profiles, greater care in ascent rates, extra stops and self-imposed depth limits; three were technical divers.

DECOMPRESSION ILLNESS

There were 84 (12%) respondents who reported physician-treated and/or diagnosed DCI, whilst 56 (8%) respondents reported self-diagnosed symptoms and signs of DCI without obtaining medical advice; 18 respondents out of these two groups reported both self-diagnosed and physician-diagnosed DCI.

## Discussion

The divers in this study were active and dived more regularly than might be expected from some sport diving groups in other countries. In the UK, there is a well-entrenched culture of diving year round, both within club and regular dive centre groups. Additionally, not all divers log their dives in the same format, with some UK divers recording every training dive in all circumstances. The diver and diving demographics in this data set were similar to previous diving studies and were from across all active diving organisations in the UK.[5,10,11]

The study design did not allow for follow up, a source of potential bias in anonymous surveys which may exist in this study. The self-selecting nature of the survey introduces bias such that some divers respond because they feel they

**Table 2**
Cardiovascular issues, events and procedures reported by 672 diver respondents
Age (years) – median (range); PFO – persistent foramen ovale

| Cardiovascular issue | $n$ | Age | Years diving | Technical diver | Diving medical (none/>10 years) | Comment |
|---|---|---|---|---|---|---|
| PFO | 28 | 47 (32–63) | 1–42 | 11 | 9 | 20 closures and 16 returned to diving |
| Atrial fibrillation | 19 | 53 (26–66) | 2–44 | 3 | 5 | 7 also with hypertension |
| Angina | 12 | 60 (39–70) | 6–51 | 5 | 3 | 2 type 2 diabetes |
| Coronary stent | 11 | 63 (47–78) | 15–60 | 4 | 3 | 3 respondents reported 3, 4 and 8 stents |
| Myocardial infarction | 6 | 62 (47–78) | 15–60 | 3 | 3 | 2 family history of cardiac disease |
| Coronary bypass | 3 | 68 (55–70) | 13–49 | 2 | 3 | 1 "*suffers from cold induced angina*" |

have something to report; conversely others may not respond due to reluctance to admit they are diving with a condition which may negatively impact on their diving safety. Additionally, only those who are still active divers will respond, thus precluding the participation of those who may have ceased diving for health reasons, and those who have died. However, the strength of anonymous methodology is that it allows the covert respondent to contribute data in the knowledge that they will not be challenged in any way, enabling the researcher to gather data that might otherwise remain unreported.

In this study, divers reporting cardiac health problems had not sought diving physician advice when recommended or had undergone a diving medical.[3,4] These data are consistent with other studies where 9% of divers were shown to be taking some type of cardiac medication.[10,11] Some respondents were diving with medical conditions and medications that potentially placed them or their buddy at risk whilst diving. This suggests the need for further diver health education during training regarding such risks as immersion pulmonary oedema. The data also imply that some non-diving medical practitioners may not account for the interactions between a patient's health, their drug regime, and the physiology of diving. Two respondents with coronary artery bypass grafting stated they had been cleared to dive by their cardiologist. It was unclear whether these practitioners had any training in diving medicine. One respondent sought advice from outside his home area, perhaps suggesting the medical practitioner consulted may not have had full knowledge of the diver's health issues. The risk of in-water incapacitation, exacerbation of an existing condition, risk to fellow divers or the increased risk of a diving-related injury may not be appreciated.

Few studies have specifically addressed the efficacy of self-certification regarding fitness to dive. In a report on the first three years of self-declaration in Scotland, in which records were processed centrally, the number of forms referred to a diving physician for review increased from 1.2% the year self-declaration commenced to 7.7% after three years.[1,15] Analysis of diving incidents over the three years showed no incident was caused by an unknown medical condition. It was concluded that the system was identifying divers who should not be diving, but it was also noted that there was an increase in the number of divers who refused medical assessment when it had been recommended. The study did not take into account divers who did not complete a self-certification form, or the remainder of the UK where there is no central collation of the data. In a group of 1,000 consecutive entry-level divers in Australia, one in 70 divers indicated they had no relevant medical problems on a self-certification medical form, but then were failed during a face to face medical consultation with a single physician trained and experienced in diving medicine.[16] It was concluded that self-certification forms may not necessarily identify individuals who are at risk whilst diving.[16]

The number of divers in our study with significant medical problems who had no diving medical or one that was more than 10 years old is of concern. The data showed a number of respondents to be diving who had not taken diving physician advice for their condition or medications, a small number of whom would likely be deemed unfit to dive. Within the UK diving fraternity, doubts have long been expressed with regard to the reliability or accuracy of some divers when self-certifying their health, aware that divers can be reluctant to acknowledge health problems, particularly if it might prevent them diving.

The data in Table 1 are from divers who were physician-diagnosed with hypertension. A further 27 respondents did not record an answer to this question, but subsequently listed medications prescribed for hypertension or vascular protection in another section of the questionnaire. These respondents may lack an understanding of their medical condition, or are perhaps unable to recognise the limitations of their cardiovascular health on diving safety. Whether or not there was a formal diagnosis of hypertension in this group, the reported medications suggested these divers were deemed to have sufficient hypertension risk score to warrant medication. Of additional note was the number of technical divers who were in these sub-groups.

Although the proportion of the adult UK population taking cardiac medications is not known with any accuracy, the data in this study reflect other published literature with 9% of the respondents on cardiac medication, and 10% reporting a cardiac event or procedure.[7–11,17] In an Australian survey, 10% of responding divers reported hypertension or coronary heart disease. The reliability of divers to disclose their health conditions prompts the question as to whether medical screening should take place at regular intervals.[18] Other investigators have also expressed concern regarding the cardiovascular health of the older diver.[19–21]

PFO and the associated risk of DCI have been discussed previously.[22–24] Undiagnosed PFO in the general population is estimated to be approximately 20–30% suggesting a similar percentage of divers would be expected to have a PFO. The incidence of DCI is estimated to occur in 0.005–0.08% of dives, with the estimated risk of a DCI incident in divers with PFO between 0.002 and 0.03% of dives.[25] As a result, it is generally agreed that PFO screening of all scuba divers would not meet the criteria for successful screening programmes and is not recommended.[22–25] There is less agreement with regard to when it becomes desirable to screen an individual diver who may be considered at risk; and funding from the UK NHS to undertake PFO closure is not currently forthcoming. In our study it was not possible to establish from the respondents, who reported a diagnosed and/or treated DCI how many had been screened for a PFO prior to DCI. Very recently a joint statement on PFO and diving has been published by the UK Sport Diving Medical Committee and the South Pacific Underwater Medicine Society.[26]

This survey questions the effectiveness of self-certification and opens the debate for what changes to the system could be made to identify those with high-risk health issues. It is debatable as to whether fitness to dive medicals would improve the current situation and a national central data collection would have to be implemented for any effective result. Although the UK NHS is free at the point of care, assessment for fitness to dive is not so. Diving medical advice generally results in a fee and many divers do not feel disposed to pay for such a service. UK sport divers are also not required to purchase diving health insurance. These facts, together with the self-certification health questionnaire requirement, may contribute to the lack of rigorous health surveillance and/or accurate self-certification by UK divers.

## Conclusion

A range of cardiovascular issues were reported by divers of all levels, including technical divers. Divers were also taking a range of cardiac-related medications. Not all divers who reported cardiovascular issues had sought appropriate medical advice. As divers progress through their diving career, some inevitably develop health problems and continue to dive. The recreational diving population appears to be aging and may be less fit. Divers with many years' experience have also grown into their medical conditions over the years.

The scrutiny and requirement to self-certify at given time points varies, and there is no mandatory central point for collection of self-certification data in the UK and the system is not universal, regulated or coordinated. The current system is reliant on honesty and an assumed level of knowledge by the diver. Some forms of self-certification encourage reliance on the opinion of non-diving medical practitioners or specialists who may not understand the pathophysiology of diving. These data raise the question as to whether the current system is fit for purpose.

## References


1 Glen S, White S, Douglas J. Medical supervision of sport diving in Scotland: reassessing the need for routine medical examinations. *Br J Sports Med*. 2000;34:375-8.

2 Smith P. Comment on. Medical supervision of sport diving in Scotland: reassessing the need for sport diving medicals. *Br J Sports Med*. 2000;35:282.

3 UK Sport Diving Medical Committee. [cited 2014 December 22]. Available from: http://www.uksdmc.co.uk/

4 *Recreational Scuba Training Council medical statement*. [cited 2014 December 22]. Available from: http://www.wrstc.com/downloads/php

5 St Leger Dowse M, Bryson P, Gunby A, Fife W. Comparative data from 2250 male and female sport divers: diving patterns and decompression sickness. *Aviat Space Environ Med*. 2002;73:743-9.

6 Cumming B. National Diving Committee (NDC) diving incidents reports. 2000 to 2013. Ellesmere Port, Cheshire: British Sub Aqua Club. [cited 2014 December 22]. Available from: http://www.bsac.com/page.asp?section=1038&sectionTitle=Annual+Diving+Incident+Report

7 Bajekal M, Scholes S, Love H, Hawkins N, O'Flaherty M, Raine R, et al. Analysing recent socioeconomic trends in coronary heart disease mortality in England, 2000–2007: A population modelling study. *PLoS Med*. 2012;9(6): doi: 10.1371/journal.pmed.1001237 [published online first: 12 June 2012].

8 *Health survey of England 2012. Health, social care, and life styles*. Summary of key findings. Joint Health Surveys Unit of National Centre Social Research, and the Research Department of Epidemiology and Public Health at UCL. London: University College. [cited 2014 November 2]. Available from: http://www.hscic.gov.uk/catalogue/PUB13218/HSE2012-Sum-bklet.pdf

9 Townsend N, Wickramasinghe K, Bhatnagar P, Smolina K, Nichols M, Leal J, et al. *Coronary heart disease statistics 2012 edition*. British Heart Foundation: London. [cited 2014 December 22]. Available from: https://www.bhf.org.uk/publications/statistics/coronary-heart-disease-statistics-2012

10 St Leger Dowse M, Cridge C, Smerdon G The use of drugs by UK recreational divers: prescribed and over the counter medications. *Diving Hyperb Med*. 2011;41:16-21.

11 St Leger Dowse M, Cridge C, Shaw S, Smerdon G. Alcohol and UK recreational divers: consumption and attitudes. *Diving Hyperb Med*. 2012;42:201-7.

12 Perk J1, De Backer G, Gohlke H, Graham I, Reiner Z, Verschuren M, European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts) *Eur Heart J*. 2012;33:1635-701. doi: 10.1093/eurheartj/ehs092. [published online first: 03 May 2012]

13 Boggon R, Eaton S, Timmis A, Hemmingway H, Gabriel Z, Minhas I, et al. Current prescribing of statins and persistence to statins following ACS in the UK: a MINAP/GPRD study. *Br J Cardiol*. 2012;19:24 doi: 10.5837/bjc. [published online first: March 2012].

14 Sutcliffe P, Connock M, Gurung T, Freeman K, Johnson S, Kandala NB, et al. Aspirin for prophylactic use in the primary prevention of cardiovascular disease and cancer: a systematic review and overview of reviews. *Health Technol Assess*. 2013;17:1-253.

15 Glen S. Three year follow up of a self certification system for the assessment of fitness to dive in Scotland. *Br J Sports Med*. 2004;38:754-7.

16 Meehan C, Bennett M. Medical assessment of fitness to dive - comparing a questionnaire and a medical interview-based approach. *Diving Hyperb Med*. 2010;40:119-24.

17 Knott C, Mindell J. Hypertension. In: *Health Survey for England 2011*: The Information Centre for Health and Social Care. London. 2012(1)3. [cited 2014 December 22]. Available from: http://www.hscic.gov.uk/catalogue/PUB09300/HSE2011-Ch3-Hypertension.pdf

18 Taylor DM, O'Toole KS, Ryan CM. Experienced, recreational scuba divers in Australia continue to dive despite medical contraindications. *Wilderness Environ Med*. 2002;13:187-93.

19 Denoble PJ, Pollock NW, Vaithiyanathan P, Caruso JL, Dovenbarger JA, Vann RD. Scuba injury death rate among insured DAN members. *Diving Hyperb Med*. 2008;38:182-8.

20 Denoble P, Marroni A, Vann R. Annual fatality rates and associated risk factors for recreational scuba diving. In: Vann

R, Lang M, editors. *Recreational diving fatality workshop proceedings*. Durham, NC: Divers Alert Network; 2011.
21 Bove AA. The cardiovascular system and diving risk. *Undersea Hyperb Med*. 2011;38:261-9.
22 Wilmshurst PT, Byrne JC, Webb-Peploe MM. Relation between interatrial shunts and decompression sickness in divers. *Lancet*. 1989;334:1302-6.
23 Wilmshurst P. The role of persistent foramen ovale and other shunts in decompression illness. *Diving Hyperb Med*. 2015;45:98-104.
24 Foster PP, Boriek AM, Butler BD, Gernhardt ML, Bove AA. Patent foramen ovale and paradoxical systemic embolism: a bibliographic review. *Aviat Space Environ Med*. 2003;74(6 Pt 2):B1-64.
25 Sykes O, Clark JE. Patent foramen ovale and scuba diving: a practical guide for physicians on when to refer for screening. *Extrem Physiol Med*. 2013;2(1):10. doi: 10.1186/2046-7648-2-10. [published online first: 1 April 2013].
26 Smart D, Mitchell S, Wilmshurst P, Turner M, Banham N. Joint position statement on persistent foramen ovale (PFO) and diving. South Pacific Underwater Medicine Society (SPUMS) and the United Kingdom Sports Diving Medical Committee (UKSDMC). *Diving Hyperb Med*. 2015;45:129-31.

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*Marguerite St Leger Dowse, Matthew K Waterman, Christine EL Penny, Gary R Smerdon*
*Diving Diseases Reasearch Centre Healthcare, Plymouth, United Kingdom*

***Address for correspondence:***
*Marguerite St Leger Dowse*
*DDRC Healthcare, Hyperbaric Medical Centre*
*Plymouth Science Park*
*Research Way, Plymouth PL6 8BU*
*Devon, United Kingdom*
***Phone:*** *+44 (0) 1752 209999*
***E-mail:*** *<mstld@btinternet.com>*

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The database of randomised controlled trials in hyperbaric medicine maintained by Michael Bennett and his colleagues at the Prince of Wales Hospital Diving and Hyperbaric Medicine Unit, Sydney is at:
<http://hboevidence.unsw.wikispaces.net/>

Assistance from interested physicians in preparing critical appraisals is welcomed, indeed needed, as there is a considerable backlog. Guidance on completing a CAT is provided. Contact Associate Professor Michael Bennett: <m.bennett@unsw.edu.au>

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