CORONERS ACT, 1975 AS AMENDED

*SOUTH*  *AUSTRALIA*

# FINDING OF INQUEST

*An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 23rd, 24th, 25th and 25th of February 2004 and the 6th day of April 2004, before Wayne Cromwell Chivell, a Coroner for the said State, concerning the death of Jennifer Lee Barrington.*

*I, the said Coroner, find that, Jennifer Lee Barrington aged 44 years, late of Unit 1, 4 Butlers Avenue, Lower Mitcham, South Australia died at near Althorpe Island, South Australia on the 24th day of February 2001 as a result of salt water drowning due to ascent barotrauma.*

## 1. Introduction

1.1. Jennifer Lee Barrington was aged 42 years. On 24 February she went diving near Althorpe Island, near the foot of Yorke Peninsula, South Australia.

1.2. Ms Barrington was an experienced diver. Her son, Lee, stated that his mother was a qualified diver, and had dived for 25 years. She had dived in caves as well as in open water (Exhibit C29b, p2).

1.3. In November 2000 Ms Barrington completed a full open water diving course at Glenelg Marine and Scuba Diving Centre (GMSDC). The course was conducted in accordance with guidelines established by the Professional Association of Diving Instructors (PADI), an internationally recognised training organisation. Her instructor, Mr John Morris, commented:

> 'She came across quite confident and excited about getting back into the sport and appeared comfortable in the water.'
>
> (Exhibit C59, p2)

1.4. Ms Barrington was a member of a group participating in a diving trip organised by the GMSDC. The trip was conducted by Mr Grant Sommer, one of the proprietors of a firm called 'M V Smuggler Fishing and Diving Adventures'.

1.5. The group stayed at Stenhouse Bay on the Friday night, and on Saturday 24 February 2001 they left Pondalowie Bay for Althorpe Island at about 10am. There were 15 people aboard the boat.

1.6. Mr Sommer conducted a detailed briefing of the divers and then the divers entered the water. Ms Barrington was 'buddied' with Olwyn Freeman. Ms Freeman is a very experienced diver, is a qualified diving instructor, and was the person nominated by GMSDC as the 'Dive Master' for the trip (there was some debate about the significance of this position, which I will discuss later).

1.7. Ms Freeman's description of what happened during the dive is as follows:

> 'I thought that Jenny and I were the last ones off the boat. I asked Jenny if she had her air on prior to the dive and I visually checked her and saw that she had her weight belt on and everything she should have was on. We both left the boat at the same time, I rolled off of the side and Jenny went to the back of the boat and would've stepped off and I met her at the rear of the boat. At that point she seemed a little stressed, which is quite common as divers don't like being on the surface much. I asked her if she was okay to descend, she indicated that she wanted to go to the boat and she held onto the mermaid line, then I went to her and then I asked her again and she indicated with the okay signal that she was ready to go. I reconfirmed the okay signal and then we began our descent.
>
> We went straight down under the boat to the bottom, to the wall where we were going to dive. We settled on the bottom, a depth of 20.7 metres, I got her hood out of her facemask because it causes the mask to leak. I got her to clear the water out of her mask, which she did competently. She volunteered that she was okay after the mask cleared and she no longer appeared stressed. We communicated through the use of hand signals, if she was okay and ready to go and she replied she was and we headed off and dived along the wall. I would look at her every couple of minutes, and give her the okay signal, wait till I got a reply. Every time she said she was okay. Her body language gave me the impression she was relaxed. We played with the seals and started looking for crayfish. Every time I looked back she was there behind me, just waiting for me.
>
> At about an average time into the dive, I don't really know how long it would have been since we started, Jenny came to me, tapped me on the shoulder and showed me about 70 BAR of air. To me it seemed to be fairly quick to use the amount of air she had, it is not uncommon, but it was quick for me. She would have showed me because she was getting low on air. I showed her my gauge and signalled I was okay. She indicated she wanted to go up, I indicated could I stay and could she make it back okay on her own. She agreed that she could. We agreed on the direction of the boat, we couldn't see the

boat but you didn't have to swim far before you could see the boat. I watched her head off and after about five to six metres I turned continued looking for crayfish.

The visibility under water at that area was about fifteen to twenty metres. She still seemed relaxed at that point, if I thought she was stressed or suffering any discomfort I would have gone back to the boat with her. About 10 to 15 minutes later I returned to the boat. I came directly up underneath the boat, and when I got to the surface, Angie, the crew member on the boat, asked me where Jenny was. I told her I thought she was on the boat. Angie thought she may have been over by the rocks, which were about 15 to 20 metres away because she thought she had heard somebody call for help. I carried my scuba unit onto the boat and then set off and snorkelled to the rocks area that Angie had indicated to me.

Grant, the skipper appeared in his scuba unit on the surface and he called for others to help because we were going to look for her. I was only a few metres from the rocks when I saw her on the bottom. I had to observe her for a couple of seconds to see if she was diving or not, she was laying on her back. No air bubbles were coming from her or her equipment. On looking down I could not see the regulator hanging out of her mouth. I believe it was still in her mouth. I feel I would have noticed that straight away. I tried to dive down to her but not having a weight belt on I couldn't get down to her. She would have been in about 5 metres of water. Another person came to me and he was only on a snorkel as well and couldn't get down there.

Within a few minutes a scuba-equipped diver was there and brought her to the surface. She did not have the regulator in on the way to the surface. She was at the surface with all her gear on. I tried to inflate her BCD with the low pressure inflator but it didn't appear to be working, I then tried manual inflation, I realised that was going to take too long so we ditched her weight belt immediately. I checked to see if she was breathing, and it was fairly obvious that she hadn't been I then tried to start mouth to mouth. We started dragging her towards the boat and frequently giving her mouth to mouth. I couldn't find any indication of breathing. I couldn't check for a pulse as I had gloves on. It took about 5 minutes to get her to the boat. It took so long because we were trying to resuscitate her.'

(Exhibit C60, pp3-6)

1.8. Mr Sommers said that when he realised that Ms Barrington was missing, he re-entered the water and swam in the direction indicated by Angelika Meyer, his partner and crew member on the boat. He found Ms Barrington at about 5 metres depth, lying on her back in a groove between two rocks. The regulator was out of her mouth. He took Ms Barrington to the surface by inflating her buoyancy control device. Ms Barrington was lifted into the boat and resuscitation was undertaken by a doctor and a nurse who were among the divers.

1.9. Mr Sommers drove the boat back to Marion Bay, where they arrived at about 12:15pm. An ambulance was waiting, and the crew continued resuscitation, but this was not successful.

1.10. Dr Cecil Leane formally certified Ms Barrington's life extinct at 2:23pm that afternoon at the Yorketown Hospital (Exhibit C30a).

## 2. Cause of death

2.1. A post-mortem examination of the body of the deceased was performed by Dr R A James, Chief Forensic Pathologist at the Royal Adelaide Hospital on 26 February 2001.

2.2. Dr James determined that Ms Barrington's death was due to salt water drowning. He commented:

> 'In the circumstances the precipitating factors for her salt water drowning need to be considered. The relevant findings at post mortem do not include air within the major vessels or within the chest cavities. Nevertheless, the only two relevant findings are recent adhesions binding the right lung possibly post operative in origin and clear evidence of a bite mark on her tongue. These findings raise the possibility of barotrauma of ascent with complicating cerebral artery gas embolism (cage). Small gas bubbles may incapacitate a diver even from a superficial ascent and a short duration dive. Any bubbles that may have been present on the 24/2/01 could easily have been absorbed before post mortem two days later.'
>
> (Exhibit C31a, p5)

2.3. A neuropathological examination performed by Dr Grace Scott following Dr James' examination revealed no abnormalities (see Exhibit C33a, C33b).

2.4. Dr Acott, Director of Diving Medicine at the Royal Adelaide Hospital gave oral evidence at the inquest. He is a very experienced diver, and is one of Australia's leading experts in diving medicine. In his report Dr Acott said:

> 'In my opinion, Ms Barrington died (drowned) either because of a cerebral arterial gas embolism (CAGE) or an acute attack of vertigo (dizziness) underwater causing her to panic and aspirate salt water. Acute vertigo underwater, however, can also cause a diver to panic resulting in a rapid breathhold ascent causing a CAGE. It is a pity Ms Freeman didn't accompany Ms Barrington to the surface when Ms Barrington indicated that she was low on air. Standard safe diving practice is to accompany a diver low on air to the surface (PADI Diving Manual). If Ms Freeman had noted Ms Barrington ascending rapidly she may have been able to slow her ascent or if Ms Barrington had become

vertiginous Ms Freeman may have been able to hold her until it had passed. It is unlikely, however, in my opinion that Ms Freeman would have been able to prevent Ms Barrington's death but at least an accurate history of what happened on the ascent and surface would have been obtained.

Although air was not noted in Ms Barrington's heart at post mortem the sequence of events were consistent with her suffering from a CAGE. I noted at post mortem she had bitten her tongue (probable evidence of a convulsion underwater caused by the CAGE) and that there were fibrous adhesions in her (R) pleural cavity (the pleural cavity is in the thorax between the lung and chest wall). These adhesions were evident on a CXR (chest X-ray) done in September 1997. Ms Barrington was also a 'mild' asthmatic and had apparently suffered a pneumothorax (air in the pleural cavity between the chest wall and lungs) in 1996 (see the Flinders Medical Centre medical notes). In my opinion, the adhesions or any asthma induced narrowing of her small bronchial tubes would have restricted the expansion of her lungs during ascent, causing part of her lungs to rupture and tear a pulmonary vein allowing any escaping gas to enter that vein. This gas would then have travelled to her heart and onto her brain. No air was evident in her heart at post mortem probably because only a small amount escaped. A past medical history of a pneumothorax is evidence that her lungs were easily ruptured or torn. A past history of a pneumothorax is evidence considered by diving medical experts to be an 'absolute contradiction' to SCUBA diving.

Acute vertigo attack: I note that Ms Barrington suffered from Eustachian tube dysfunction. The Eustachian tube connects the middle ear with the pharynx allowing the pressures in the middle ear to be equalised if there is a pressure change – the 'ear popping' sensation noted during aeroplane flight or a car ride in the hills. Eustachian tube dysfunction can demonstrate satisfactorily that he/she can 'equalise'. Eustachian tube dysfunction can cause 'alterno-baric vertigo' during ascent (both middle ear equalises unevenly causing an uneven stimulation to the inner ear causing vertigo or dizziness). I note that Ms Barrington was 'uneasy' or anxious prior to the dive. This became evident later when she had consumed a majority of her air supply quickly (anxiety underwater increases a diver's air consumption). The combination of anxiety and vertigo would lead to panic resulting in either a rapid breathhold ascent and a subsequent CAGE or aspiration of salt water and drowning.'

(Exhibit C66a, pp1-2)

2.5. I accept Dr Acott's opinion and find that it is most likely that Ms Barrington suffered a CAGE whilst ascending, leading to a convulsion during which she bit her tongue, and which also led her to lose her respirator and aspirate salt water and drown. It is possible that she suffered an attack of vertigo as described by Dr Acott, leading to panic and a rapid breathhold ascent, although there is no direct evidence of that. I find that the cause of death was salt water drowning due to ascent barotrauma.

## 3. Medical issues

3.1. There were a number of issues associated with Ms Barrington's health which were identified as post mortem and which are worthy of analysis.

3.2. Firstly, fibrous adhesions were noted in the right pleural cavity which rendered Ms Barrington susceptible to rupture of a pulmonary vein and thus to a CAGE. Dr Acott said that these adhesions were no doubt associated with a pneumothorax ('punctured lung') she had suffered in 1996 (see her Flinders Medical Centre casenotes, Exhibit C65d).

3.3. It is this susceptibility which makes a history of pneumothorax an 'absolute contradiction' to scuba diving (Exhibit C66a, p2).

3.4. Secondly, the notes of Dr Paul McCarter, Ms Barrington's General Practitioner, indicate that she had a history of Eustachian tube dysfunction in 1996 and 1999.

3.5. Thirdly, there is also a suggestion in Dr McCarter's notes that Ms Barrington suffered from asthma, although this was only rarely, and Dr McCarter thought that these were more like episodes of chest infection. There is a note that a locum doctor gave Ms Barrington a repeat prescription for Ventolin in October 1999. This was the only time since 1996.

3.6. On 22 February 2001, only two days before the dive, Ms Barrington discussed with Dr McCarter a gynaecological operation she had undergone at Flinders Medical Centre in January 2001. She asked Dr McCarter if she was fit to dive. Dr McCarter said that he had no training in diving issues, so he very sensibly referred her to the clinicians at Flinders Medical Centre for advice before diving. There is nothing in the Flinders Medical Centre casenotes to indicate that she did so. There is evidence from Ms Freeman (Exhibit C60, p3) and Ms Meyer (Exhibit C62, p1) that Ms Barrington was still experiencing some pain from the operation, although she insisted that she was fit to dive. Significantly, Dr McCarter said that he was not aware that Ms Barrington was involved with scuba diving until that 22 February consultation, and had never given her advice about that.

## 4. The diving medical

4.1. Ms Barrington was referred to Dr Peter Garrett by the GMSDC as part of her PADI training for a diving medical examination, which he conducted on 11 September 2000. He had never seen her before, and had no memory of her at the time of the inquest (T234).

4.2. Ms Barrington filled out a questionnaire (Exhibit C59a) entitled 'Medical Statement'. The form carries the logos of the PADI and the RSTC (Recreational Scuba Training Council). She ticked the question about lung disease, and Dr Garrett has written a question mark next to the entry with his initials. He said he must have satisfied himself that any concern was not significant (T237).

4.3. On the form Ms Barrington denied having a history of pneumothorax or collapsed lung, asthma, or problems equalising (popping) ears. Her medical records indicate that these denials were false.

4.4. Dr Garrett said that if he had been aware that Ms Barrington had a history of pneumothorax, he would not have passed her as fit, as he knew that this was a contraindication to scuba diving.

4.5. If he had known that she suffered recurrent pneumonia, he would have ordered a chest X-ray. If he had known that she had a history of asthma, he would have sent her to Ashford Hospital for a Hypertonic Saline Test (T251).

4.6. On the basis of the evidence before him, Dr Garrett passed Ms Barrington as fit to scuba dive. Dr Garrett had not undertaken formal training in Hyperbaric Medicine (he said he could not spare the necessary time away from his practice). I accept Dr Acott's evidence that it is important that medical practitioners should undertake such training before undertaking these tests. On the facts in this case, however, there are no grounds upon which Dr Garrett should be criticised.

## 5. Diving issues

5.1. Senior Constable Darryl Wright of the Water Operations Unit of South Australia Police examined Ms Barrington's diving equipment after the incident. He said that all of the equipment was in good condition, assembled correctly, operating as designed and suitable for the type of diving being undertaken (Exhibit C65b, p23).

## 6. Experience

6.1. The evidence of Mr Lee Barrington is that his mother had 25 years' diving experience, including cave diving. This has been questioned by Senior Constable Wright (see Exhibit C65b, p5).

6.2. However, Ms Barrington underwent a full open water PADI diving course at GMSDC in November 2000 and performed satisfactorily. Senior Constable Wright regards GMSDC as reputable trainers, and I accept this opinion (Exhibit C65b, p6).

6.3. The supervisors on the diving trip treated Ms Barrington as inexperienced. The Manager, John Seddon, told Grant Sommer to look after her (Exhibit C48a, p2), and Mr Sommer deliberately buddied her with Olwyn Freeman, an experienced diver and qualified instructor (Exhibit C61, p4).

## 7. Events on the dive

7.1. Who was the Dive Master?

Senior Constable Wright described the function of the Dive Master as follows:

> 'The 'Dive Master' is a term often used in charter and diving circles and had a dual meaning, one a qualification and one a position in a diving operation. A 'Dive Master' qualification is attained by attending a 'Dive Master' training course which are run from time to time by diving shops under their respective umbrella programmes. The 'Dive Master' position in a diving team relates to the person who is generally responsible for dive planning, safety briefings and overall supervision of the dive.
>
> > "There is probably no other term in diving with a more diverse meaning that Divemaster. Traditionally this term has been used to denote one who is 'in charge' of a diving activity or a dive site. On closer examination, however, it is easy to see that a Divemaster may or may not be the individual in charge. … The Divemaster may act as a guide. … The dive master may act as a supervisor. Instead of being responsible for a particular group of divers, he may be in charge of all divers in the group. This duty requires more training and experience than the role of guide and often requires that the Divemaster maintain an out-of-water vantage point so that he may oversee all aspects of the diving activity. The Divemaster may act as a medic. … The Divemaster may act as an Oceanographer. The Divemaster may function as a Technician. .. The Divemaster may serve as a counsellor. … The Divemaster may need to become a public relations expert. … The Divemaster may function as a seaman. … Finally the Divemaster may act as a trained buddy. Although this role may sound unusual, consider the following: a Divemaster is specifically trained to deal with other divers – to supervise them, to assist them and to advise them. There is literally no better qualified diving buddy than a well trained Divemaster."
> >
> > (PADI Divemaster Manual, revised Edition 1991 pages 7-9)

> It can therefore be the case, as it was in this instance, that there can be more than one 'Dive Master' qualified person on a charter not all necessarily acting in the position of 'Dive Master'.'
>
> (Exhibit C65b, pp11-12)

7.2. It is clear that Mr Sommer fulfilled the role of Dive Master in the sense that he supervised the diving activities. He planned the location, was the master of the boat, he decided on the buddies, and he gave the detailed briefing before the dive which set out the rules for the day. He supervised the diving activities, checking everyone in the group during the dive (see Exhibit C61, p1-2). Indeed, the impression Mr Sommer gave me was that there was room for only one manager on the vessel, and that was him.

7.3. Senior Constable Wright was critical of this uncertainty, saying:

> 'It is my opinion that it is the responsibility of the Charter Operator to clearly establish what roles people are playing and outline their duties and responsibilities. It is apparent that this either did not occur or was not clarified on this occasion, Although Sommer is of the opinion that Olwyn Freeman and Morris were present on the charters as host and 'Dive Masters' it is my opinion that he was in fact the overall 'Dive Master'.'
>
> (Exhibit C65b, p12)

I agree with his criticism. However, Mr Sommer fulfilled the role competently, and there is no evidence that any uncertainty about who was in charge contributed to Ms Barrington's death in any way.

7.4. <u>The buddy system</u>

As I have said, Ms Barrington was 'buddied' with Ms Freeman, who was a qualified diving instructor. Paraphrasing the quotation above in paragraph 7.1, Ms Barrington could not have had a better qualified buddy.

7.5. Ms Freeman noted Ms Barrington's discomfort on the surface before they descended. She noted that when they were on the bottom she 'no longer appeared stressed' (Exhibit C60, p3). Sometime later, Ms Barrington indicated that she was down to 70 BAR on the gauge. Ms Freeman's air was still satisfactory. Ms Freeman allowed Ms Barrington to ascend by herself even though:

- They could not see the boat;
- Ms Barrington had been 'stressed' earlier;
- Her over-use of air was consistent with anxiety.

7.6. In those circumstances, I agree with Senior Constable Wright's criticisms of Ms Freeman's actions:

> 'It is my opinion that Freeman should have taken those factors into account, followed the instructions given during the briefing and adhered to the principles of the 'buddy' system by accompanying Barrington to the surface.
>
> Having said that, due to Barrington's medical history I am also of the opinion that had Freeman accompanied her to the surface she may not have prevented her death. With the benefit of hindsight she may however have been able to monitor the ascent rate, assist with buoyancy control, render assistance and provide testimony as to what actually occurred.'
>
> (Exhibit C65b, p18)

## 8. Conclusions

8.1. In all the circumstances, I find on the evidence that Ms Barrington suffered a CAGE while ascending from the dive, leading to salt water drwoning. I find that the significant contributing factors to this tragic outcome were Ms Barrington's history of lung problems, particularly pneumothorax and pneumonia, which she foolishly did not disclose to Dr Garrett. There is also the possibility that her history of Eustachian tube problems may also have contributed.

## 9. General considerations

9.1. I have heard evidence in the inquests into the deaths of Robert Anthony Walker, Neville Arthur Kinnear, Rex Alexander John Humberstone, Deborah Christine Campbell and Jennifer Lee Barrington at the same time. These deaths occurred between 24 February 2001 and 21 April 2002. A startling number of similarities exist in these five cases:

- In three cases a CAGE (cerebral arterial gas embolism) was involved - Walker, Kinnear and Barrington;
- In four cases a lack of cardio-vascular fitness was evident - Walker, Kinnear, Humberstone and Campbell;
- Four of the deceased were obese - Walker, Kinnear, Humberstone and Campbell;
- All of the deceased had medical conditions relevant to the cause of death which could have been detected in a properly conducted medical examination:
  - enlarged heart (cardiomegaly) - Walker, Kinnear, Humberstone;

- other heart disease (myocarditis) - Walker;
- lung disease - Kinnear, Humberstone, Barrington;
- back problems - Campbell, Barrington;
- oesophageal reflux - Campbell;
- ear problems - Barrington.

- In four cases, the deceased wore a wet suit that was too tight, interfering with breathing and possibly causing reflux - Walker, Kinnear, Humberstone and Campbell;
- In two cases, the deceased wore a weight belt that was too heavy causing excessive fatigue – Campbell and Humberstone; and in one case, the weight belt could not be quickly released - Humberstone;
- In one case the BCD was faulty, also causing excessive fatigue - Humberstone;
- In only one case did the 'buddy' system break down - Barrington;
- In two cases, poor diving technique may have contributed to the death - Walker, Campbell;
- Two of the deceased had recent diving training but were inexperienced - Campbell, Barrington, and the other three were experienced but had not had recent training - Walker, Kinnear, Humberstone;
- Three of the deceased had recently seen a doctor - Walker had been told by his cardiologist not to dive but ignored the advice; Humberstone had recently seen his General Practitioner but not in relation to diving; and Barrington had ignored her General Practitioner's advice to consult her surgeon, and had earlier misled the medical practitioner conducting the diving medical examination;

9.2. Dr Acott said that in his opinion all of these deaths were preventable. He said:

> 'A diving medical is required before a candidate commences scuba diving. This medical, in SA, does not have to be performed by a medical practitioner knowledgeable in diving medicine. (If the physics and unique physiology involved with diving and hence the problems are unknown the risks can't be discussed). Once the candidate is 'passed fit' he/she is fit for the rest of their lives. This is 'nonsense'. Commercial and professional divers are required to have an annual medical by a medical practitioner suitably qualified in diving medicine. However, annual diving medicals for 'recreational divers' are controversial. There needs to be some recommendation that states that if a diver suffers an illness or their medical or general fitness changes they should seek guidance from a suitably qualified medical practitioner regarding the risks that may be associated with

> continuing to dive. Perhaps annual self assessment forms should be introduced that will highlight problems which will then lead to a discussion with a suitably qualified medical practitioner.'
>
> (Exhibit C66, p4)

9.3. Dr Acott suggested that:

- Recreational diving medical examinations should be conducted by medical practitioners who are trained in diving medicine;
- The medical practitioner conducing the recreational diving medical examination (if he/she is not the subject's regular medical practitioner) should require the subject to produce a referral letter detailing the subject's medical history as far as it is known;
- Candidates should be made aware by the medical practitioner that health factors are a concern and are potentially lethal not only to the patient but to their 'buddies' in the water, so they are under a duty to disclose them.

9.4. Senior Constable Allen suggested that a public awareness campaign should be conducted to remind divers of the dangers associated with hookah equipment (Exhibit C21a, p13). Mr Humberstone's hookah equipment (as distinct from the BCD and weight belt) was not faulty and did not cause Mr Humberstone's death, so I am prevented by Section 25(2) of the Coroner's Act from making such a recommendation.

9.5. Senior Constable Allen also recommended that all recreational divers should undergo a regular medical examination (Exhibit C4a, p25).

9.6. Senior Constable Wright suggested that there are three options available to address these issues:

1. Do nothing;
2. Conduct an educational or public awareness campaign about the dangers of diving with a medical condition and recommending regular checkups;
3. Make periodic medical examinations compulsory.

9.7. Senior Constable Wright also pointed to the fact that occupational divers are required to undergo an annual medical examination by a medical practitioner trained in hyperbaric medicine.

9.8. The difficulties with option 3 are:

- Resentment from recreational divers;
- Expense;
- The lack of sufficiently trained medical practitioners;
- Unenforceability.

9.9. Senior Constable Wright commented:

> 'As recreational SCUBA diving is just that, a recreation, it is my opinion that it should remain as free from legislation and regulation as is safely possible. My preferred option would be Option 2, for the recreational diving industry to take steps to promote safe diving practices by the development of an education programme specifically aimed at the need for divers to maintain a good level of fitness.'
>
> (Exhibit C65a, p16)

9.10. Senior Constable Allen made a similar recommendation (Exhibit C4a, p25). I agree.

## 10. Recommendations

10.1. Section 25(2) of the Coroner's Act 1975 empowers me to make recommendations in certain circumstances following an inquest. The section reads:

> 'A coroner may add to his or her finding any recommendation that might, in his or her opinion, prevent, or reduce the likelihood of, a recurrence of an event similar to the event that was the subject of the inquest.'

10.2. Pursuant to that Section, I make the following recommendations:

1. All persons engaged in recreational underwater diving should undergo an examination by a registered general medical practitioner trained in hyperbaric medicine on a regular basis, preferably annually but not less frequently than every two years.

2. Medical practitioners should decline to conduct such examinations unless they are appropriately qualified to do so.

3. Medical practitioners conducting such examinations should, if they are not the subject's regular medical practitioner, require the subject to produce a referral letter detailing the subject's medical history as far as it is known.

4. Medical practitioners conducting such examinations should warn the subject that diving is a potentially lethal activity if undertaken by a person with certain medical conditions, and that absolute honesty in providing background medical history is called for.

5. If there is any doubt about the subject's health, the medical practitioner should arrange such follow-up tests as chest X-rays, hypertonic saline tests, or whatever else may be indicated, before passing the subject as fit to dive. Any doubt should be resolved against passing the subject as fit, until such follow-up tests demonstrate fitness to dive.

6. The recreational diving industry should conduct an awareness campaign among its member organisations and the diving public about the dangers of diving with certain medical conditions, the need for regular medical examinations at least every two years, the need for absolute honesty during such examinations, and the responsibility a diver has both personally and to his or her diving colleagues to ensure that he or she is fit to dive.

*Key Words: Drowning; CAGE; Underwater Diving; Hyperbaric Medicine*

*In witness whereof the said Coroner has hereunto set and subscribed his hand and Seal the 6th day of April, 2004.*

*Coroner*