

Melanesian Hyperbaric Services: the past, present and future

Cathy Bowen

Key words

Hyperbaric facilities, rescue, aviation, recreational diving

Abstract

This paper is an edited transcript of the talk at the SPUMS Annual Scientific Meeting 2002 in Vanuatu given by the General and Medical Services Manager (PNG), Niugini Air Rescue, and Site Manager, Melanesian Hyperbaric Services. The history of the development of Subaquatic Safety Services, an international organisation that has installed hyperbaric chambers in many parts of the world, is reviewed with a particular focus on Papua New Guinea. The difficulties and successes of setting up such a service in an under-developed country are described.

Introduction

Many of you here have no doubt experienced the pristine, unspoilt diving environment of Papua New Guinea (PNG). We are certain the presence of our hyperbaric facility in Port Moresby, and the safety net it provides for discerning visitors, has enhanced the viability of this important part of the PNG economy. I will give a brief outline of the unique worldwide system of hyperbaric treatment centres known as Subaquatic Safety Services (SSS) and headed by Mauricio Moreno. I shall focus on our Port Moresby facility, and its close association with Niugini Air Rescue (NAR).

Subaquatic Safety Services

Mauricio Moreno from Mexico was diving during a holiday trip to Cozumel. A dive buddy on the boat had a cerebral arterial gas embolism, but there was no chamber on the island. It cost the dive buddies collectively US\$15,000 to get him air evacuated to treatment. Mauricio looked into why there was no chamber in spite of the diving volume. Answer – dive operators' apathy. So he 'shook the tree' and then they asked him to find someone who would put a chamber there, if the dive shops would support it with a levy or tank tax. Mauricio looked for two years and nobody was 'that crazy', so Mauricio did it himself. Two years later, he recognised the same need in other destinations, so he kept on doing it. Today he has a network of 10 chambers, and is in the process of deploying two more this year.

The SSS Recompression Network is the largest worldwide private network of hyperbaric recompression chambers. After the initial chamber was opened in Cozumel, Mexico in 1987, chambers were installed in Ambergris Caye, Belize (1989), Cabo San Lucas, Baja California (1992), Playa del Carmen, Mexico (1995, relocated from Cancun), Phuket, Thailand (1996), Nassau, Bahamas (1996), Port Moresby, Papua New Guinea (1997), Cancun, Mexico (1998), Koh Samui, Thailand (2000) and, most recently, the Galapagos Islands, Ecuador (2001) (Table 1).

All of these chambers are 24-hour facilities that are ready to provide emergency hyperbaric treatment for scuba divers

who may suffer any type of decompression illness. All SSS treatment centres around the world treat the indigenous 'grass roots' fisherman free of charge.

The introduction of Melanesian Hyperbaric Services

The genesis of Melanesian Hyperbaric Services (MHS) is best described in Mauricio Moreno's own words:

"The remoteness of PNG and the quality of its diving meant that those who wished to get to the very best sites, had also to do so in fear of a diving accident (I mean one that couldn't be addressed in a timely manner). I met a dive cruise operator, Craig deWitt of Golden Dawn, at a trade show in Houston, and we started talking. When he learned I had chambers in what were once inaccessible and fairly remote places (like British Honduras at the time), he suggested that I look into PNG, speak to Chris Acott for statistics on volume and accident flow, etc.

It took me about three years of research and trips before finally deciding to invest in the future of PNG as a dive destination, perhaps getting my investment recovered in 10–15 years, if all went well. Of course, I had to have a bottle of tequila the afternoon I made the decision, to give me the courage."

As you can see, our operation in PNG would not exist without the backing of Mauricio who took the financial risk to install the MHS chamber. Mauricio received the DAN America Award in 2000 in recognition of his outstanding contribution to dive safety.

The MHS chamber is a 54" twin lock chamber, built in Adelaide specifically for MHS. It began operation in a corner of the Defence Force Hangar at Jackson's Airport at the end of 1997. Bob Ramsay from Adelaide installed it, with assistance from Peter Manz and John Miller. During this visit, Bob also trained a number of expatriate and PNG nationals as chamber technicians. They were categorised as No 1 or No 2, depending on their level of competency. Keneatha Bromson conducted an inside attendants course at which I was a participant. This course filled in a lot of

TABLE 1
THE RECOMPRESSION CHAMBERS DEPLOYED BY SUBAQUATIC SAFETY SERVICES AND THE NUMBER OF DIVERS TREATED 1999–2001

Facility	Year founded	1999	2000	2001
Cozumel, Mexico	1987	80	110	106
Belize	1989	51	28	38
Cabo San Lucas, Mexico	1992	4	9	1
Playa Del Carmen, Mexico	1995	34	34	37
Bahamas	1996	14	18	11
Phuket, Thailand	1996	41	40	60
MHS, PNG	1997	3	9	8
Cancun, Mexico	1998	9	2	13
Koh Samui, Thailand	2000	-	9	24
Galapagos Islands	2001	-	-	2
TOTAL		236	259	300

gaps with regard to hyperbaric oxygen therapy that I had not learnt when I did my Diving Medical Technician's course. Jan Sheehan, another Flight RN with whom I worked also joined us, and she remains a staunch support for MHS to this day.

MHS evolved slowly, with the many logistical problems to overcome that one would expect to find in a developing country. It had to be moved in 1999 to a new location, which put it out of operation for several months. All appeared pretty grim at one stage, when the negotiations for its new home fell through at the last minute. For a while there, it looked as though it was going to be shipped out to another overseas destination and the operation in PNG would close down.

Jan Sheehan had the brilliant idea to put the chamber next to the Medical Facility in our hangar, which saved the day. In a short time, construction and moving began. It was installed by local technicians, Peter Manz and John Miller. Prior to accepting our first patient, a third-party inspection was carried out by Peter Atkinson, from the Townsville chamber. All at MHS are very happy and comfortable at this location.

As a DAN referral centre, François Burman, DAN (South Africa) carried out a risk assessment audit of MHS in March 2002. Although he has not sent his official report, he has written back with a very complimentary thumbs-up response. We are also supported by the consultant services in Adelaide and Townsville, which are always available at the end of the telephone any time of the day or night. MHS certainly takes advantage of this support and we know our limitations. Due to the lack of good intensive care and diagnostic facilities in PNG, any diver who requires significant hospitalisation and management is taken to Townsville.

MHS operation is assisted financially with the collection of a levy from their clients on air fills or dives by the majority of

dive operators who recognise the importance of the facility to the industry. This levy helps support the large day-to-day costs of the chamber, which are not covered by treatment charges because of the relatively small number of patients.

Current staff

SSS is committed to training and education. Most of the medical and technical hyperbaric personnel in PNG have been trained by this operation, either in country by Drs Chris Acott and Pauline Whyte, or overseas at one of the busy SSS locations.

The new Manager, Ian Short, has recently returned from Mexico, where he attended an extended Hyperbaric Course with Dick Rutkowski of Hyperbaric International. He then continued on to Playa del Carmen, and Phuket, for exposure to the day-to-day running of these busy SSS operations. Ian has been in PNG since 1965, and was a professional diver for many years. One of his notable students is Chris Acott. He also has accounting qualifications, so is ideally suited to manage the facility.

Dr Duncan Dobunaba is the Resident Medical Director, and has attended underwater medicine courses in Phuket, Adelaide, and Port Moresby. Jan Sheehan, as mentioned previously, has been involved in MHS from its inception. Jan has been appointed into the job that I vacated with Niugini Air Rescue/International SOS, and continues to assist MHS as Nurse Manager and inside attendant training.

Our resident full-time Technician is Simi Sataulo, who is an ex-navy clearance diver. He was attached to the Field Engineering Unit, and was trained by the Australian Navy in recompression chamber operations at HMAS Penguin. Simi took care of the monoplace chamber at the naval base here in Port Moresby.

Training

This is an area we consider to be very important in view of the fact that hyperbaric therapy is a very new field of medicine in PNG. Apart from the one or two ex-navy doctors who had some brief training in their career, the shortfall in properly trained medical personnel was very obvious. A number of doctors attended two courses, one held by Dr Pauline Whyte and the most recent by Dr Chris Acott. Unfortunately, these men and women have since lost interest, and the only one remaining is Dr Duncan Dobunaba, who is as keen now as the day he started.

A number of PNG registered nurses have been trained as inside attendants, but, as with their medical colleagues, have fallen by the wayside. Commitment can be a problem in PNG. The staff at MHS will not give up on this, though, and remain committed to ongoing training.

Association with Niugini Air Rescue

It is worth spending a little time on what I believe is a unique association between MHS and NAR. An AirMed service did not exist in PNG until I was given the job of setting up the first one in 1992. Since that time, we have performed 57 primary dive retrievals from the South Pacific Rim to the chambers in Townsville (35), Guam (9), and Port Moresby (13). It has evolved to become a subsidiary of International SOS, and averages 1.5 international Medevacs a week.

A dedicated Citation jet, equipped with Lifeport, and a large inventory of hardware and consumables to international standards, is on 24-hour standby to attend to any emergency in the area. Flights are regularly undertaken to such destinations as Guam, Chuuk, Ponephe, Kosrae, Bali, Solomon Islands, Jakarta and East/West Timor, as well as many centres in PNG.

Of course, this often involves call-outs at night, and presents many logistical problems, such as insurance coordination, clearances, customs, fuel, weather, runway lights availability etc., all of which are compounded by the difficult communications in the area.

Our policy has always been 'no job too large', and this resulted in us chartering the 210-seat Air Niugini Airbus to evacuate mine personnel from Balikpapan in Borneo to Singapore during civil unrest. More recently, we used a 75-seat F28 to carry six severely burnt Papua New Guineans from Madang to Brisbane after a terrible incident with contaminated kerosene. This became a family affair, as my husband was the Captain of the aircraft.

As I mentioned earlier, the hyperbaric chamber is attached to the NAR Medevac room with all its facilities. This results in a marvellous service for injured divers. It is not unusual for a patient from a liveboard dive boat to be met by the retrieval team at the local airport or wharf, and be transported in a sea-level cabin back to Port Moresby, with stabilisation

and the pre-chamber briefing performed on the way to the chamber. In most of these cases, Duncan Dobunaba accompanies the flight and performs his medical examination on the way. On arrival, the aircraft parks in the hangar and the sick diver is taken straight into the chamber room.

The on-call phone for both services was carried by me and now has been passed over to Jan Sheehan. The system works very well, and considering this is available in a developing country such as PNG, it is an operation of which we are rightly proud.

The future

As with all pioneering ventures, it is hoped that this service continues to prosper and provide the high level of care and safety that it does at this current time. The service has worked because of the hard work and determination of a bunch of dedicated people, some of whom have moved on. We also acknowledge that without the financial backing of Mauricio Moreno and his commitment to training and other support, our work would have been a lot more difficult. After many years, he may finally this year start to see a small reward for his endeavours.

At the time of this presentation, Cathy Bowen, RN, was General and Medical Services Manager (PNG), Niugini Air Rescue, and Site Manager, Melanesian Hyperbaric Services.

She is now living in Adelaide, Australia studying for a Bachelor's degree of Nursing Practice - Aviation.

Editor's note: DAN-SEAP advise that the Port Moresby chamber is operational as we go to print.

Phone: +675-321-7033 (24 hrs)

Int. Toll Free: 050-861132 (24 hrs)