

Friends of DDRC Newsletter 2012



The Hyperbaric Medical Centre
[Diving Diseases Research Centre]



Message from the The Friends of DDRC

The Friends of DDRC exist for two main purposes – to provide a special and sympathetic perspective on the way the charity's services are run; and to supplement the charity's main income, with funds that go directly towards improving the patient experience and into essential research.



In the past funds raised by the Friends have been spent on patient comfort items such as a TV for the patients lounge as well as specialist equipment for our world class research team. The Friends also partially funded a purpose built area for the monoplace chamber in the Plymouth centre.

I hope you enjoy this newsletter, it will give you a flavour of the different work that the Charity has done over the last few months.

A Friend of DDRC will become part of the team that really cares and every Friend can have an influence on what we do and decide how they can support the charity.

This is a wonderful cause which not only deals with diving accidents but is beneficial to a wide range of medical conditions with life enhancing and life saving potential. We are also on call 24 hours a day, 365 days a year for emergencies, both diving and for those medical conditions which benefit from emergency hyperbaric therapy.

If you are not already a 'Friend' please think about becoming one. If you are already a 'Friend', please go and find several more to join us. (The forms are on the back page of this newsletter!)

We need all the Friends we can get!

The Friends of DDRC



Frequently Asked Questions!



So – what is the DDRC?

The Diving Diseases Research Centre also known as The Hyperbaric Medical Centre is a Plymouth based charity that offers specialist Wound Care and Hyperbaric Oxygen Treatment of a number of conditions such as:

- Diabetic ulcers
- Radiation Tissue Damage and Delayed Radiation Injury
- Osteomyelitis
- Soft Tissue Damage
- Failing Skin Grafts and Skin Flaps
- Carbon Monoxide Poisoning
- Decompression illness
- Necrotising faciitis
- Malignant Otitis Externa



Where is the Centre?



- We are located in the Tamar Science Park, adjacent to Derriford Hospital in a purpose built unit.
- The picture above is of some patients sat in our largest chamber – The Krug!
- We also have a centre based in the Spire Hospital in Cardiff!



Tell me about the benefits of the treatment?

Hyperbaric Oxygen (HBO) is a treatment where patients breathe 100% oxygen intermittently while inside a chamber at a pressure higher than sea level.

- Through use of a well established technology, HBO is a safe, well tolerated treatment and can help to resolve a range of complex and debilitating medical conditions.

When Hyperbaric Oxygen Treatment is administered, there is potential for the following benefits in the body:

- Delivery of increased amounts of oxygen to injured tissues
- Promotion of blood vessel formation, especially in the micro-circulation to increase blood flow
- Reduction of tissue swelling
- Reduction and inactivation of some infections
- Stimulation of new bone formation
- Reduction of the effects of some toxic substances
- There is also promotion of healing as a result of our **wound care expertise**

What else do you do?

We are also a research facility:

- Conducting research associated with the use of Hyperbaric Oxygen.
- Issues surround 'diving' and 'wound healing' form the heart of the research being undertaken at the centre.
- All aspects of our research are being conducted as collaborative efforts with national and international research partners including universities, medical schools and healthcare professionals.



How can I be referred?



- **Routine (non emergency) referrals** to us are made via a Hospital Consultant or General Practitioner.
- For more information please contact us on **01752 209999** or **info@ddrc.org** .
- We also operate a 24hour on call service for diving and other emergencies requiring hyperbaric oxygen treatment.



Inside the largest chamber at the Hyperbaric Medical Centre.

Health Care: Nutrition and Wound Healing

A key element of the work undertaken by the clinical team involves wound healing and tissue viability work...



Here, DDRRC Tissue Viability Nurse Sarah Witts discusses the importance of proper nutrition and its role in wound healing.

Wound healing is a very complex process and optimum nutrition can enhance it. There appears to be a strong link between poor nutrition and poor and delayed wound healing. Therefore to give a wound the best chance of healing, one factor to be aware of is to eat a healthy, balanced diet.

- It is recommended that 3 evenly spaced meals a day are eaten. Avoid skipping meals and try to eat healthy, nutritious snacks in between. If an individual has a poor appetite, smaller frequent meals may be better tolerated.

Individuals with a wound require adequate levels of protein, vitamins and minerals to support the healing of their wound. When there is a wound present the body's demand for protein is increased. This is increased further if the wound is producing exudate or if there is infection present. If an individual has a wound a good calorie intake is necessary. Inadequate calorific intake can lead to weight loss and can cause the body to use protein stores for energy instead of wound healing. It needs to be noted that poor nutrition isn't just an issue for underweight

individuals. People who are very overweight may not necessarily be eating a wide range of nutritious food so may also be lacking necessary nutrients. Being overweight can also lead to other complications for wound healing, so it would be a good idea to talk to your GP/ nurse.



It is becoming quite common to take additional supplements and herbal remedies for ailments. It is important that the health professional treating the wound is made aware of any that are being taken. Research would suggest that some of them can have an effect upon wound healing. Examples of these would include Ginger, Echinacea, Ephedra and Bromelain.

Acute wound healing should progress in four stages and during these stages different nutrients are utilised. A good nutritious diet that will promote and improve wound healing would encompass an adequate fluid intake and nutrients such as proteins and amino acids, vitamin A, vitamin B complex, vitamin C, vitamin E,

iron, zinc, vitamin K, copper, fats and carbohydrates. Ideally individuals can meet these dietary needs by eating regular healthy meals and snacks.

Here are some suggestions of where some of these important nutrients can be found:

High energy foods

E.g. Cereals, potatoes, bread, rice, pasta, oils and spreads, butter and oats.

Protein

E.g. Meat, cheese, eggs, milk, yogurt, fish, vegetables, peas, beans and lentils.

Vitamin C

E.g. Fruit juice, fresh fruit, green leafy veg, potatoes, blackcurrants, oranges, satsumas, lemons, strawberries, and raspberries.

Iron

E.g. Red meat, offal, green leafy veg, fortified breakfast cereal, sardines, pulses, lentils, peas, beans, nuts and dried fruit.

Zinc

E.g. Meat, potatoes, milk, bread, shellfish and cheese.

Vitamin A

E.g. milk and milk products, meat, cereals, vegetables, eggs, margarine, butter, oils, liver, red peppers and tomatoes.

If an individual with a wound is diabetic, it is important that blood sugar levels are well controlled to aid wound healing. If they are

not well controlled we would recommend they make an appointment with their GP/diabetic nurse.

If an individual takes a special diet, has difficulties with eating, is losing weight, or is very overweight, it may be recommended that an appointment should be made with their GP/dietician.

Further advice on nutrition and eating healthier can be found at:

www.patient.co.uk/health/Healthy-Eating

www.diabetes.org.uk

www.nhs.uk/livewell/healthy-eating

www.nhs.uk/change4life



Did you know that Hyperbaric Oxygen is used to treat the effects of Carbon Monoxide Poisoning?

Carbon monoxide poisoning can occur as a result of poorly maintained gas boilers, house fires or basically incomplete combustion of carbon containing substance – for instance running a car engine in a closed garage. Here is an extract from the Department of Health Carbon Monoxide poisoning guidelines:



**IS YOUR PATIENT
SUFFERING FROM CARBON
MONOXIDE POISONING?**

**If the patient is at risk and has
been unconscious for even a
short time please ring:**

**The Hyperbaric Medical Centre on
01752 209999**

for advice or treatment

**The Hyperbaric Medical Centre
www.ddrc.org Charity Number: 279652**

'Every year, there are still approximately 50 accidental deaths from acute Carbon Monoxide (CO) poisoning in England and Wales and that there are over 200 non-fatal poisonings which require hospital admission.

However, there is new data which suggests that there is a similar order of magnitude of non-fatal poisonings in people who attend A&E, are treated for carbon monoxide poisoning, but who do not require admission to hospital – this is of great concern as CO poisoning can lead to chronic health problems. The number of people exposed to CO, but who are unaware of the cause and do not present at their GPs surgery or local hospital is still not known but is likely to be many more.

The symptoms of the poisoning may come on slowly and may not be recognised by either the patient or the doctor. The commonest symptoms and signs and an indication of their approximate frequency in CO poisoning are shown below:

- Headache - 90%
- Nausea and vomiting - 50%
- Vertigo - 50%
- Alteration in consciousness - 30%
- Subjective weakness - 20%

Whilst chronic exposure to lower CO concentrations may lead to the symptoms and signs of influenza or food poisoning, exposure to high concentrations of carbon monoxide leads to collapse and death within minutes. Apparently classic cases of food poisoning of a whole family may be produced by carbon monoxide poisoning. Prolonged exposure to concentrations that produce only minor symptoms may, in some cases, be associated with lasting neurological effects. These include difficulties in concentrating and emotional ability.

There is debate about the added value provided by hyperbaric oxygen. A Carboxyhaemoglobin (COHb) concentration of >20% should be an indication to consider hyperbaric oxygen (HBOT)

and the decision should be taken on the basis of the indicators listed below:

- Loss of consciousness at any stage
- Neurological signs other than headache
- Myocardial ischaemia/arrhythmia diagnosed by ECG or
- The patient is pregnant

HBOT is also thought to be of use for extensive exposure to CO and if neurological damage is suspected, its use should be on a case by case basis.'

More information is available from the [Department of Health website](#).

If you have concerns you may have CO poisoning, seek medical advice. Health professionals can find contact details for their nearest hyperbaric unit at www.hyperbaric.org.uk



DDRC visit to.... Falmouth Coastguard!

Two of DDRC's Doctors and one of the research students visited the Falmouth Coastguard just before Christmas. Falmouth Coastguard work closely with DDRC during diving accidents and the aim of the visit was to understand what they can do and how they work. We were greeted by Ken Bazeley who is the National Diving Liaison Officer for the MCA and shown round the station.

Falmouth Coastguard cover a large area which in the west stretches 600 miles into the Atlantic Ocean. The Coastguard



Dr M Waterman and K Kabala and Liz Hancox from DDRC

liaise with the Aero-nautical Rescue Coordination Centre, dealing with calls from distressed sailors, fisherman and divers all over the world and can be involved in coordinating rescues in waters anywhere from the coast of Spain to Indonesia.

On receiving a mayday call they can quickly investigate the nature of the mayday, contact the necessary people and coordinate a rescue. They then coordinate the transfer of those rescued to hospital or often in the case of a diver to the nearest appropriate hyperbaric unit such as DDRC. This transfer may be by land or air and transfer by air is not always the most speedy way for a diver to reach medical help, depending on location of the helicopter at time of an incident and the incident itself.

Some of their calls are not as serious as a mayday but are still dealt with efficiently and quickly by Ken and the Coastguard team. The Coastguard liaise directly with the RNLI in these instances to make best use of available resources.

The Coastguard closely monitor the weather and sea conditions, producing warnings where appropriate and can supply daily weather updates.

They are also able to track all large sea vessels in and around the British Isles with some fascinating technology. It was very interesting to see how they work and exactly what they do and it was great to meet the faces behind those phone calls. Many thanks to Ken and all those at HM Coastguard Falmouth for having us this week and we look forward to continuing to work closely together.



DDRC Research: Meet Liz Hancox, Clinical Sciences student on placement at DDRC



My name is Liz Hancox. I am a student at Peninsula College of Medicine and Dentistry (PCMD) and I study Clinical Science. Some of our modules are taught by PCMD and some by the School of Biosciences at the University of Exeter. The aim of the degree is to produce science graduates with knowledge of how disease is caused, and understand how this information can be applied and developed to find new treatments.

I have spent the last two years living and studying in Exeter and I will be returning for my final year in September 2012. After my degree, I hope to continue a career in research and go on to do a PhD.

I applied to work at the DDRC this year, to gain some professional training and experience. During my time so far, I

have written a protocol for a clinical trial and gained provisional ethical approval to run it. I will hopefully be able to begin recruiting participants in early 2011. The trial will measure the tissues surrounding problem wounds, to see how much oxygen rich blood is getting to them. Over a course of hyperbaric oxygen therapy, it is hoped that these values will increase.

I have also been training to become a hyperbaric chamber attendant over the last few months. I have really enjoyed this because it has allowed me to mix with people from all the different departments at the DDRC. It has also meant that I am able to meet the patients being treated with hyperbaric oxygen. This has made my research seem worthwhile.



The highlights of my time at the DDRC so far have been dressing up like a fireman during the fire safety part of my chamber attendant training, gaining provisional ethical approval for my trial and (of course) the Christmas Party!

A day in the life.....: **DDRC's Satellite Unit in Wales!**



Keri-Anne Williams, Nurse Manager of DDRC's satellite unit in Spire Hospital, Cardiff, describes a typical Day in the Life of DDRC Wales....

The alarm clock buzzes its 05.15 I open one eye - shall I get up or put it on snooze? Let's get going we have a busy day ahead. At 6.20am I leave home for the journey to Cardiff.

Our unit is a nurse led hyperbaric unit which is a satellite of the unit at Plymouth but we have the full support of the Plymouth team as well as the Spire Hospital team if we need it.

At 7 o'clock the unit opens to our patients. We open up the Lox (Liquid Oxygen) tank which gives us the high flow Oxygen supply we need to operate the hyperbaric chambers. Once inside the plant room we turn on the compressor, which entails the turning on of 5 air cylinders and the air compressor itself. The oil and water has to be checked and the water the compressor produces has to be drained off regularly throughout the day – don't tell my partner or he'll have me checking out his car too!

Whilst this is happening the other member of our nursing team is running the safety checks on the 2 monoplace (single person) chambers, the air supply is attached and the paperwork is

completed. The first patient comes in at about 7.15am and the other one five minutes later. They put on their cotton clothing and bring their air-break masks and anti static wrist bands out of their lockers into the chamber with them.



They take a few minutes choosing their film to watch in the chamber and then they are ready to go. The first two are usually the early birds either wanting to miss the very busy Cardiff morning traffic or just wanting to get to work without the therapy causing too much of a disruption to their working lives, most of our patients have between 20 or 30 pre-operative sessions daily (Monday to Friday) organised then they have their surgery before returning for 10 -20 post operative sessions.

The amount they are given is dependent on their diagnosis. We are treating 7 patients in the chambers today. We also have 2

new patients to be assessed by the nursing staff and a Diabetic foot wound to be redressed.



Our nursing team all agree that the best part of this job for us is the relationships we build up with these patients and their relatives as they become like our own families with the amount of time we spend with them in our unit.

The patients are in the chamber for an hour and 50 minutes and there has to be two nurses in the unit at all times. The nurse in the treatment room monitors the patients throughout the dive regularly recording her findings. Patient safety is paramount. At about 09.30 the first two patients are ready to decompress. Routine treatments are usually carried out at a pressure of 2.4 ATA (Atmospheres) which is the same pressure as being 14

metres underwater. They are returned to 1.0 ATA, essentially sea level, before leaving the chamber for another day, the same thing happens tomorrow until their therapy is complete.

The chambers are cleaned, the beds disinfected and the linen changed ready for the next two patients, all the paperwork is checked and signed and the new dive logs started for the next 2 patients.

This lady has a tracheotomy insitu and needs a nebuliser prior to her therapy and she has suction before going into the chamber. The compressor is again drained and at eleven o'clock the first of the 2 new patients arrive for their Nursing assessment they are very nervous and unsure about this therapy. We show the patient's around the unit and they get a chance to speak to the other patients in the chamber and see how it really is. Most of the patients say they were also nervous the first time but find it very relaxing now.



The DVD player is a god send to these patients as it really takes there mind off the treatment they are receiving , we have a very large stock of films here for them too, our patients often donate DVD'S to the unit when they complete their therapy for the other

patients to watch. We also have a radio and a free view TV - the radio was also donated by a very grateful patient.

During the nurse assessment we discuss the patient's full medical and social history and the reasons they are coming for this therapy – their current medication, potential contraindications and any care issues are identified, specific hyperbaric issues are also discussed. They are then seen by the Hyperbaric doctor and consented for therapy.

We now have the previous patient's wound to dress so while she gets changed into her own clothes we commence therapy's five and six in the chambers. Once they are settled patient 4 has got dressed and is waiting on the couch to have her foot redressed. Photographs of her wound are taken, a grid is placed over the wound to record its current size, and wound assessment/progress charts are completed, and documented in there notes, once complete they will return tomorrow for further therapy.



The 2nd new patient is assessed and told she can also start the following week she is part of the HOTII trial we are currently participating in which involves patients who have received radiotherapy in the past for pelvic cancers it usually involves radiation proctitis. These patients have suffered terribly debilitating symptoms some even needing monthly blood transfusions. We have had very good results when treating these pelvic radiation patients in the past.

Once the two chambers are again resurfaced the patient's get changed and will return tomorrow same time same place. The chambers are again disinfected and the first chamber is closed down for the day. The other chamber is ready to treat patient 7 who is ready to go his therapy completes at 16.20 and while he

gets changed to go home we shut down the unit ready for more of the same tomorrow, when hopefully we will do it all again!



Focus on the **DDRC Team!**



Patrick Goldsmith 1944 - 2011

It is with great sadness that we announce the recent passing of Patrick Goldsmith, former DDRC chamber supervisor.

Patrick joined the Navy in 1960 at HMS Ganges. After a year's basic training he went to sea in general service as a seaman gunner with HMS Trafalgar

being one of his early ships. It was during this time that he had

his first insight into diving, qualifying as a Ships Diver in 1964. This was when he found his passion for diving and in 1967 he joined HMS Vernon to qualify as a Clearance Diver.

The next few years saw him serving on Mine Hunters in the Far East based in Hong Kong. He returned to the West Country to join the bomb and mine disposal team. The lure of adventure saw him leave the services and go to work offshore on the oil rigs. After several years of hard work he set himself up in the plumbing business.

In 2000 Patrick joined DDRC as a chamber supervisor. With a wealth of knowledge and experience he had gained in the North Sea he became a pivotal player in making DDRC a centre of excellence and a great place to work. He always maintained that his years at DDRC were the best years of his life; the friendship and camaraderie were always in his thoughts. He felt privileged to have been part of such a great medical team and to see patients responding to their treatment.

He was a man of great stature and presence and will be sorely missed by all at DDRC.

‘The Cormorant and the Depth Charge’

One of the strengths of DDRC is the charities staff who come from a wide and varied number of backgrounds. Here Chamber supervisor Darren Jones tells a



story from his time as a Royal Navy Clearance Diver.

Towards the end of a busy and diverse week which included dealing with a live Mortar bomb at a police station in Barmouth, the Plymouth Explosive Ordnance Disposal (EOD) team were tasked to Guernsey where a local fisherman had trawled more than just his usual catch.

On entering harbour a policeman inspected the fisherman's nets and informed him that the rusty drum shaped object on his deck rather resembled a depth charge. Not amused, the fisherman rolled the offending article off his boat and into the murky depths of St Peters Port harbour.

Within the hour the duty EOD team were en-route courtesy of a 771 Squadron Sea King helicopter, arriving at the picturesque harbour just as dusk settled. Having decided that the disposal operation would take place at first light, the Peninsular Hotel was made 'home' for the evening – a stroll along the promenade and a few pints of local ale completed our acclimatisation.

After a hearty breakfast we made our way down to the harbour where the local authorities were more than pleased to see us. The fishing vessel was berthed at the end of a long pontoon which seemed to be guarded by a very important looking Cormorant who although didn't seem to mind us, followed us to the end of the planking where he curiously eyed the diver making his preparations, seemingly ready to offer advice.



Once the diver had been briefed he entered the water, closely followed by the Cormorant. Everyone laughed in astonishment, and as the diver left surface, the Cormorant followed, then seemed to lead the way down amongst the lobster pots, discarded nets and finally to the ordnance. The helpful bird then disappeared and left the diver to identify a MK 7 depth charge – the explosive filling clearly visible through the corroded casing.

Deemed safe to transport, the depth charge was recovered and taken out to sea where it was counter mined using plastic explosives – an impressive plume of spray marking the end.

When we got back to harbour the Cormorant was stood on a post drying his wings and looking rather pleased with himself. We grabbed lunch and then waited for 771 Squadron to take us home.

I was the diver that day in Guernsey, and I still smile every time I see a Cormorant, they are fascinating birds.

Darren Jones

DDRC Chamber Supervisor



Specialist Wound Care Treatment in the South West

Based within the DDRC Building!

Plymouth Wound Care Ltd provides private, high quality wound care services to the public. The service is nurse led and consists of a team of three highly qualified nurses experienced in tissue viability and the treatment of difficult to heal wounds. The team provide wound care primarily for post-operative and chronic wounds and has strong links with the wound care industry enabling us to work at the forefront of dressings technology and use the best available dressings for the care we provide.

Each patient (other than those requiring uncomplicated post-operative care, such as suture/clip removal) will undergo a one hour assessment followed by further appointments as agreed through the development of a Care Plan. The estimated cost of treatment will be considered and discussed during the initial assessment and patient agreement sought. As well as receiving high quality care from a member of our experienced team, each patient will be treated as an individual and will be encouraged to become involved in the decision making process regarding treatment of their wound. Lifestyle advice may also be offered if it may impact on the wound healing process.

Please contact us if you have any questions or to arrange an appointment.

Email: info@plymouthwoundcare.co.uk

Tel: +44 1752 237111



Events:

Chronic wounds: aetiology, implications and innovative approaches to wound care

This event is being organised by Plymouth Wound Care and will take place on Thursday 8th March 2012 at the **National Marine Aquarium** Rope Walk, Coxside, Plymouth, PL4 0LF (Free parking provided)

Registration £30 (10% to go to the Alison Kelly Fund), includes all refreshments, lunch and aquarium visit

Subjects to be covered include Pressure ulcers, Diabetic foot ulcers, Biofilms and Hyperbaric oxygen. Other topics to be confirmed.

To book call Plymouth Wound Care on 01752 237111 with payment card details or send a cheque made payable to:

Plymouth Wound Care Ltd and application form to:
Plymouth Wound Care
Hyperbaric Medical Centre
Tamar Science Park
Research Way
Aquarium in Plymouth.

Plymouth Wound Care Clinic Times

Plymouth Wound Care operates 2.5 days per week.
Mondays – 08.30-16.30,
Wednesdays – 10.00-14.30,
Fridays – 08.30-16.30

DDRC contact Details

Email addresses:

General email enquiries: info@ddrc.org

Website address:

www.ddrc.org

Telephone numbers:

General enquiries: 01752 209 999

Book a medical: 01752 237 106

Postal Address:

DDRC The Hyperbaric Medical Centre
Tamar Science Park
Research Way
Plymouth
Devon
PL6 8BU

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Friends of DDRC / Gift Aid Form Page1 of 2

This Gift Aid form can be used for single or regular direct debit donations too.

Please complete the form and send to DDRC.

Full Name:	
Address:	
Post code:	

Banker's order:

To the manager of (bank):	
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Sort code:	
Account Number:	
Post code:	

Please pay to **Barclays Bank PLC, Cornwall Street, Plymouth, PL1 1LU (20-68-10)** for the credit of **Friends of Diving Diseases Research Centre**, Account number 20309699 the sum of £ . p every Month / Year (delete as appropriate) starting from / / (date) and debit my account number:

Friends of DDRC / Gift Aid Form
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Gift aid declaration for UK tax payers only: I want the charity to treat:

- The enclosed donation of £ . p
- the donation (s) of £ . p which I made on / / .
- All donations I make from the date of this declaration until I notify you otherwise
- All donations I have made since the 6th of April 2000 and all donations I make from the date of this declaration until I notify you otherwise

As gift donations.

Please return to:

Donations
DDRC The Hyperbaric Medical Centre
Tamar Science Park
Research Way
Plymouth
Devon
PL6 8BU

Thank you for supporting DDRC.