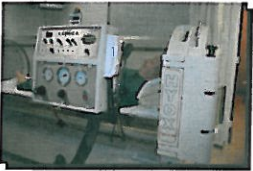


The Hyperbaric Medical Centre (Diving Diseases Research Centre)



Charity (DDRC) founded in 1980
www.ddrc.org

The Hyperbaric Medical Centre
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DDRC – Main Activities

Clinical



Plymouth Hospitals NHS
Department of Health
Nuffield Health
Spine Healthcare
Care Quality Commission
NHS

Research



The Royal Society
Plymouth Hospitals
Nuffield Health
Care Quality Commission
NHS

Training



DDRC
PADI
NHS

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MAJOR PATIENT GROUPS TREATABLE WITH HBO

[There are 13 "accepted" indications]



1. Non-healing ulcers (diabetes)
2. Radiation Tissue Damage (post cancer)
3. Infections (diabetes; plastic surgery)
4. Carbon Monoxide poisoning (house fires; boilers)
5. Divers (recreational accidents)

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DIABETES - NATIONALLY



- The cost of care for diabetics is **10% of the NHS budget** (estimated at £1 million per hour)
- Of the UK population **>5% are diabetic**
- Lower extremity amputation is **15-20 times** more likely in diabetic patients than in the general population.
- There are **proven advantages** of using hyperbaric oxygen therapy (HBO) in difficult to heal diabetic foot and leg ulcers^{1,2}.

¹ Canadian Agency for Drugs and Technologies in Health. Technology Report March 2007 - a) Overview of Adjunctive HBO for Diabetic Foot Ulcers. b) Adjunctive HBO for Diabetic Foot Ulcers: An Economic Analysis.

² NHS Quality Improvement Scotland - Systematic Review 2008. The clinical and cost effectiveness of hyperbaric oxygen therapy.

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DIABETES - IN PLYMOUTH

- In 2007/08 **9683** people aged **17 or over** were diagnosed with diabetes.
- There are estimated to be **>10 000** diabetics in Plymouth
- Predicted rise in diabetes in Plymouth 2005 to 2025 will be from **4.3% to 6.2%**.
- Currently only **11%** of diabetics attend educational events.

DIABETES - IN PLYMOUTH

- Most patients referred to DDRC are progressing towards amputation.
 - Progression is expensive (dressings, nurse time etc etc)
 - Post amputation is expensive
 - ~70% of diabetic lower limb amputees will die within 5 years ¹

The alternative

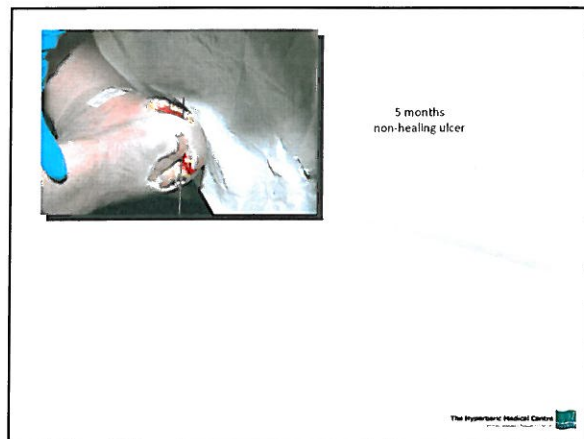
At DDRC :

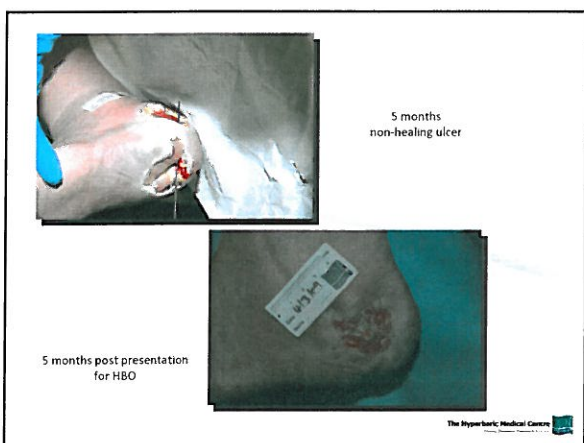
- ~ 50% of patients - healed
- ~ 30% of patients - partially healed / improving wound.

¹ Schofield, C.J. *et al.*, (2006) Diabetes Care 29(10):2252-2256

DIABETES - IN PLYMOUTH

- The average cost of a course of HBO is £4,500 per patient
- The cost of surgical amputation is unknown but includes:
 - Wound and stump care,
 - Occupational therapy,
 - Physiotherapy, prostheses,
 - Higher intensity healthcare professional intervention,
 - Psychological impact on patient and family,
 - (In)capacity to work,





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RADIATION TISSUE DAMAGE (1)

Prevention of Osteoradionecrosis

- Head and Neck Cancer survivors are at significant risk of jaw bone necrosis
- Marx (1985) - Dental work requires HBO pre- and post-operatively
- Significant savings in preventing the development of ORN
 - ORN requires protracted surgery, nutritional supplements, feeding tubes, pharmaceuticals, infection prevention etc
- Clinical trial (Cancer Research UK and the Liverpool Cancer Trials Unit) – multicentre RCT

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RADIATION TISSUE DAMAGE (2)

Pelvic Radiation Tissue Damage

- Survivors of cancers of the pelvic region (eg prostate, bladder, cervical,) are at risk of developing delayed tissue damage.
- Symptoms are debilitating - include bleeding, diarrhoea, pain, incontinence,...
- Significant costs associated with housebound lifestyle/blood transfusions etc
- Life changing successes achieved with patients treated at DDRC
- American clinical trial has shown significant efficacy of HBO – now standard care for this condition in the US
- RCT underway (Royal Marsden, CRUK) – results expected 2014

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Other conditions treatable with HBO

Infections

Includes:

- Necrotising soft tissue infections
- Antibiotic Resistant Infections

Efficacy and potential not fully understood
Research required
Potential to save limbs and lives



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02 492 1234

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Other conditions treatable with HBO

Carbon Monoxide Poisoning

Few referrals due to:

- Lack of A&E awareness
- Difficulties with ITU support for ventilated patients

Potential benefits of HBO treatment:

- Lifesaving in some instances
- Accelerated removal of CO from blood (reduced hospital stay)
- Prevention of delayed brain damage
- Prevention of downstream cardiac problems

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Other conditions treatable with HBO

Decompression Illness

Recompression combined with hyperbaric oxygen therapy is the
ONLY treatment for decompression illness

IN PLYMOUTH



Are all the patients who could benefit being referred?

Diabetic Foot Ulcers – No
Radiation tissue damage (MaxFacs) – No
Radiation Tissue Damage (Pelvic) – No
Infections – No
CO exposure – No
Decompression illness – Yes

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IN PLYMOUTH



Significant potential to reduce acute and downstream costs via:

- Prevention of amputations (diabetes; necrotising infections)
- Prevention of ORN (Maxillofacial cancer patients)
- Healing of radiation-damaged tissue (pelvic radiation, maxfacs)
- Prevention of brain damage and cardiovascular damage (CO exposure)
- Improved healing times (diabetes, antibiotic resistance)
- Healing of ischaemic wounds and failing flaps (plastic surgery)

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We're here to help!!



