Hyperbaric Oxygenation can repair and restore damaged brain

Reprinted below is a Medical Bulletin of immense importance to parents and caregivers of small children with Cerebral Palsy, Autism and similar Neurodevelopmental Disorders, caused by brain cell damage and/or reduction of blood flow to brain during a critical period in the past.

Please read the testimony (below) on Dr. Paul Harch's very recent presentation on **"The Impact of Hyperbaric Medicine on Government Health Care, Disability and Education Expenditures"** which was brought before the Labor, Health and Human Services and Education Subcommittee Of the Committee on Appropriations, United States House of Representatives.

"The Impact of Hyperbaric Medicine on Government Health Care, Disability and Education Expenditures"

The International Hyperbaric Medical Association
Paul Harch, M.D. President

Before the Labor, Health and Human Services and Education Subcommittee Of the Committee on Appropriations, United States House of Representatives May 2, 2002

Chairman Regula, Mr. Obey, and distinguished members of this committee, I am Dr. Paul Harch, President of the International Hyperbaric Medical Association, and a resident of Louisiana. Bob Livingston was my Congressman. Two years ago, Mr. Istook of Oklahoma started the Hyperbaric Oxygen Initiative at the National Institutes of Health. Many of his constituents have become my patients, one of whom I will present today for the first time in a public setting.

We were all taught that brain cells don't regenerate. Four years ago, NIH announced to this panel that medicine had been in error all of these years and challenged the medical community to begin searching for a way to do

so. Hyperbaric Medicine has been repairing brain injuries right here in America for 30 years, but no one would look at it because everyone "knew" that it was not possible.

Hyperbaric oxygen therapy (HBOT) involves the delivery of $7 worth of oxygen in a pressurized environment created by a chamber. Some of these chambers are the size of this table, and others are the size of a small room. **The pressure serves to saturate the tissues of the body, not only the hemoglobin in the blood, but the plasma, lymph and cerebral spinal fluid, all of which go many places that hemoglobin cannot reach, especially in cases of traumatic injury**. The average treatment takes 1 to 1 ½ hours and Medicare reimburses at $75 per ½ hour of treatment, plus a $35 physician attendance fee.

Bob Moffitt, Director of Domestic Policy at the Heritage Foundation said, "Congress should authorize an intensive evaluation of Hyperbaric Oxygen Therapy with a view in order to determine its cost effectiveness and its contributions to high quality care." It is in the federal government's financial interest to do so.

I know you have many conflicting priorities Mr. Chairman, and Ms. Pelosi has often said this committee's decisions often involve "the lambs eating the lambs." Unlike many who have testified before the committee, I am not here asking for more money, I'm here to save you money. In the words of one distinguished public health official, "zillions of dollars." This money could be used to fund other pressing priorities and even return some to the taxpayers.

Let me give you a few examples.

40% of my practice is neurologically injured children. You would consider them IDEA children, who cost on average, 2.1 times as much to educate as a non-injured child. T

here are 6.548 million IDEA children in the nation, and this year the President has asked for a budget of $8.5 billion to pay for 18 percent of the obligations of the federal government to the states. These children are costing the state's educational

system $47 billion, for a total of $55.7 billion. On average, nationally, **they cost $8,510 more per year to educate than a "normal" child**. Many cannot learn due to their injuries.

The therapy I am here discussing would cost an average, one time expenditure of between $7,000 and $14,000 for most children treated long after the injury, the cost of educating them for a year or two. The effects would be permanent and last throughout their lifetime. For many of these children, if they had been treated immediately upon injury, the costs drop to often less than $1,000. [Pages 4, 5, 6, 8, 10, 15, 17]

Many of these children have neurological injuries that affect their motor skills, learning, speech, etc. They are children injured in birth trauma, accidents, child abuse, fetal alcohol syndrome, maternal drug use, or other such events.

Current practice deals with the brain that is still there and tries to re-train it. The therapy we are discussing has effectively recovered and rebuilt brain tissue through reactivation of stunned tissue, revascularization and, possibly, stimulation of adult stems cells in the brain to repair existing neural pathways and grow new ones.

Follow many of these children into adulthood, and you discover that many wind up in prison, on welfare, Social Security Disability, in long-term care facilities at state or insurance company expense or become a drain on the system in some other fashion. Many of these children suffering from Mental Retardation or Developmental Disabilities, when they grow to adulthood, cost, on average, $43,000 per year in group home or institutional settings. (3.8 million, 59% under 17, 38% between 17 & 64).

My hyperbaric medical practice has demonstrated that nearly all of these children can be helped, including many with genetic disorders, and many, many, can lead full, normal and productive lives. This is something current medical practices cannot provide for most of them. [Page 9]

I also serve as a prison physician, and can tell you that many prisoners suffer from a neurological injury incurred prior to incarceration and seizure disorders secondary to

those injuries. The injury often drives their violent and irrational behavior. The Department of Justice has reported that up to 20% of the inmates report some type of mental impairment. In New Orleans, Louisiana we have a substantial number of our 7,500 inmates in our prison population with seizure disorders. Many ore have experienced head trauma. [Page 13]

Hyperbaric medicine significantly affects other areas of your committee. For example, in patients with diabetic foot wounds, hyperbaric oxygen has been shown to decrease major amputations by over 75%. There are currently 54,000 amputees on the Social Security Disability Income or SSI roles, at an average cost of $8,467 per year. Many of these amputations could have been prevented through acute and chronic treatment of their medical condition with Hyperbaric Oxygen prior to amputation. Congressman Istook's Deaconess Wound Care Center has less than a 1% amputation rate for those who receive Hyperbaric Treatment. CMS is deciding in 90 days whether amputations or treatment with Hyperbaric Oxygen is more cost effective. All of the other major insurance companies, including Blue Cross/Blue Shield already pay for diabetic wound treatment.

In addition, the latest JAMA article on heart by-pass surgery showed that 30% of those undergoing this procedure have residual brain damage, which could be largely solved by a single $225 Hyperbaric treatment. Further treatments applied under a surgical protocol could possibly heal patients between 25% and 50% faster, concurrently reducing costs to the insurance company, the government, malpractice insurance and physicians time and fees. The Navy has applied HBOT to fractures and returned many soldiers to duty who would have otherwise been discharged from service, saving the VA hundreds of thousands over the life of a veteran.

In the year 2000, the government spent 5.5 billion Medicare dollars on strokes, or $3,169 per patient, with little hope of full recovery. Hyperbaric medicine, especially acute treatment, cost effectively offers many such hope. Even chronic stroke patients can experience significant improvement in function and quality of life. [Pages 11, 12]

Social Security disability currently has 61,500 brain injured people on the Disability or SSA roles at a cost of $8,459 per person per year. Many of these people could be returned to full and productive lives.

One of Mr. Istook's constituents is the first person to start the true return from early onset Alzheimer's disease. I know the Committee has great interest in this dread disease. [Page 7]

Let me illustrate what I'm talking about with real, live patients. I believe it will demonstrate what I am discussing today.

[Handout provided with this testimony.]

Page 4: Acute & Chronic Treatment of Traumatic Brain Injury & Coma - 19 year old male

Page 5: Traumatic Brain Injury and Substance Abuse - 23 year old male

Page 6: Traumatic Brain Injury - 23 year old female

Page 7: Alzheimer's Disease - 58 year old male

Page 8: Physical Abuse & Rape - 21 year old female

Page 9: Mental Retardation - 44 year old male

Page 10: Cerebral Palsy - 8 year old male

Page 11: Stroke - 60 year old male

Page 12: Alcoholism and Stroke - 68 year old male

Page 13: Substance Abuse - 19 year old male

Page 14: Carbon Monoxide Poisoning - 51 year old female

Page 15: Shaken Baby - 6 month old female

Page 16: Gun Shot Wound to the Brain - 29 year old female

Page 17: Autism - 3 year old female

I would encourage you to fully support Mr. Istook's Hyperbaric Oxygen Initiative language (attached), and encourage the National Institutes of Health, the Centers for Disease Control, the Agency for Healthcare Research and Quality, the Centers for Medicare and Medicaid Services, the Health Resources Services Administration, the Substance Abuse and Mental Health Services Administration, the Social Security Administration and others to get the word out that $7 worth of oxygen, delivered at pressure, will save money, save lives, and improve the quality of life for millions of Americans, and provide hope to many who live lives of quiet desperation.

I welcome the opportunity to answer any questions the committee has.

Representative Ernest Istook, Report Language for National Institutes of Health, FY 2003

Hyperbaric Oxygen Initiative

In accordance with report language from the Committee in previous years, the Office of the Director is encouraged to coordinate a Hyperbaric Oxygen research initiative in coordination with the International Hyperbaric Medical Association, the American College of Hyperbaric Medicine, and the Undersea and Hyperbaric Medical Society.

The NIH is encouraged to work with these three groups to examine widespread use of hyperbaric oxygen therapy for various manifestations of reperfusion injury, such as in organ transplantation, limb reattachment, and before and after surgical procedures involving tourniqueting of extremities: peripheral arterial bypass procedures, amputations, orthopedic procedures, plastic surgery procedures, flap and graft procedures, etc. Investigation of this treatment for hemorrhagic shock, multiple trauma injury and multiple trauma crush injury is also indicated based upon animal and clinical research already conducted.

Such an initiative should also include the examination of the results of a single before and after hyperbaric treatment for surgery patients. The treatment of surgery patients in this manner could result in significant cost reductions and both long-term and short-term results should be examined.

In addition, the International Hyperbaric Medical Association has extensive expertise in the use of hyperbaric oxygen treatment for acute, subacute, and chronic brain injuries, such as traumatic brain injury, stroke, toxic brain injury, brain injuries from substance abuse, air embolism, dementia (including Alzheimer's disease), carbon monoxide poisoning, pediatric neurological injury (which would include autism, cerebral palsy, and multiple other childhood neurological disorders), and the broad spectrum of neurological disease.

The office of the director is encouraged to work with researchers from this association **to explore the short- and long-term cost reduction impact of low-pressure hyperbaric oxygen therapy for these chronic disabling neurological conditions**. In addition, the office of the director is requested to explore the cost-saving potential and improved efficiency of single hyperbaric oxygen therapy treatments before and after cardiac surgery which involves heart-lung bypass, and **hyperacute hyperbaric oxygen therapy for the entire group of brain injuries that follow global ischemia and anoxia and which are characterized by reperfusion injury. This group of brain injuries includes near-drowning, near-hanging, cardiac arrest, electrocution, suffocation, anesthesia anoxia, perinatal brain injuries (resuscitation at birth, birth apnea, etc.)**, and other acute brain injuries resulting from cessation and subsequent resumption of cerebral blood flow. The initiative should examine both the clinical applications of these methods and the underlying mechanisms of action taking place as a result of this inexpensive treatment.

The NIH Director is encouraged to coordinate this initiative across all the appropriate institutes.

BIOGRAPHY OF PAUL G. HARCH, M.D.

Paul G. Harch, M.D. is an emergency and hyperbaric medicine physician who graduated magna cum laude and Phi Beta Kappa from the University of California, Irvine in 1976, with a Bachelor of Science in biology, and subsequently, Johns Hopkins University School of Medicine in 1980 with an M.D. He completed two years of general surgery training at the University of Colorado, one year of Radiology at LSU School of Medicine, New Orleans, and has worked 17 years in hospital-based emergency medicine and 15 years of hyperbaric and diving medicine. His primary interests have been brain decompression sickness and hyperbaric oxygen therapy (HBOT) based /SPECT brain imaging indexed neuro rehabilitation.

Essentially, HBOT is the use of greater than atmospheric pressure oxygen as a drug to treat basic disease processes and their diseases. In chronic wounding the drug effect is one of signal induction of DNA to stimulate trophic repair processes. This has its greatest utility in shallow perfusion gradient wounds, such as non-healing extremity or radiation wounds. Dr. Harch adapted these concepts and the dose of oxygen to successfully apply HBOT to hypometabolic tissue and shallow perfusion gradient wounds in the central nervous system. This neurological application resulted from Dr. Harch's seminal experience re-treating demented divers months after their initial hyperbaric treatment and clinical plateau.

Dr. Harch has presented his findings at multiple scientific meetings and stimulated similar work at a variety of medical centers throughout the United States, including Long Beach Memorial Hospital in California, Scottsdale Memorial Hospital in Arizona, University of Texas Medical Branch Galveston, University of Nebraska, Cornell/New York Hospital, Nassau County Hospital, Fort Gordon in Augusta, Georgia, and others. Hundreds of patients have been evaluated and treated in New Orleans and thousands more across the country using Dr. Harch's protocol, which is derived and slightly modified from the original protocol of Dr. Richard Neubauer in Lauderdale-by-the-Sea, Florida. Dr. Harch confirmed the human experience in an animal model of chronic traumatic brain injury in 1996. The results were replicated in January, 2001 in a larger number of rats with more powerful statistics. This experience is generating increasing interest and spawning controlled clinical trials.

In 1999 Dr. Harch co-authored three chapters in the 3rd edition of K.K. Jain's Textbook of Hyperbaric Medicine on HBOT in Global Ischemia, Anoxia, and Coma, HBOT and SPECT brain imaging techniques, and HBOT in Emergency Medicine.

SPECT brain scans of a number of his patients are featured in these chapters as well as in the appendix of the 2nd edition.

Dr. Harch is especially concentrating on and exploring the effects of low-pressure HBOT in cerebral palsy, pediatric neurological conditions, traumatic brain injury, substance abuse, and toxic brain injury. Over 180 children and 320 adults have been treated as of April 2002 with encouraging results. As a result of his work, Dr. Harch has been recognized as one of the foremost authorities in the Untied States on hyperbaric oxygen therapy for neurological applications. He is the national coordinator and co-principal investigator of the HOTFAST (Hyperbaric Oxygen Therapy for Acute Stroke Trial) and just completed a study on SPECT brain imaging in toxic brain injury. In July, 2001 he was elected the first President of the newly-formed International Hyperbaric Medical Association.

Dr. Harch and the International Hyperbaric Medical Association receive no federal grant funds. As the President of the International Hyperbaric Medical Association, he has had extensive contact with various Federal and State agencies including the Food and Drug Administration, the Agency for Health Care Research and Quality, the Centers for Medicare and Medicaid Services, and the National Institutes of Health on hyperbaric medicine treatment applications and policy.

For additional information, PDF file on the SPECT brain scans relating to this testimony (with 16 case histories and before/after scans), and information on how to become a member of the International Hyperbaric Medical Association, please go to www.HyperbaricMedicalAssociation.org.

The IHMA represents not only physicians, technicians, and researchers but parents, caregivers, and the general public, We need your support and with YOUR help effective hyperbaric treatment can be brought to those who truly need it; whether it be chronic or acute treatment. Let's help those in need now and prevent future chronic problems by treating with hyperbarics at the time of injury. It could be your spouse, child, or grandchild that oxygen saturation technology using hyperbarics will save next. The business plan is geared towards Research, Training, Treatment, Information, and changing the face of medicine. Please join and help us accomplish this goal.

Thank you.

Paul Harch M.D., President

Anita W. Duncan, Executive Director

International Hyperbaric Medical Association & Foundation