

# **Diver Medic Training and Certification: Genesis and Update**

## **Introduction**

As the DMT program enters its 36<sup>th</sup> year it might be of interest to provide a brief summary of its history and where it fits in today's working diver environment. The program certainly has much to celebrate. Countless divers have benefited from the immediate diagnosis and comprehensive treatment that an on-scene diver medic affords. This has been particularly the case in the industrial setting of offshore oil and gas exploration and production. Traditionally, the injured commercial diver had relied on his diving supervisor. At best, supervisors had real time contact with shore-based diving medical control physicians. Further, one would have hoped that the supervisor was able to provide an essential diving history and medical findings that allowed the physician to make a reasonably sound diagnosis and order appropriate care. Unfortunately, such coordinated medical care was the exception rather than the norm. Less than impressive clinical outcomes became far too common, more so with increasing degrees of medical and geographic isolation.

The advent of the diver medic dramatically altered the dynamic of medically and geographically remote diving accident management, just as it was designed to do. Now, diving supervisors had someone within the team who could carefully evaluate the physical and neurological status of an injured diver. More detailed clinical findings would then be relayed to shore-based medical control physicians, physicians who were keenly aware of both the capabilities of the on-site medic and the contents of their medical kit. Resulting orders were case-specific and comprehensive in scope. Not only was it recompression and oxygen breathing for decompression sickness. Now, the bladder could be catheterized, intravenous fluids could be administered and various pharmacologic options brought to bear. Each patient would be followed closely from a neurologic standpoint and prevailing treatment algorithms adjusted as indicated. The sum of all of this was a greatly improved clinical response. Where resolution was incomplete patients transferred ashore to higher levels of care were generally in much better condition than had previously been the case and a more favorable prognosis became more commonplace.

## **Background**

During the latter half of the 1950's oil and gas exploration ventured offshore. Initially, this involved the shallow and relatively benign coastal regions of the Gulf of Mexico. Within a decade, however, exploration had moved further offshore and into the Gulf's deeper waters. It was no longer sufficient to rely on a SCUBA diver standing by to retrieve tools and other equipment lost over the side just a few feet below the surface. To effectively accommodate the deeper and longer dives necessary to adequately support more geographically remote drilling and recovery operations, equipment and procedures became incrementally complex. By the early 1970's, offshore oil and gas exploration and recovery efforts had taken on a very much international flavor.

New commercial diving companies were formed to keep pace with all of this growth. So,

too, the design and manufacture of advanced diving systems required greater resources. The industry's traditional source of divers, those from naval diving backgrounds and graduates from the few existing civilian training schools, were unable to keep pace.

By the mid 1970's commercial oilfield diving's ambitious and frenetic pace even began to outpace availability of experienced supervisory personnel. It also outpaced relevant medical science. Diving accidents, injuries and fatality rates began to mount. Geographic and medical remoteness complicated effective medical management. So too, the fact, that some events were unique in medical annals. While a number of these were indeed dramatic, unique, and occasionally fatal, they represented the proverbial 'tip of the iceberg' in terms of the overall incidence of diving-related accidents and illnesses. Many more divers suffered conventional decompression insults, not infrequently damaging the central nervous system, occasionally to an irreparable degree.

At this point in time the commercial diving industry was poorly prepared from a medical perspective. Not all companies had access to knowledgeable medical resources. Few companies employed diving supervisors who happened to have medical training or related knowledge. It was not in their job description. Few, if any, companies had on-site medical personnel able to immediately enter the chamber, appropriately evaluate an injured diver, relate findings to a shore-base physician, and carry out physician directed therapeutic orders (often necessitating invasive procedures).

Rigs, platforms and service vessels that represented the site of a diving accident would undoubtedly carry a 'rig medic'. The exploration or production company was not, however, about to let their medic 'abandon' 100 or so rig workers in order to enter a diving system and deliver care to another company's (diving contractor) employee and for what might represent a several day 'absence'. US based Oceaneering International, one of the leading commercial diving companies of the day, had more than its share of diving accidents. Corporately, therefore, they decided to do something about the lack of 'on-site' diving paramedical presence. OI's Medical Director, Dr. David Youngblood, was charged with developing a diver medic training program. Its headquarters would be Commercial Diving Center, OI's diver training facility in the harbor of San Pedro, California. An agreement was entered into with the University of California Medical Center, in Los Angeles (UCLA), to provide their impressive training and clinical facilities and expert instructors.

### **Early Days**

Commercial Diving Center would be used as the DMT didactic headquarters, and the 'in-chamber' skills facility. UCLA Medical Center would provide invasive skills training, involving an animal laboratory, pathology facility for gross anatomy, and the trauma center for direct patient care.

A beta course was conducted in 1975. Six Oceaneering International diving supervisors were selected to attend and train. None had previous medical experience, and several had been involved in some of the more dramatic accidents. This three week course was intense. Students were under instruction from 8:00 a.m. to as late as 10:00 p.m. every

day. They trained to the level of Emergency Medical Technician, with additional emphasis on diving accident management.

Uniquely (from an EMT-Basic perspective), students underwent extensive invasive skills training and actual patient 'hands-on' experience. Intravascular cannulation, intravenous, subcutaneous and intramuscular routes of medication administration, advanced airway control (including cryothyroidotomy), emergent needle and chest tube venting of the pleural space, and simple laceration suture repair were examples. The fabled '*Los Angeles Saturday night knife and gun club*' provided the perfect training ground for a huge amount of practical experience!

This exploratory course was a valuable learning experience for students, faculty, and planners alike. The following year, in 1976, the first formal course took place using the same facilities and instructor staff. Again, all DMT students were OI employees, but this time they were volunteers, not conscripted! The principal difference being, that all of these divers were motivated to become DMT's, a number of whom enjoyed previous first responder training. The three week course format was maintained. Greater emphasis was placed on in-chamber skills, involving evaluation and management of a wide variety of sham diving related scenarios.

### **Growing Momentum**

It did not take long for competing diving companies to recognize the value of the DMT. Many of OI's DMT graduates were solicited with offers of an attractive sign-on bonus if they switched employers, several did. Having invested heavily in the training of these individuals only to see them quickly depart was a source of some frustration within OI. The company elected, therefore, to open up course registration to all working divers. By 1978, course attendees represented essentially every leading offshore commercial diving contractor.

Time away from gainful employment was also becoming something of an issue. Three weeks in Los Angeles on the payroll of the diving company was increasingly difficult to justify, despite the importance of this training. To address this, eligibility for subsequent courses included Emergency Medical Technician training and certification prior to arrival at Commercial Diving Center. This, in effect, removed some 8-10 days from the existing course curriculum, now representing a much more satisfactory time period from an employer perspective.

By the early 1980's a waiting list for DMT training opportunities had developed. Not surprisingly, a number of other facilities elected to offer diver medic training. During this same period the National Association of Emergency Medical Technicians (a US first responder certification agency) was approached. It was considered important that DMT's become formally certified through an existing and credible organization. It was also thought desirable that the course curriculum be standardized now that several different venues were available for training.

Discussions with the NAEMT got nowhere. In fact, their representatives were quite

alarmed to learn that diver medics could be functioning many hundreds of miles from comprehensive medical facilities. They were as concerned to hear that patients (injured divers) may not be able to have their medical transfer initiated for several days (injured while in saturation, for example). Land-based EMT's and paramedics commonly practice on the assumption that something in the order of a 30 minute maximum scene-to-hospital time frame will exist.

We think that NAEMT administrators quickly weighed the related medical-legal implications (this was the US, of course!) and equally quickly said no thank you. Perhaps this was to be expected given the diver medic's very unique operating environment and circumstances.

It was considered unlikely that any other organization would take on the certifying responsibilities of the DMT program. Not to be deterred, it was decided that a new organization specific to the needs of the DMT be formed. This was accomplished and in 1985 the National Association of Diver Medic Technicians came into being. It was first headquartered at the Ocean Corporation, in Houston, Texas, one of the three schools training diver medics at that time.

### **Standardization**

The next step in the formalization of the DMT program was to standardize its course curriculum. The NADMT subsequently introduced 'Module 16' as the course outline specific to diving medical training. The term Module 16 was derived from the EMT program, which consisted of 15 separate modules. So, the entire DMT curriculum involved 16 modules (EMT and DMT) and concluded with invasive skills laboratory and clinical practicums. In the US, EMT-Basic (the product of the 15 modules) does not involve invasive skills training. This comes later, at the EMT-Advanced and paramedic levels.

Invasive skills training included time in the animal lab at the supporting medical facility, and rotations within their emergency department. Manikins were used for bladder catheterization and intravenous fluid and drug administration, while pressured up in a recompression chamber.

The program's headquarters was relocated to New Orleans in the late 1980's. Dr. Keith Van Meter, a leading diving medicine specialist and NADMT board member, kindly agreed to house the Board within his administrative facility.

The on-site medical presence demands of the commercial diving industry were now being met to a much greater extent.

With an increase in the number of training courses available waiting lists had largely evaporated. Soon courses were no longer filled to capacity. This led to a 'softening' of the previously commercial oilfield diver only eligibility. Those involved in marine science and open water research diving operations, employees of the National Oceanic

and Atmospheric Administration (NOAA) diving program and other professional diving groups were now accepted for DMT training.

In 1989 the NADMT underwent a name change and a re-orientation from an association of DMT 'members' to a medical certifying board. It was renamed the National Board of Diving & Hyperbaric Medical Technology. This rather lengthy title allowed the incorporation of a certification program in hyperbaric technology. The 'CHT' is a hospital-based hyperbaric oxygen therapy designation for technical and nursing personnel.

### **Advanced vs. Basic**

It was during the early 1990's that, in retrospect, an unsatisfactory and incompletely researched decision took place. Requests had been made to the Board to introduce a two-tier level of DMT certification. Until this point in time there was only the 'DMT'. Several organizations wished to offer DMT training but did not have the necessary facilities and personnel to provide the invasive skills component. The Board subsequently introduced DMT-Basic (no invasive skills training) and DMT-Advanced (the traditional DMT) certifications. Further, with greatly expanded availability of training courses, student eligibility criteria, was largely abandoned. Individuals who just liked the idea of being trained as a DMT were allowed to register. They included recreational divers, land-based first responders and others with backgrounds quite peripheral to diving operations. Many would not find employment as diver medics; many others did not seek such employment.

Be that as it may, professional diving companies continued to seek only those DMT's trained as commercial divers. Invariably, these DMT's were paid a medic bonus on top of their standard diving pay as long as they were formally certified and maintained their certification status. Some drilling and production clients began to mandate the presence of a DMT within the contracted dive team. In several instances a client required that a DMT be one of those pressured-up on deeper saturation dives.

Organizations such as the Association of Diving Contractors, now the Association of Diving Contractors International, had made a concerted effort to educate the oil and gas exploration and production companies regarding diving safety. There were many reasons to do so. Not the least was to limit the likelihood that ADC member companies would be outbid by lesser capable companies who at face value were less expensive to hire. The consequences of awarding jobs to those who would short-cut industry standard safe diving practices could be catastrophic. This writer vividly recalls two such instances in the Campos Basin, off the Coast of Brazil, in the mid-1970's.

### **Mandatory Invasive Skills**

During the annual ADCI meeting in New Orleans, in February 2009, a gathering of particular importance to future DMT training and certification took place. It brought together many physicians active in support of diving operations in the Gulf of Mexico and elsewhere in the Americas. Also invited were commercial diving company safety

officers and other diving medicine stake-holders. This meeting's principle objective was to learn from those at proverbial 'tip of the spear', those actively engaged in the medical care of injured divers, how well they were being served by the NBDHMT, specifically regarding its DMT training and certification product. Following a lot of valuable dialogue it became apparent that there was no useful role served by a 'Basic DMT'. One experienced physician likened Basic DMT's to mechanics without a tool box. Several other helpful points were made, particularly in reference to ongoing skills and knowledge updating and more effective communication needs between the in-chamber DMT, the diving supervisor, and their shore-based physician control.

As a result of this meeting the NBDHMT discontinued Basic DMT certification. Training agencies were notified in March 2009 that all training course scheduled after December 31, 2009, would require an invasive skills component for DMT certification purposes. A period of consultation with the medical specialists in attendance at the above referenced meeting had resulted in the development of a standardized invasive skills module. As of 2010 NBDHMT eliminated both the Basic and Advanced designations. Designation is now simply 'Diver Medic'.

Today's diver medic continues to play a unique and vital role. They hasten stabilization, diagnosis and effective management of the injured diver regardless of their degree of medical and geographic isolation. They will occasionally be called upon to do all of this in very difficult circumstances and at some personal risk. Well designed training programs and frequent skills updating will help ensure that their efforts are optimized and risks are minimized.

Dick Clarke, CHT

President, National Board of Diving &  
Hyperbaric Medical Technology  
[www.nbdhmt.org](http://www.nbdhmt.org)

President, National Baromedical Services  
[www.baromedical.com](http://www.baromedical.com)

Director, The Baromedical Research  
Foundation  
[www.baromedicalresearch.org](http://www.baromedicalresearch.org)

Columbia, South Carolina, USA

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