Diver Emergency Incident Report

This form is to be filled out immediately upon suspecting a diver's health appears to be to DCS (Decompression Sickness). It is important to "capture" as much info as possible that can be passed to EMS and hyperbaric facilities. **This report should accompany the diver to each facility for their review and treatment**.

The data on this form is a composite taken from several sources, primarily including DAN (Diver's Alert Network), NOAA Diving Incident Report Form, and others.

DAN EMERGENCY HOTLINE: +1 (919) 684-9111

Note: Per DAN's recommendation you should arrange to get the diver to the closest emergency facility to begin treatment prior to arranging transport to a hyperbaric facility. (See URA Diver Emergency Transportation information document). EMS can better address a wider range of associated symptoms and stabilize the diver while they arrange & transport to the closest most appropriate hyperbaric facility! Call DAN after making arrangements to major EMS.[1]

Personal History & Event Timing:

DATA TYPE	DATA Information	Comments
Incident Report Date/Time:	**Date Initiated**:	**Time Initiated:**
Diver's Full Name:	**M** ☐ **F** ☐	
Diver's Date of Birth:	**Date**:	**Age** (years):
Known Allergies:		
Other Prior Known Medical Issues:		
Preferred CONTACTS in event of an emergency	**#1 (name & phone)**	**#2 (name & phone)**
Home Address & Phone:	Address:	Phone:
On SITE DCS Category Assessment (**See last page**)		
Other relevant Data:		

[1] Major EMS facilities know which hyperbaric facilities are open (not all are 7/24 manned) **AND** many do not have 7/24 certified operators (if any at all) to treat diving DCS accidents. Also, a huge number of reported DCS accidents turn out to be other than DCS (e.g. heart attacks, etc.) Wasting time in transit to the "wrong facility" prevents EMS from stabilizing, properly diagnosing, and beginning treatment for the correct medical problem(s). This is a very important concept for all divers to understand and to use.

Use blank page and attach to this form		

(**RGBM**) reduced gradient bubble model

DIVE HISTORY (24 hour) (See footnote #3: Add start/stop depth each gas if possible)

Dive Seq	Entry Time	MOD[2] (feet)	Approx. Ave MOD (feet)	Bottom Time (Minutes)	Total Assent Time (+ deco) (Minutes)	Total Dive Time (Minutes)	SIT (Surface Interval Time Minutes)
1							
	Gas Mixture[3]	☐ TriMix ☐ EAN ☐ O^2 ☐ Air (EAN21) ☐ HeliOx		Deco[4] Model	☐ (RGBM) ☐ Bühlmann ☐ Ratio Deco ☐ Other ☐ Details		
2							
	Gas Mixture	☐ TriMix ☐ EAN ☐ O^2 ☐ Air (EAN21) ☐ HeliOx		Deco Model	☐ (RGBM) ☐ Bühlmann ☐ Ratio Deco ☐ Other ☐ Details		
3							
	Gas Mixture	☐ TriMix ☐ EAN ☐ O^2 ☐ Air (EAN21) ☐ HeliOx		Deco Model	☐ (RGBM) ☐ Bühlmann ☐ Ratio Deco ☐ Other ☐ Details		

DIVE EQUIPMENT USED FOR LAST DIVE

Note: You should NEVER alter or remove or tamper with the event diver's equipment OTHER THAN you can/should close the valves on each air tank worn by the dive (main and all pony bottles) AND RECORD the number of 360º turns on each tank valve required to shut it off!!! This can potentially aid in the post-accident investigation!

Use the following table to record tank valve information

TANK Number	CONTENTS[5] & Tank Pressure	Number 360 deg turns to close valve
1		
2		
3		
4		
5		

[2] MOD = Max Operating Depth of the dive

[3] Provide as much detail as possible e.g. TriMix 18/45 or Nitrox EAN50, or Heliox/heliair 21/79, etc.
If possible add gas start/stop depths e.g. TriMix 18/45 Sur->MOD->70' EAN50 70' -> 20' O^2 20'->Sur

[4] If known list the deco model used by the diver e.g.: Buhlmann, RGMB, Ratio Deco, etc. In addition, if you know about any gas switches please include that as well e.g. **"TriMix to MOD to Assent 70' to EAN50 & 20' to 100% O2"**, etc.

[5] Contents: Air/TriMix/EANx/O2,etc. Please note the tank pressure & record it in this field.

What type of Dive Computer(s) did the diver use on dive(s):			
Dive Computer Model	**Worn all past 24 hour dives ?**	**Is there someone present that can download dive computer dive detail profiles?**	**Person & contact info holding the diver's personal dive computers:**

SITE MEDICAL INFORMATION:

Please do your best to acquire all of the following information prior to arrival of EMS or transport to EMS:

Question	Answers
Location at time of injury?	
Approximate surface elevation above sea level?[6]	
Approximate time of first noticeable symptoms?	
Was symptom noticed **BEFORE, DURING, or AFTER** the dive?	
If during, was it while descending, on the bottom, or ascending?	
Have symptoms INCREASED, or DECREASED since first noticed?	
Diver's description of symptoms (include location, type, quality, etc.	
Does pain radiate? If so where from/to	
Does pain increase with movement or palpation?	
Have any other symptoms occurred since first one(s) noticed? If so, describe.	
Has patient ever had a similar symptom? If so describe.	

[6] If known. For example, Lake Huron is ~577 feet above sea level.

Has patient ever had DCS[7] or AGE before? If so, note when & describe.	
Does diver smoke? Yes/No	
Any history recent exposure altitude (flying past 48 hours)?	
If you can get a current diver medication list describe them here	
List all meds taken by diver in previous 24 hours	
When did the diver last eat/drink	
Describe activities performed during the dive	
Describe activities performed by diver following the dive	
Other helpful info:	

VITAL SIGNS:

Vital Sign	Value / Response
Pulse / Location-Rate-Strength	
Respirations (normal, rapid, shallow, etc.)	
Blood Pressure	
Temp (warm, cool, normal) Skin cold/clammy? Skin warm & dry?	

ON-SITE NEUROLOGICAL EXAM

Please attempt to perform as many of the on-site neurological exams as possible given the divers condition. This is very important diagnosis info for the EMS first responders and subsequent EMS treatment. Note you should repeat this test every 30-60 min until EMS responders arrive. Read notes at end of the check list!! There are provisions for THREE tests every 30+ minutes which hopefully is sufficient. Add additional check boxes to right of test text for 4+. Note why any test can not be administered for each 30-60 min test.

On-Site Neurological Examination

By Ed Thalmann, M.D., Assistant Medical Director of DAN

Information regarding the injured diver's neurological status will be useful to medical personnel in not only deciding the initial course of treatment but also in the effectiveness of treatment. Examination of an injured diver's central nervous system soon after an accident may provide valuable information to the physician responsible for treatment. The On-Site Neuro Exam is easy

[7] DCS = Decompression Sickness AGE = Arterial Gas Embolism

to learn and can be done by individuals with no medical experience. Perform as much of the examination as possible, but do not let it interfere with evacuation to a medical treatment facility. Perform the following steps in order, and record the time and results.

Time Test #1:_____ **Time Test #4: _____**
Time Test #2:_____ **Time Test #5: _____**
Time Test #3:_____ Use #4 & #5 after the question

Use a √ if pass … or Use an × if fail on each checkbox time test

Leave checkbox empty if test not performed

1. Orientation (IMPORTANT TEST)

- ☐☐☐ Does the diver know his/her own name and age?
- ☐☐☐ Does the diver know the present location?
- ☐☐☐ Does the diver know what time, day, year it is?

Note: Even though a diver appears alert, the answers to these questions may reveal confusion. Do not omit them.

2. Eyes

- ☐☐☐ Have the diver count the number of fingers you display, using two or three different numbers.
- ☐☐☐ Check each eye separately and then together.
- ☐☐☐ Have the diver identify a distant object.
- ☐☐☐ Tell the diver to hold head still, or you gently hold it still, while placing your other hand about 18 inches/0.5 meters in front of the face. Ask the diver to follow your hand. Now move your hand up and down, then side to side. The diver's eyes should follow your hand and should not jerk to one side and return.
- ☐☐☐ Check that the pupils are equal in size.

3. Face

- ☐☐☐ Ask the diver to purse the lips. Look carefully to see that both sides of the face have the same expression.
- ☐☐☐ Ask the diver to grit the teeth. Feel the jaw muscles to confirm that they are contracted equally.
- ☐☐☐ Instruct the diver to close the eyes while you lightly touch your fingertips across the forehead and face to be sure sensation is present and the same everywhere.

4. Hearing

- ☐☐☐ Hearing can be evaluated by holding your hand about 2 feet/0.6 meters from the diver's ear and rubbing your thumb and finger together.
- ☐☐☐ Check both ears moving your hand closer until the diver hears it.
- ☐☐☐ Check several times and compare with your own hearing.

Note: If the surroundings are noisy, the test is difficult to evaluate. Ask bystanders to be quiet and to turn off unneeded machinery.

5. Swallowing Reflex

- ☐☐☐ Instruct the diver to swallow while you watch the "Adam's apple" to be sure it moves up and down.

6. Tongue

- ☐☐☐ Instruct the diver to stick out the tongue. It should come out straight in the middle of the mouth without deviating to either side.

7. Muscle Strength (IMPORTANT TEST)

- ☐☐☐ Instruct the diver to shrug shoulders while you bear down on them to observe for equal muscle strength.
- ☐☐☐ Check diver's arms by bringing the elbows up level with the shoulders, hands level with the arms and touching the chest. Instruct the diver to resist while you pull the arms away, push them back, up and down. The strength should be approximately equal in both arms in each direction.
- ☐☐☐ Check leg strength by having the diver lie flat and raise and lower the legs while you resist the movement.

8. Sensory Perception

- ☐☐☐ Check on both sides by touching lightly as was done on the face. Start at the top of the body and compare sides while moving downwards to cover the entire body.

Note: The diver's eyes should be closed during this procedure. The diver should confirm the sensation in each area before you move to another area.

9. Balance and Coordination (IMPORTANT TEST)

Note: Be prepared to protect the diver from injury when performing this test.

- ☐☐☐ First, have the diver walk heel to toe along a straight line while looking straight ahead.
- ☐☐☐ Have her walk both forward and backward for 10 feet or so. Note whether her movements are smooth and if she can maintain her balance without having to look down or hold onto something.
- ☐☐☐ Next, have the diver stand up with feet together and close eyes and hold the arms straight out in front of her with the palms up. The diver should be able to maintain balance if the platform is stable. Your arms should be around, but not touching, the diver. Be prepared to catch the diver who starts to fall.
- ☐☐☐ Check coordination by having the diver move an index finger back and forth rapidly between the diver's nose and your finger held approximately 18 inches/0.5 meters from the diver's face. The diver should be able to do this, even if you move your finger to different positions.
- ☐☐☐ Have the diver lie down and instruct him to slide the heel of one foot down the shin of his other leg, while keeping his eyes closed. The diver should be able to move his foot smoothly along his shin, without jagged, side-to-side movements.
- ☐☐☐ Check these tests on both right and left sides and observe carefully for unusual clumsiness on either side.

Important Notes:

- **Tests 1,7, and 9 are the most important and should be given priority if not all tests can be performed.**
- The diver's condition may prevent the performance of one or more of these tests. **Record any omitted test and the reason**. If any of the tests are not normal, injury to the central nervous system should be suspected.
- The **tests should be repeated at 30- to 60-minute intervals while awaiting assistance** in order to determine if any change occurs. Report the results to the emergency medical personnel responding to the call.
- Good diving safety habits would include practicing this examination on normal divers to become proficient in the test.
- Examination of an injured diver's central nervous system soon after an accident may provide valuable information to the physician responsible for treatment.
- The On-Site Neuro Exam is easy to learn and can be done by individuals with no medical experience at all.

From <https://www.diversalertnetwork.org/medical/neuroexam.asp>

I. Determine the Urgency of the DCS Injury

Make an initial evaluation at the dive site. Suspect decompression illness if any of the signs or symptoms previously described occur within 24 hours of surfacing from a dive. The initial state of the affected diver will determine the order and urgency of the actions taken. Based on a classification used by the U.S. Navy, the diver can be placed in one of three case categories:

- **- Cat. A: Emergency**
- **- Cat. B: Urgent**
- **- Cat. C: Timely**

Category A - Emergency Cases Of DCI

Symptoms are severe and appear rapidly, within an hour or so of surfacing. Unconsciousness may occur. **Symptoms may be progressing, and the diver is obviously ill.** The diver may be profoundly dizzy, have trouble breathing or have major abnormalities in consciousness. **Obvious neurological injury is seen in altered consciousness, abnormal gait or weakness.**

These divers are obviously very sick, and a true medical emergency exists. If necessary (e.g., if the diver is unconscious), begin CPR and take immediate action to have the diver evacuated. Check for foreign bodies in the airway. If ventilatory or cardiac resuscitation is required, the injured diver must be supine (lying on the back). Vomiting in this position, however, is extremely dangerous; if it occurs, quickly turn the diver to the side until the airway is cleared and resuscitation can resume in the supine position.

If available, use supplemental oxygen while administering breaths to increase the percentage of oxygen received by the injured diver. Even if CPR is successful and the diver regains consciousness, 100 percent oxygen should be provided and continued until the diver arrives at a medical facility.

If Trained Healthcare Personnel Are Available . . .

... then an intravenous (IV) infusion using isotonic fluids without dextrose should be started. An initial rapid infusion of 1 liter over 30 minutes should begin to correct any dehydration and reduce hemoconcentration. Once this is accomplished, then the rate of administration should be reduced to a 100-175 cc / hour maintenance rate.

Additional 1-liter boluses may be required to further correct dehydration and maintain blood pressure but should only be given by trained healthcare personnel capable of weighing the need for further fluid with possible complications. These would include fluid overload problems and discomfort from urinary retention in divers with abnormal bladder function due to spinal cord decompression sickness. If trained personnel are available, a urinary catheter should be placed in all unconscious divers and in those who cannot urinate.

Call DAN

After stabilization and arrangements for evacuation, contact DAN for advice on the nearest chamber location. DAN medical experts can get in touch with the receiving facility to assist in diagnosis and, if necessary, treatment. Do this even if the diver appears to be improving on oxygen. **While awaiting evacuation, take as detailed a history as possible and try to evaluate and record the diver's neurological status. These facts are useful to the receiving medical facility.** If air evacuation is used, cabin pressure should be maintained near sea level and not exceed 800 feet / 244 meters unless aircraft safety is compromised.

Place the diver in the lateral recumbent position, also known as the recovery position. This puts the person on one side (usually left) with head supported at a low angle and the upper leg bent at the knee. If vomiting occurs in this position, gravity will assist in keeping the airway clear.

Category B - Urgent Cases Of DCI

Here, the only obvious symptom is severe pain that is unchanging or has progressed slowly during the past few hours. The diver does not appear to be in distress except for the pain, and the neurological signs and symptoms are not obvious without a careful history and examination.

Immediately place the injured diver on 100 percent oxygen and give fluids by mouth. Do not attempt to treat the pain with analgesics until advised to do so by medical personnel. Continue providing oxygen until arrival at the medical treatment facility.

Contact DAN or the nearest medical facility for advice on what sort of transport is necessary and where the diver should be evacuated to, even if symptoms improve or are relieved with oxygen. Emergency air transport may not be necessary in all cases.

While awaiting evacuation, take as detailed a history as possible and try to evaluate and record the diver's neurological status. This information will be useful to those at the receiving medical facility. If air evacuation is used, cabin pressure should be maintained near sea level and not exceed 800 feet unless aircraft safety is compromised.

Category C - Timely Cases Of DCI

Symptoms are either not obvious or have progressed slowly for several days. Usually the main signs or symptoms are vague complaints of pain or an abnormality of sensation; the diagnosis of DCI may be in question. Obtain as complete a diving history as possible and do a neurological evaluation. Then call DAN or the nearest medical facility for advice or go to the nearest medical facility, if nearby, for evaluation.

This form was designed specifically for Undersea Research Associates (URA), but are equally applicable for all sport / technical diving. Please feel free to use and share it as appropriate. Created November-December 2019 – **Version 1.0**

W.J. “Mike” Michaels