

DIVING SAFETY WILL COMPUTE

THE NATIONAL SAFETY COUNCIL DIVING DATA BANK

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The justification for setting up a Diving Data Bank is a belief, based on an examination of the critical paths in the development of both fatal and non-fatal diving problems, that there is still inadequate understanding of the problems which are affecting all types of divers. It is also very apparent that many who are diving endanger themselves by acting as if they were not convinced that the generally accepted rules for safe diving are relevant to them and act as if they believed they had special dispensation from the necessity to remain within the limits of their skills. They fail to attempt an honest pre-dive assessment of the possible and probable dive problems before they, and their companions, enter the water. Such divers range in experience from novice to instructor. While a data bank cannot make such divers learn, it will at least make it possible to identify the consequences of their mistakes for the better instruction of others. The third area of value of a data bank will be the opportunity which it presents for the early recognition of new problems or of some change in the frequency or severity of a known problem. Such changes are commonly a consequence of some alteration in diving patterns (eg. increased commercial weekend dive trips or deep repetitive dives) or of the marketing of new diving technology (eg. dry suits, larger capacity air tanks, new diving tables, better rescue service backup and greater resuscitation expertise). Reports will also enable an improved understanding of how symptoms and signs are perceived by those immediately involved, as such are rarely as clear cut and definitive as the text book description or edited clinical notes will seek to show. It is unfortunate that text books and lectures lead the majority of divers to believe that the only areas where research is required are the "growing points" where physiologists employed by the major diving companies experiment with exotic gas mixtures, great depths, and saturation techniques. The remarkable progress made in enabling almost anyone to dive using compressed air, which has spawned a large service industry has obscured the fact that the information base of many sincerely held opinions is extremely slight. The classic example of this is the debate which continues concerning the value, or perhaps danger, of including a practice of out-of air ascent in the initial training of sport divers. Few if any such discussions analyse the information now available about the critical factors in diving fatalities or provide the needed input of reports of instances where such training has been shown of value. The general excellence and reliability of most diving equipment has dulled the awareness of many people to the critical fact that mankind has not evolved in an underwater environment so must at all times adjust to the new "house rules" and forget any pretensions to acting like the Lords of Creation. Monitoring of the experiences of those who venture underwater is a vital first step in the recognition and avoidance of dangers.

At the present time there are a few reports published which include adequate details about the diver and his/her companions, or give a full report on the circumstances and management of the diving and of the index problem itself. Doctors involved frequently confine their questioning and records to the presenting problem and its management without considering the preventative medicine role they can so usefully play. Only a very small proportion of events will ever be reported formally, and these will be presented shorn

of all details not directly significant to the purpose of the paper, and few authors are willing to share their original material with others, so a wealth of information is unused, locked away from the eyes of other than the original doctor or instructor diver, or most often never sought in the first place. This is ultimately to the detriment of all divers, as knowledge is the basis of safety.

When only details of immediate perceived relevance are recorded, a probability exists that at a later stage some other data will be desired, either in relation to the initial investigation or for a spin-off, a new line of investigation. Such information need not burden medical files if data bank storage is utilised. Sharing is of benefit to all. Clues to reducing the occurrence of decompression sickness may lie in the victim's pre-dive fatigue, fitness, the pattern of previous alcohol consumption, accuracy of depth and time measurement, thickness of wet suit, post dive activity, his confidence or stress, or many other factors in the post dive period including willingness by the victim, his companions and medical personnel to consider the diagnosis. In the case of cerebral arterial gas embolism (CAGE) the doctor in charge should inquire into the training and experience of not only the victim but also his companions, and record all the details available concerning the dive itself to assist some later consideration of the chain of events which culminated in critical pulmonary overpressure. The information may reveal common diving practices or problems having a potential to compromise the safety of divers. Naturally, reports from those who recognise and then successfully manage some problem have a special value and it is hoped that divers will recognise the value of a data bank which can, with full confidentiality, make their experiences available to increase the safety of others.

Once it is suspected that some problem exists, or may exist, and an investigation is proposed, there will be two major problems to be faced. The first one is that of convincing others that a problem exists, is significant and can be usefully tackled by the proposed methodology. The second arises at a later stage, after the project has generated masses of information. Some of the information may be of interest but not strictly relevant to the narrowly defined parameters of the study. This is most likely to occur where input is through reports written by others rather than from experiments directly under the control of the investigator(s). There will be limits on the time available for the work, deadlines for writing a report, and demands of other tasks, which will operate and strongly inhibit any tendencies to follow up side issues. As a consequence there will be a very real risk that "irrelevant" information will be either discarded or set aside to await that "sometime" in the future "when there will be an opportunity to look through all the old material at leisure". Few will ever find the time, and if they do the mountains of collected paperwork will be daunting to even the most dedicated investigator.

The answer to the first problem is by presenting the results of a pilot study for critical assessment before progressing to a more ambitious stage. In this respect "Project Stickybeak" reports and the clinical reports given at SPUMS meetings and printed in the SPUMS Journal are offered as indicating the value of the collection and publication of reports which contain uncertainties and are not an edited version of the events, bowdlerised to fit them to the textbook descriptions of clearly differentiated conditions. It is only through the comparison of the predicted with the observed that an opportunity may arise to improve our understanding of events.

Until recently, the only way to manage information storage was by way of some form of card index system. Initially straightforward, the systems soon become complicated as data stubbornly refuses to fit the clearly defined categories set out by the investigators. All living reactions are the resultant of a multitude of factors, many still unknown or barely suspected. Fortunately, computers have now become more available and make possible the storage, retrieval and cross referencing of vast amounts of data, subject only to having a sufficiently flexible programme written initially. Another virtue of a pilot study is that the information and problems it reveals are invaluable to "dry run" a programme before it is finalised.

By a fortunate chance the Victorian Branch of the National Safety Council of Australia has recently obtained a VAX 780 computer. It has a capacity which is in excess of that required by its primary programme and some of its remaining capacity has been very kindly made available for diving-related data storage. Also provided has been the services of a computer programmer, a vital element if the computer is to be used to best advantage.

The purpose of this communication is to alert everyone who has an interest in increasing knowledge and understanding of diving and hyperbaric problems of this new data source, and to introduce them to the notion that they can assist by providing input. Without an adequate input there can be little progress in the maintaining and improvement of present levels of diving safety or of early awareness of new problems resulting from changes in diving practices.

To be effective the programme must ask the right questions, possibly ones not usually asked. All readers are invited to present their lists of matters which they think should be better researched and suggestions concerning the information which should be collected in anticipation of possible future retrospective investigations. Some important areas will undoubtedly relate to the problems that are observed during training, equipment reliability, boat related and sea conditions related problems, and information concerning diving related problems, particularly those so successfully resolved that no "incident" developed.

One vital aspect of this data store will be the CONFIDENTIALITY guarantee. ALL reports will be treated as MEDICALLY CONFIDENTIAL and no identification of persons involved will be entered on the computer records, a matter made more complete when large numbers of reports are entered from a wide range of localities. As fatality reports are already in the Public Domain (Inquest reports) it may not be possible to obliterate all clues to the actual cases.

The project will work or fail in proportion to the support it can obtain. All divers, present and future, stand to gain both in the immediate and longer term from the information collected. Please give your support. Every report has value. Access to the Data Bank will be allowed to anyone with a research interest, but no details of those supplying reports or involved will be on the records.

Those wishing to correspond concerning this project, particularly those with information they are willing to make available, should write in the first instance to:-
Diving Data Bank Project
PO Box 120,
Narrabeen NSW 2101

BOOK REVIEW

THE MARINE STINGER BOOK
The Surf Life Saving Association of Australia
Queensland State Centre Inc.
3rd Edition, 1985 (page 85)

To describe this excellently written and illustrated booklet as a "first aid handbook" would convey a completely inadequate impression of its value. Although directed primarily towards a lay readership of SLSA members, it is of interest and value to a much wider public. Indeed, both doctors and divers will find it of great help when faced with a person who has become a victim of one of the large number of creatures which can make themselves known after skin contact, penetration by a spine, or following ingestion. Only the shark escapes study and in truth his contribution to marine enjoyment is rare, and a matter for the application of general principles of trauma management. The text and pictures are so good that one can read and later still think favourably of an invitation to enter the water.

The booklet has a useful bibliography, an effective index, a resume of First Aid management principles, and a copy of the Australian Resuscitation Council's Basic Life Support Flow Chart. It is of interest to note two additional details, the availability of a slide set and a videotape to supplement the booklet, and the information that an investigation is being undertaken to increase our knowledge of marine stingers. For those interested in contributing reports the contacts are either the "Marine Stinger" telephone (008) 015160 (24 hours) for more urgent needs, or write to:

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The School of Biological Science
James Cook University of North Queensland
TOWNSVILLE QLD 4811
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