Annual Fatality Rates and Associated Risk Factors for Recreational Scuba Diving

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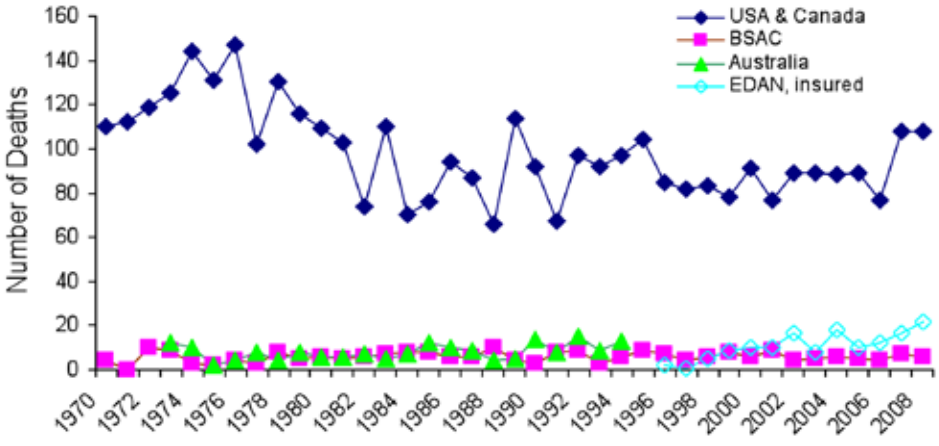
This paper assesses factors that affect the risks of dying while diving, discusses possible preventive interventions, reviews measures of recreational diving fatality rates, and explores fatality rates and safety criteria from other fields. Fatality rates vary according to estimation methods, demographics, and diving practices. The annual fatality rate (AFR) of 16.4 per 100,000 insured Divers Alert Network (DAN) members was similar to the rate recorded by the British Sub-Aqua Club (BSAC) but may be higher than the rate in the general scuba population. The most common causes of scuba fatalities were gas supply problems, emergency ascent, and cardiac events. The effects of age and gender were particularly striking.

Introduction

Scuba diving is a recreational activity with known inherent hazards that sometimes cause injuries and death. The number of deaths among recreational scuba divers has been monitored systematically by active surveillance systems for the last 40 years in several subpopulations around the world. The most complete data are available from Divers Alert Network (DAN) for the United States and Canada (Pollock 2008), the British Sub Aquatic Club (BSAC) for a subset of British divers (Cumming 2006), DAN Asia-Pacific (Lippmann 2008) and DAN Europe. Combined data are shown in Figure 1.

"The most common causes of scuba fatalities were gas supply problems, emergency ascent, and cardiac events."

Figure 1: Annual number of scuba deaths by four scuba organizations



The number of dive-related fatalities in these subpopulations varies with their size. The largest numbers have been reported for the United States/Canada (10-year average of 80 deaths per year), which has the largest estimated population of recreational divers (Monaghan 1988).

Scuba fatalities in the U.S. are estimated at 0.02 percent of all U.S. annual injury deaths and less than 2 percent of U.S. deaths due to drowning (Injury Facts 2004). The participation in scuba diving was estimated at about 0.5-1.0 percent of the U.S. population (National Sporting Goods Association; U.S. Census 2000). Using these estimates and DAN fatality records, the death rate among U.S. divers may be estimated at 3-6 per 100,000, with an unknown error of estimation.

The purpose of this paper is to assess factors that affect the risks of dying while diving, discuss possible preventive interventions, review measures of recreational diving fatality rates and explore fatality rates and safety criteria from other fields. The paper is based on a review of the dive safety literature, fatality data from DAN Europe and DAN America, and the general safety literature. DAN data include:

- DAN America insured member claims for 2000, involving 187 dive-related deaths (Denoble, Pollock et al. 2008)
- DAN Europe insured member claims for 1996-2008, involving 144 dive-related deaths
- DAN America fatality and injury databases for 1992-2003, including:
  - — Most common risk factors in 947 cases resulting from open-circuit (OC) diving (Denoble, Caruso et al. 2008)
  - — A case-control study of 165 fatal and 135 nonfatal arterial gas embolism (AGE) incidents (Denoble, Vann et al. 2005)
  - — A study of fatalities involving diabetes mellitus (DM), including 37 DM cases and 938 non-DM cases (Denoble, Pollock et al. 2006)

"Safety usually means that the risks are judged acceptable in the context of the expected benefits."

Safety Performance in Scuba Diving

Safety has been defined as a "freedom from those conditions that can cause death, injury, occupational illness or damage to, or loss of, equipment or property, or damage to environment (Military Standard 1993). Absolute safety, however, does not exist in any activity of life. Indeed, individual and societal progress is based on a willingness to take risk. Thus, safety usually means that the risks are judged acceptable in the context of the expected benefits.

Safety in engineering and public policy is measured by the annual number of deaths per million (DPM) in a specified group. The measure used in injury epidemiology is the annual fatality rate (AFR) or the number of deaths per 100,000 people exposed per year. The individual risk index (Individual Risk per Annum, or IRPA) is used by the UK Health and Safety Executive (HSE). The IRPA is the probability that an average person dies in one year as a result of that hazard and is calculated by dividing observed number of fatalities by the total number of subjects-years exposed (HSE 2001). All three measures assume the populations in question are permanently exposed to the hazards of interest.

For hazards to which people are exposed only part time (e.g., occupational, traffic, sport, recreation), risk calculation must use a denominator that includes both the number of participants and the time they have been exposed. For discrete exposures such as diving, the denominator may be the number of dives or the hours diving. However, these measures are difficult to come by and may need adjustment for the effects of depth or equipment.

A Survey of Recreational Scuba Diving Related Fatalities

BSAC, DAN Europe and DAN America are membership organizations that can provide denominators for calculating fatality rates. DAN America has about 200,000 members in the United States and Canada, and the number of fatalities among these members represents 20-40 percent of the total number of annual fatalities over the past 10 years. Because an unknown number of DAN members may not be divers and the DAN surveillance system may miss some deaths, fatality rates were based on members with dive accident insurance (who are more likely to be active divers) and the number of death claims submitted for this group (Denoble, Pollock et al. 2008).

During 2000-2006, there were 187 death claims among 1,131,367 insured member years for which the mean AFR was 16.4 deaths per 100,000 divers with a range of 14.2-19.0 over the period (Denoble, Caruso et al. 2008). Table 1 lists similar rates per diver as ordered by AFR.

Table 1: Scuba injury death rates

Group	Denominator	Time period	Rate (95%CI)	
			AFR (Per 100,000 divers)	Per 100,000 dives
USA, DEMA study (Monaghan 1989)	Estimated	1986	3.4 to 4.2	
Finland (Sipinen 1990)	Measured	1986, 1987	62 (7 – 117) (1 in 1,600)	
USA (National Safety Council 2004)	Estimated	1989	16.7	0.8 to 1.6
Australia (Lippmann 2008)	Estimated	1989	34 (1 in 3000)	1.7 to 3.4
Ontario, Canada (Heinicke 2008)	Survey	1986-1995	12.7	
Victoria, Australia (Lippmann 2008)	Tank fill count	1992-1996		2.5
Orkney, Scotland (Trevett et al. 2001)	Measured	1999-2000		3 - 6
BC, Canada (Ladd et al. 2002)	Tank fill count	1999-2000		2.04
Australia (Lippmann et al. 2008)	Survey	2000-2006	3.57 (1 in 28,000)	0.57
Japan (Ikeda and Ashida 2000)	Tank fill count		(8.8-33.8)	1.0 to 2.4
BSAC (Cumming 2006)	Measured	2000-2006	14.4 (10.5-19.7)	0.45*
DAN America Insured (Denoble, Caruso et al. 2008)	Measured	2000-2006	16.4 (14.2-19.0) (1 in 6000)	0.7**
DAN Europe Insured (unpublished)	Measured	1995-2008	71(59-82) (1 in 1400)	

* Average number of dives per member estimated by survey: 32 (Cumming 2006)
** Average number of dives per member estimated by survey: 25 (Dear 2000)

AFRs based on estimated denominators (3.4-34 deaths per 100,000 divers) vary widely, while those of BSAC and DAN, which are based on known denominators, are much closer (14.4 and 16.4, respectively) and have overlapping 95 percent confidence limits (10.5-19.7). These discrepancies may result from errors in the estimated number of divers in the population as well as from differences in subpopulation risk regarding age, training, frequency of participation, type of activities and local dive conditions. However, there is no obvious explanation for why insured DAN and BSAC members would have several times higher AFRs than non-DAN and non-BSAC members. DAN Europe members, with 200,000 insured years and 141 fatalities in 13 years, had the highest mean rate, 71, and a wide range, 25-103. A high average rate (62.5) was also recorded in Finland for

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1986-1987 among 8,000 divers. In the following years, however, the rates were less than 30 per 100,000 dives (Sipinen 1990).

Both DAN Europe and DAN America insurance may be more attractive to people who dive more frequently or aggressively than the rest of the recreational diver population. DAN Europe membership represents a smaller fraction of European scuba divers than DAN America membership and thus may deviate more from the population of divers in their area.

Fatality rates calculated per exposure vary from 0.57 per 100,000 dives in Australia to 4 (range 3-6) per 100,000 dives in Orkney, Scotland (Trevett 2001). While local diving conditions may be suspected for these differences, one must keep in mind that denominators for these two studies have been estimated using different methods and thus may not be equally reliable.

Benchmark Comparison with Recreational and Professional Activities

Table 2 shows AFRs and IRPAs for various recreational and professional activities. Comparisons of fatality rates between such activities are useful as indicators of gross safety but must be made with careful recognition that the exposures differ.

Overall death rates during recreational diving, motor vehicle accidents and jogging were similar. Deaths during occupational exposures were often an order of magnitude lower.

"Overall death rates during recreational diving, motor vehicle accidents and jogging were similar."

Table 2: Individual risk per annum
Data from "Reducing risks, protecting people" (HSE 2001)

Sector	IRPA	Annual risk per 1,000,000 participants
Recreational diving (Denoble et al. 2008a)	1 in 6,000	163
Motor vehicle (National Safety Council 2004)	1 in 6,493	154
Jogging	1 in 7,700	130
Mining and quarrying	1 in 9,200	109
Construction	1 in 17,000	59
Agriculture, hunting	1 in 17,200	58
Manufacturing industry	1 in 77,000	13
Unintended drowning (National Safety Council 2004)	1 in 83,000	12
Fatalities to employees	1 in 125,000	8
Service industry	1 in 333,000	3
High school football (24-year average) (Mueller and Cantu 2008)	1 in 345,000	3

Are the Current Scuba Death Rates Acceptable?

There is no absolute or objective definition of acceptable death rate. Acceptability is hazard-specific and depends on the type of activity and mode of participation (voluntary/recreational, for wage, involuntary). Risks are perceived in multi-attribute terms, and a single measure such as a low AFR may not necessarily be acceptable (Bottelberghs 2000).

High-risk activities have mortality rates comparable to mortality rates of natural diseases of 10^{-2} deaths/person-year or 1 percent, while low-risk activities are comparable to natural hazards (e.g., earthquakes or tornadoes) with a mortality rate of 10^{-6} deaths/person-year (0.0001 percent). Activities with a fatality risk greater than 10^{-3} deaths/person-year (0.1 percent) are generally not acceptable to the public. Risks less than 10^{-6} (0.0001 percent) may be considered negligible (HSE 2001; Trbojevic 2010; Vrijlinga).

HSE has proposed a more flexible, if subjective, definition of acceptable fatality rate: "as low as reasonably practicable" (ALARP; HSE 2001). ALARP takes into account estimated risk, assessment of sacrifice to avoid risk (i.e., cost, time, trouble) and benefits derived from those sacrifices (i.e., fatalities avoided). By European standards in scuba injury death rates of 163 per 1,000,000 persons (0.0163 percent) are not negligible, and most divers would probably agree that continuous effort to achieve lower rates would be desirable.

Most Common Causes

Each diving accident is worth investigating as it may provide lessons on how to avoid future accidents. Investigation should begin as soon as possible and be as thorough as possible. Nonetheless, some investigations will be incomplete as in the case of an individual who disappears while diving alone and is never recovered.

To assist the diving community in judging actions that might be reasonable and practical for reducing diving deaths, we reviewed factors most often associated with deaths in the multiyear fatality databases of DAN Europe and DAN America (Denoble, Pollock et al. 2008).

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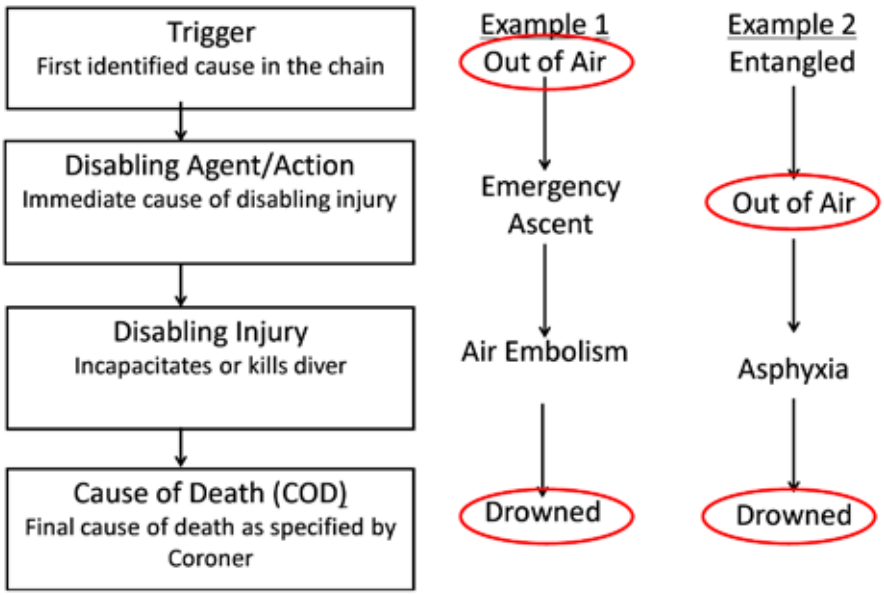
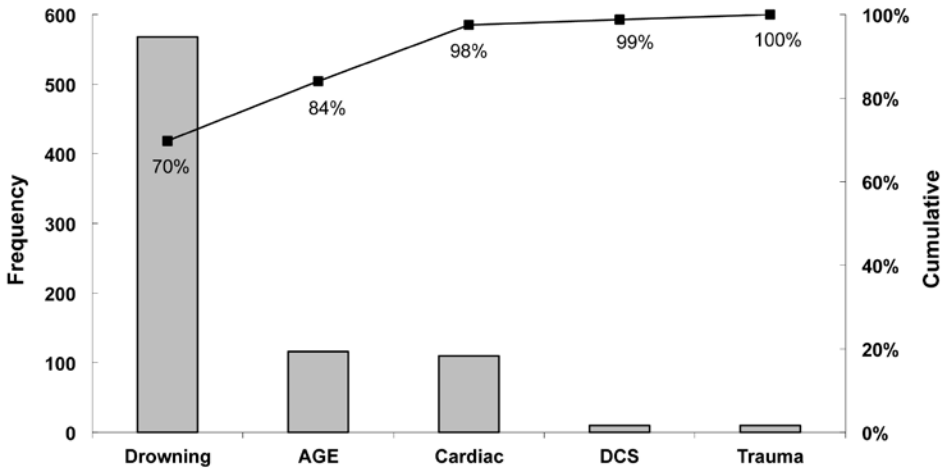
Accidents generally occur as a chain of events having multiple root causes, where a root cause is a specific underlying event that can be reasonably identified and for which guidelines may be proposed to prevent recurrences (Rooney et al. 2004). Removing just one root cause may break the chain and prevent a death. To assist the investigation of root causes, we defined four key events in the sequence of root causes (Figure 2). Two examples in Figure 2 indicate how a given root cause can appear in a different location in the sequence.

Figure 2: Modified root cause analysis (Denoble, Caruso et al. 2008)



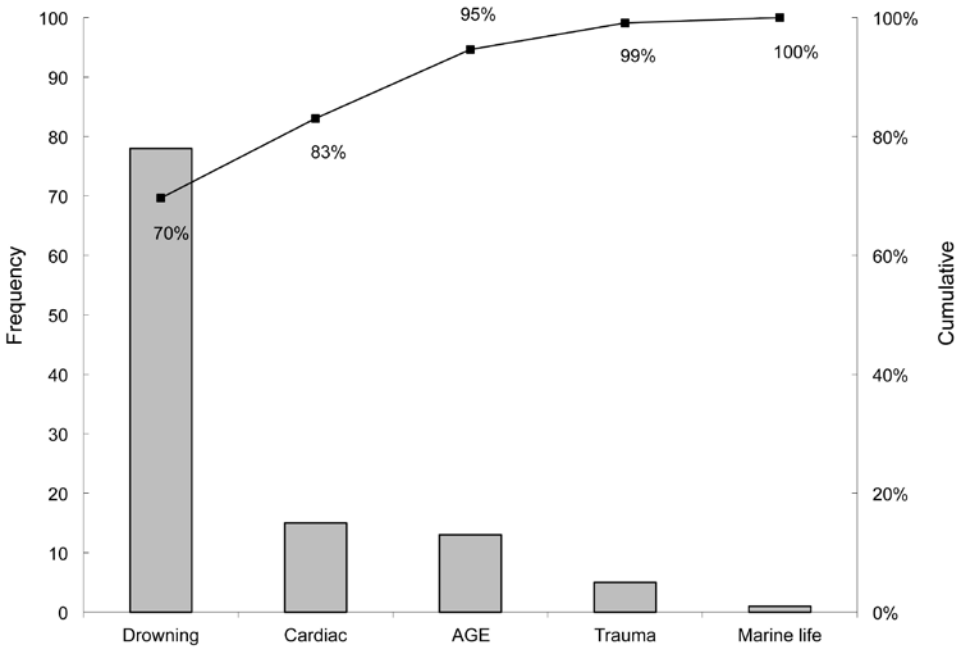
A retrospective analysis of 965 cases in the DAN fatality database for 1992-2003 found the distribution of causes of death (COD) shown in Figure 3 as reported by medical examiners (Denoble, Pollock et al. 2008). Figure 4 shows the COD distribution for DAN Europe data. The distributions were similar, although the populations were independent. As with many diving accidents, drowning was the most common COD, but COD rarely reveals factors that might be targeted for risk mitigation.

Figure 3: Cause of death in 814 DAN America scuba fatalities (not previously published)



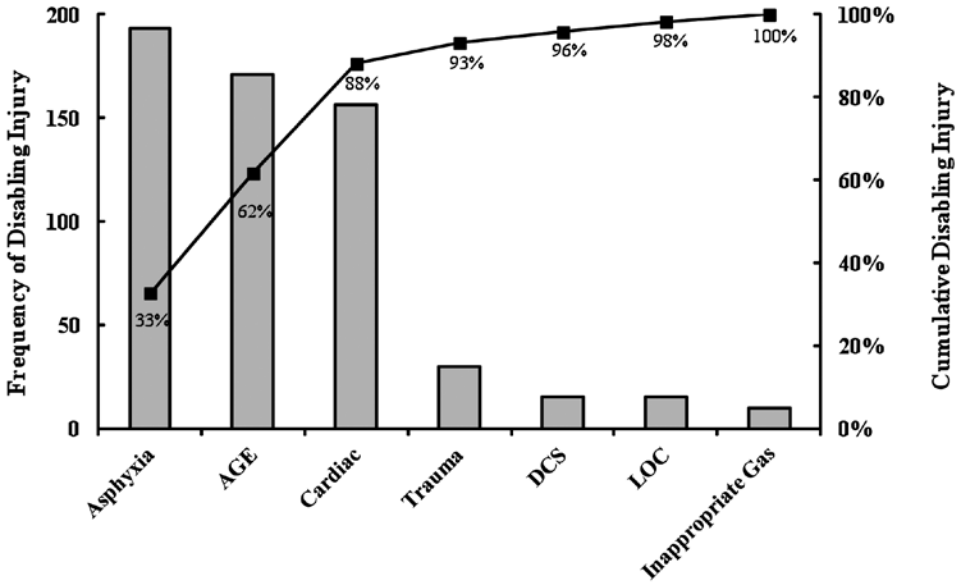
"AGE was often reported by medical examiners as a contributing factor in cases classified as drowning, but when disabling injuries rather than COD were examined, AGE was found to be involved in many fatalities with drowning as the COD."

Figure 4: Cause of death in 112 DAN Europe scuba fatalities (not previously published)



AGE was often reported by medical examiners as a contributing factor in cases classified as drowning, but when disabling injuries (Figure 5) rather than COD (Figure 3) were examined, AGE was found to be involved in many fatalities with drowning as the COD. Not unexpectedly, most AGE cases were associated with emergency ascent (odds ratio (OR)>30).

Figure 5: Disabling injuries in 590 DAN America scuba fatalities (Denoble, Caruso et al. 2008)



Cardiac events were also more common than indicated by COD (Figure 4). Most cardiac cases were associated with a pre-existing cardiac condition (OR>30) and age greater than 40 (OR=6). In 60 percent of cardiac cases, the divers noted dyspnea, fatigue, distress, chest pain or felt ill before diving but decided to dive anyway.

The Pareto principle holds that most undesirable events are associated with only a few causes (Busino 1987), which we observed to be true for diving fatalities. For example, gas-supply problems (41 percent), entrapment/entanglement (19 percent) and equipment troubles (16 percent) made up 76 percent of the triggers. Emergency ascent (60 percent), insufficient breathing gas (20 percent) and buoyancy problems (14 percent) made up 94 percent of all disabling agents (Denoble, Pollock et al. 2008).

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In a review of the most frequently identified root causes, there were 389 cases with complications of pre-existing diseases, 293 cases with buoyancy problems, 289 with emergency ascent, 217 with rough water, 199 with gas-supply problems, 109 with equipment problems and 75 with entrapment/entanglement. The number of root causes for a particular case varied from none to many, but some may have been missed due to insufficient information.

Gas-supply problems resulted mainly from inappropriate gas management. Most of the time, the trigger appeared at depth, and the diver drowned or suffered an AGE during emergency ascent. However, in some cases a diver surfaced with an exhausted gas supply and drowned due to inability to maintain buoyancy or breathe from a protected source of gas in rough seas.

Age, Sex and Cardiac Events in Diving Fatalities

The association of age, sex and cardiac events with diving fatalities was investigated among DAN members who had purchased dive accident insurance during 2000-2006 (Denoble, Caruso et al. 2008). There were 187 deaths in 1,141,367 member years.

Figure 6 indicates that the percentage of cardiac-related fatalities was 5 percent or less until age group 35-39 and increased until reaching a plateau of 30 percent in age group 50-54 and above. Divers older than 49 had a relative risk (RR) of a disabling cardiac injury 12.9-times greater than younger divers. Increased relative

risks between older and younger divers were also found for AGE (RR=3.9) and asphyxia (RR=2.5).

Figure 6: Percentage of cardiac-related disabling injury among fatalities of various age groups (unpublished DAN fatality data)

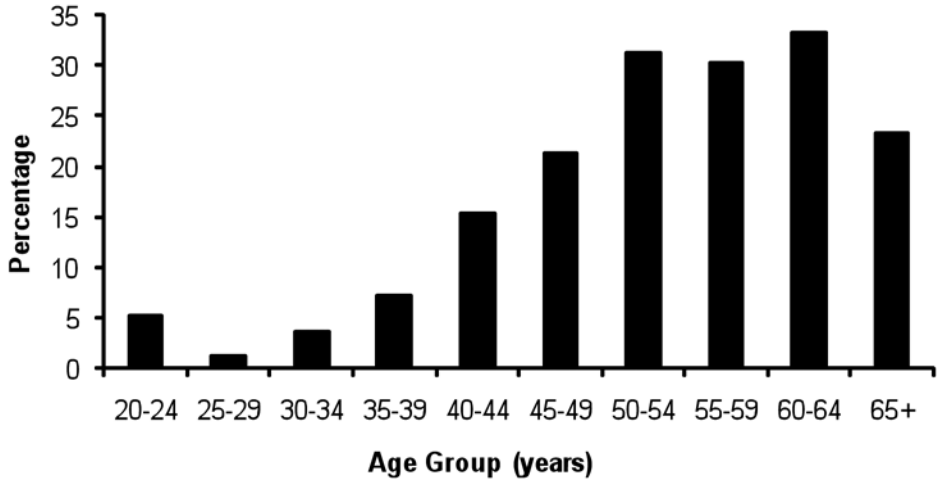
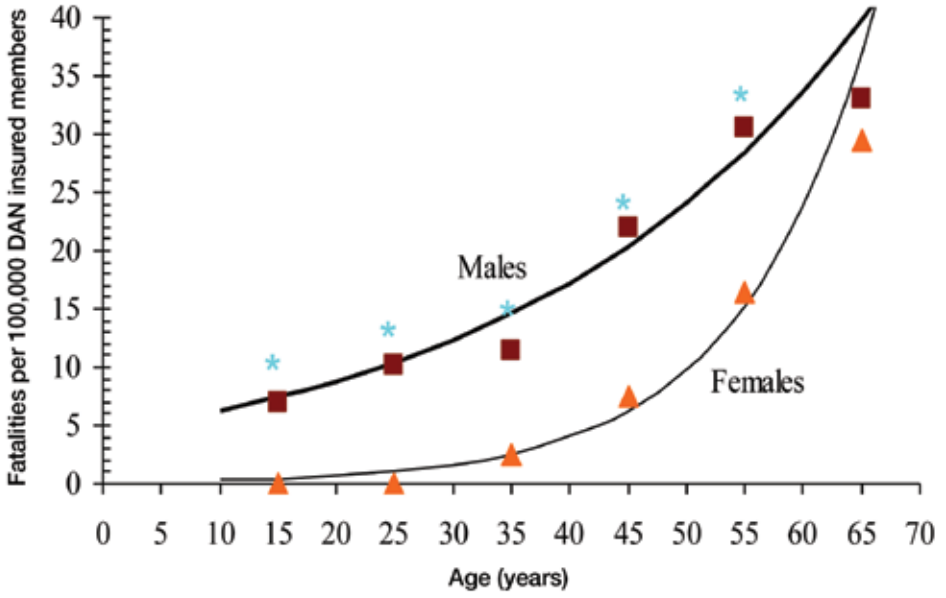


Figure 7 shows that the annual fatality rates were 10 per 100,000 divers for divers up to age 25 and nearly 35 per 100,000 divers at age 65. The rate for males was greater than for females by 10 per 100,000 divers up to age 65, after which the rates were essentially the same for both sexes. Relative risk between males and females decreased from 6 at age 25 to 1 at age 65.

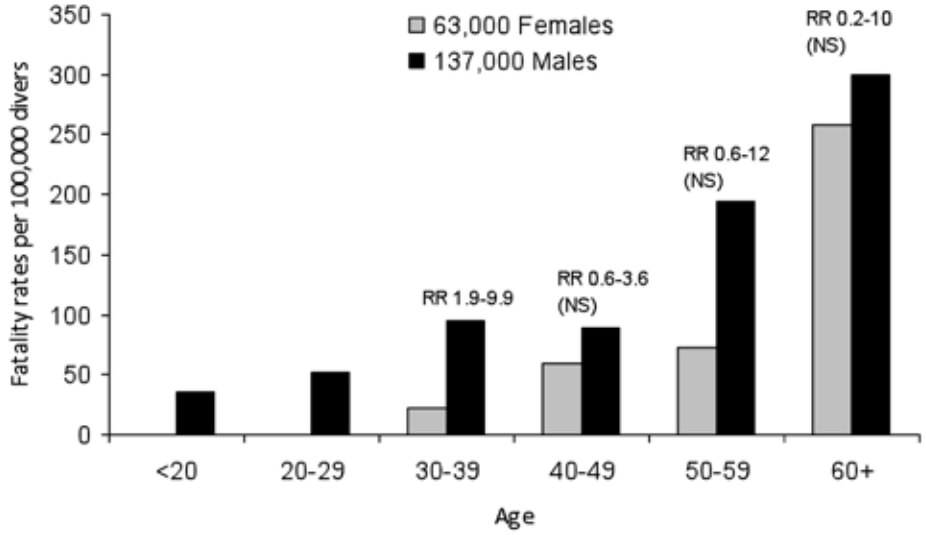
"The annual fatality rates were 10 per 100,000 divers for divers up to age 25 and nearly 35 per 100,000 divers at age 65."

Figure 7: Gender- and age-specific fatality accident rates (Denoble, Pollock et al. 2008, with permission)



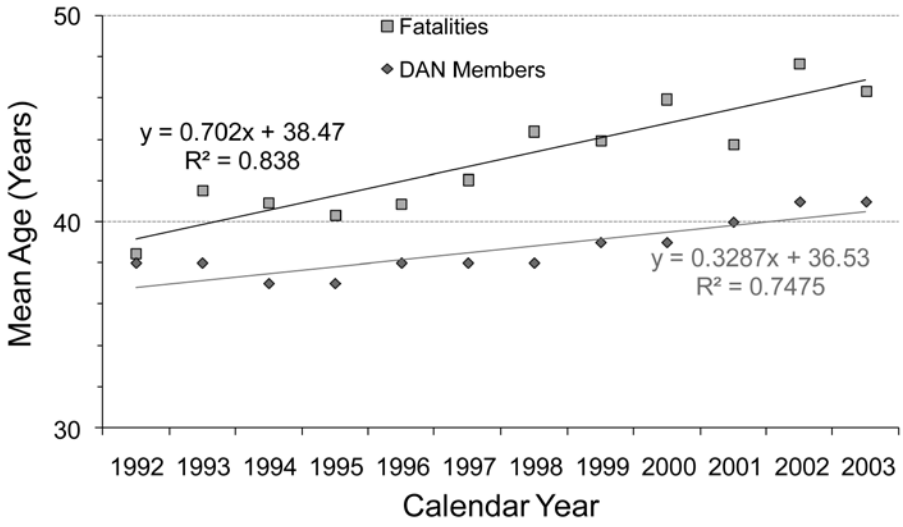
Similar trends with age and sex were observed for cases with cardiac events in the DAN Europe data but with higher rates (Figure 8). Up to age group 30-39, relative risks of fatalities were greater for males. For older age groups, risks were similar for both sexes.

Figure 8: Fatality rates and relative risk of death for males and females in DAN Europe insured members, by age group, for 1996-2008



The mean ages of DAN America members and all fatalities from 1992-2003 are shown in Figure 9. The mean age of members increased by one year in every four years, while the mean age of fatalities increased by two years in every four years. Fatalities were about two years older than members in 1992 and five years older in 2003 as a result of greater fatality rates for older divers.

Figure 9: Mean ages of DAN members and DAN member fatalities



Risk Factors for Fatal AGE Compared with Nonfatal AGE

A case-control study based on DAN injury and fatality data used fatal AGE as cases and nonfatal AGE as controls (Denoble, Vann et al. 2005). Fatal AGE was associated with divers in their first year of certification, and greatest risk occurred on the first dive of the day. AGE risk appeared to decrease with experience. Other risk factors for fatal AGE included rapid ascent, running out of gas, buoyancy problems, obesity, age, use of helium and maximum dive depth. The odds of surviving AGE were greater for divers with a normal BMI.

A study in Belgium found 100–400 times increased risk of pulmonary barotrauma (PBT) during training dives, while emergency free-ascent training was associated

"Fatal AGE was associated with divers in their first year of certification, and greatest risk occurred on the first dive of the day."

with 500–1,500 times greater risk. These findings prompted Belgian sport diver federations to ban free-ascent training in 2006, after which there have been no further PBT cases related to training (Lafére et al. 2009).

Diabetes and Scuba Fatalities

A case-control study compared fatal accidents involving 37 divers with diabetes mellitus (DM) (cases) with 938 fatalities (controls) who were DM-free (Denoble et al. 2006). Cardiac events were associated with 40.5 percent of the DM cases and 15.9 percent of non-DM controls ($p<0.001$). Unexplained loss of consciousness occurred in 10.8 percent of DM cases and 1.3 percent of non-DM controls ($p<0.001$). These observations suggest the hypotheses that divers with DM may be at greater risk of (a) death due to chronic cardiac disease and (b) unexplained loss of consciousness. Further investigation is required to test these hypotheses as the number of fatalities with DM was small.

Conclusions

For insured DAN members, the individual risk of dying while diving was 1 in 6,000 per annum, which is equivalent to an annual fatality rate of 16.7 per 100,000 divers. Compared with published recommendations, these rates are not negligible and argue for measures that might reduce their incidence to "as low as reasonably practicable." An active surveillance system is essential to monitor success.

"The most common root causes were gas-supply problems, emergency ascent, cardiac health issues, entrapment/entanglement and buoyancy trouble."

The most common disabling injuries associated with death were asphyxia, AGE and acute cardiac-related events. The most common root causes were gas-supply problems, emergency ascent, cardiac health issues, entrapment/entanglement and buoyancy trouble.

The risk of death while diving increased with age, starting in the early 30s. This is likely due to the naturally increased prevalence of cardiac disease with age, but an increased association of AGE and asphyxia were also associated with aging.

Possible interventions to reduce fatality rates include:

1. Providing opportunities to maintain diving skills after initial training;
2. Raising awareness of the need to maintain a healthy lifestyle and control cardiovascular risk factors; and
3. Adopting dive practices appropriate for age, health and physical fitness.

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Discussion

CAROL CHRISTINI: I am with Insurance Management Service. I do insurance for the diving industry. I have a question about the statistics. I know that as an industry we need to focus on if we can prevent one death, we should be doing something, and I am all for that. And I know we have to start somewhere with the data. But my concern is that the data may be a little bit skewed because it only reflects DAN members. There may be a lot of divers out there who are not DAN members. I wonder if that factor has been taken into consideration in these statistics. And if not, do you think that without that consideration that the statistics are skewed?

DR. PETAR DENOBLE: That is a very valid question. One way to answer that was to assemble these professionals here and bring data from various sources. That was our main reason to get people together here and present four different sources of data and then discuss what you just said, definitely why these dive groups have different fatality rates. You cannot expect that — we know, for example, that for decompression illness that it is only 1 in 10,000 dives if you dive in Caribbean from a very nice liveaboard. If you go somewhere in the cold water and do wreck diving, your incidence rate might be 20 in 10,000 dives. Probably that's the same for mortality rates, but DAN data are similar to BSAC data. There may be some differences with Australia or some other regions, and I hope we will discuss it more extensively today here.

STEVEN HEWITT: Could I ask you to go back to the last slide? Under the conclusion that the risk of death while diving increases with age, have you looked at other recreational activities involving physical exertion to see if there is a corresponding risk of death while participating in them?

DENOBLE: Yes, indeed, but, you know, I did not want bring here excuses for us to stop thinking about this. If we compare our curve of fatality rates by age with rate of myocardial infarction by age in the United States population, they pretty much coincide. But this may be deceiving. I am not saying that age is a factor in fatalities. Age is just associated, and factors are something that comes with age. Age is sort of a marker here for potential diseases and things like that.

KEN KURTIS: But I have a preface to a question and a follow-up. The preface is, as you said earlier, for me personally, it is impossible to get good data out of the dive industry. When you compare data from year and data from year, there is no way the two things can be correct. Early on you had an estimate when you were converting from accidents per diver to accidents per dive. You had an asterisk at the bottom, which was estimated at 25 dives per year. I am just wondering where the 25 came from, and I probably have a follow-up question from that.

DENOBLE: The 25 came from a survey conducted years before, and it was presented by Dr. Guy Dear at UHMS. That is the best we could get to, and other things were well matched. So this is here. This was estimated based on 25 dives. They had like 50, 55 dives per year, and he will talk about that. Also there are some other rates that are not there, like you would see from PADI. I put this number in red because it is just an estimate, unlike this 16.4 fatality per 100,000 divers, which was based on a real denominator, not an estimate.

KURTIS: The follow-up actually sort of answers Carol's suggestions. I would say I would rather have accurate slightly skewed data than what we do with them. But would it be practical — 200,000 members who every year have to renew — would it be practical to make as part of renewal process, a required field of how many dives did you make last year, and if you wanted certification and level? All of a sudden this data we cannot get you would at least have within this group some reliable data.

DENOBLE: May I first tell you that maybe we do not need 200,000 members to answer that question. We can do smaller survey. One has just been launched to about 2,000 members inquiring not only about number of dives, number of injuries, about health status, current health conditions, health practices, access group to health providers and all the diving practices.

UNIDENTIFIED SPEAKER: One of the problems with that is the validity of the data, and not that divers would lie or somehow skew the truth, but the problem would be that we were not sure we would be able to verify the data.

KURTIS: I agree with that. The more questions you ask, the less likely you would get answers. But I would also suggest that even self-reported, maybe inaccurate, data is better than the wild guesses that we do right now, which is essentially what we do as an industry.

UNIDENTIFIED SPEAKER: One of our partners in DAN Europe does ask some of those questions, so they do have some of the data.

GORDON BOIVIN: I am a field guy. I have no idea what you are talking about. What can I do to help? I have heard the phrase "root cause pathway" mentioned by you, lawyers, Mr. Barsky. So obviously somewhere along the line when I am interviewing, when I am collecting data in the field, I should be looking at things that relate to triggers, disabling factors, harmful agents. While I am not making an opinion about what those are, but should I be making an effort to identify them?

DENOBLE: Triggers, disabling agent were judgments. While you are first responder there, you should get all the facts about an accident as you can. Maybe Steve Barsky can answer better than me. But if you ask why, why, why, at the end you will practically capture all important data. You will capture all root causes. And, no, if you can put that, have a time scale and kind of diagram, that is fine but not necessary. If you provide just all related factors that you have discovered, later it can be judged how it can be classified.

STEVEN BARSKY: I am looking around the room, and I am noticing lots of gray hair and balding going on here. Maybe I missed something here. But we have this nice, neat chart that shows the number of accidents going down. But I think we also — maybe I did not see it, maybe you said it in a different way that I did not understand — did you ever really compare it to what the population estimates are of divers, let's say populations estimates from NSGA, which is about the only one that we really have?

DENOBLE: We did not extrapolate this to general diving population. We presented only data pertaining to insured DAN members.

BARSKY: I am just curious whether we are seeing fewer accidents because we are seeing fewer divers and less diving activity?

DENOBLE: Not necessarily. Most divers are ages 30 to 50, and you will get kind of a medium center of around 45. So it is not that most of the divers out there are 70 or 80 years old, but they appear to be definitely more affected; their fatality rate is higher than in 20 years old.

KARL SHREEVES: More of a comment for you, Ken, and also for Dr. Denoble some questions. I think it should be on the record that the term "wild guesses" in our lack of data probably overstates the position. I have been watching these presentations all day, and I haven't seen a wild guess yet. I've seen your reasonable speculations and models and estimates based on the need to fill where we do not have information. Dr. Denoble's information is not skewed. I think it is the least skewed we've seen so far. He has presented very hard numbers. Where we have to be cautious is if we take these and try to apply it to all diving populations, then it may be skewed. So just for some clarity, we need more information absolutely, but let's not go so far the other way and pretend we are groping in the dark. It is more like we have a smaller flashlight than we would like.

KURTIS: I was referring to when we talk outside this room, not in here.

DENOBLE: This is a very valid comment, and thank you for bringing it up. We did not assume that this represents the entire diving community. This is strictly insured DAN members.