Letters to the Editor

Health and Safety in Outward Bound

To the Editor,

In 1992, the *Journal of Wilderness Medicine* published an article of mine on the hazards of Outward Bound courses.¹ My attention has recently been drawn to an error in the mortality rate quoted in the paper. The mortality rate for the years 1962–1989 was quoted as 2.04 per 100 000 students per year. This was a mathematical error and, as calculated, should have been 204 per 100 000 students per year. However, both these figures are either wrong or confusing. The number 2.04 per year was too low because of the mathematical error, and the figure of 204 is confusingly high because it assumes a course length of 365 days. Courses were more typically 2 to 3 weeks in duration.

A more realistic way of recording mortality is to relate it to the number of days students spend on courses. Outward Bound, therefore, now calculates its annual mortality statistics based on the number of students, number of student days, cumulative death rate per 1000 students, and cumulative death rate per 1000 student days. These numbers take into account the lengths of different courses because the statistical risk of death on a course depends on the length of the course.

Looked at in this way, the cumulative death rate per 1000 student days for 1962–1970 was 0.0032. By the end of 1980, the cumulative rate (taking into account all deaths since the start of the school) was 0.0088, and by the end of 1989 had fallen to 0.0056. The cumulative mortality rate per 1000 student days at the end of 2005 was 0.0035. From January 1, 1999, to December 31, 2005, there were 1 347 587 student days without a student death. During the same period, 1 instructor died from a staphylococcal infection while conducting a training course for other instructors.

Twelve of the 17 deaths reported in the paper occurred during the decade from 1971–1980 (12 deaths in 1 169 010 student days). Three deaths occurred in a single kayaking accident off the Baja coast during a storm. A 57-year-old man died from a heart attack while participating in a ropes course event during a corporate training exercise. Three deaths occurred in non-program-related activities (2 deaths in a vehicular accident and a probable suicide) but were included in the statistics. The degree

to which non-program-related deaths inflated the overall death rate was not taken into account.

I asked Dr Dennis Lezotte, Professor and Director of Bioinformatics at the University of Colorado Health Sciences Center, to confirm the mortality rate in my article. He informed me that the correct mortality rate was 204 deaths per 100 000 student years but suggested that, “Since none of the Outward Bound sessions are 365 days long, this is not very descriptive information for participants/readers” (verbal communication, November 2006). Instead, he used the basis for the statistics used in the paper and did a Poisson Regression analysis, which showed that the risk for a 7-day course between 1962 and 1989 was 4.0 per 100 000 participant weeks, 1.5 per 100 000 for the period 1990–1999, and 0.63 per 100 000 for 2000–2005. This trend parallels the decrease in deaths per student days reported in the Outward Bound statistics.

Any errors in the original report were mine alone, and I appreciate the opportunity to correct them. Although I had been on the Board of the Colorado Outward Bound School, I was not active on the Board at the time the paper was written. Outward Bound provided me with the statistics but otherwise played no part in the preparation of the paper.

I would like to acknowledge the cooperation of Outward Bound in providing the most recent statistics and the help of Dr Dennis Lezotte in analyzing the data.

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References

1. Paton BC. Health, safety and risk in Outward Bound. *J Wilderness Enviro Med.* 1992;3:128–144.

Improvised Airway Management Devices

To the Editor:

We found the article by Drs Platts-Mills et al to be of particular interest.¹ They evaluated an improvisational method of cricothyrotomy with commonly available ma-