

3000 lives, 6 Billion dollars lost, 18 years of surveillance – What have we learned about safe boating in Canada?

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Background

Boating accounts for about 40% of all immersion deaths in Canada. However, boating is under-researched since most victims do not survive long enough to reach a hospital and incidents have not been tabulated with other drownings by the World Health Organisation.

Methods

A national surveillance system for boating and other water-related injury deaths was developed as a basis for prevention in Canada in 1991 by a multisectorial collaboration of Red Cross, Transport Canada, Lifesaving, Coast Guard, National Association of Coroners, and Public Health. As of 2008, activity, purpose, and risk factors for about 3000 boating deaths had been abstracted from coroners' reports using a structured questionnaire. Each death file was reviewed and corrected, doubly entered with compare, and the final database analysed using statistical software.

Results

Recreational incidents accounted for 85% of deaths. Capsizing, falling overboard, and swamping were the main incidents. Fishing, powerboating, and canoeing were the most frequent activities. Immersions accounted for 95% of deaths and trauma the remainder. About 90% of victims were adult males of all ages; children were rarely involved. Alcohol was associated with 50% of incidents. Many victims were weak or non-swimmers. Two thirds involved powerboats, mainly small open aluminum boats, and the remainder unpowered, mainly canoes. Only 12% of victims were properly wearing a flotation device. Mainly non-swimmers were not wearing flotation. Lakes accounted for 60% of deaths, rivers 23%, and oceans 16%. Moving water was a factor in two-thirds of deaths in rivers. Cold water, mainly below 10°C, played a role in 36% of fatalities. Trauma deaths were dominated by personal watercraft and large powerboats, with personal watercraft accounting for only 2% of powerboat immersion but 29% of collision fatalities. Trends were positive during the first decade of national surveillance, with a 27% (95% confidence intervals 17, 31) decline from 0.71 per 100,000 person years to 0.54 between the first and second 5-year periods.

Conclusions

While there has been some improvement in boating immersion death rates, the proportion of dead boaters wearing a flotation device has remained unchanged for 18 years at one in 10. Hence, the most effective intervention would be mandatory wearing of appropriate flotation by all boaters at all times, with operators accountable for wearing by all passengers. This could prevent up to 90% of boating deaths in Canada, with annual cost savings of at least \$330 million. Shops should stock flotation devices for active and inactive boating and cold and warm water conditions. Small open powerboats and motors require mandatory improved safety features to increase survival after capsizing, swamping and falling overboard. Helmets and safety design features are essential for personal and other high speed watercraft.

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