Commentary: Priorities in epidemiological studies of drowning prevention

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In a study published in this issue of the International Journal of Epidemiology, Lunetta et al.1 present data on a population-based study of drowning in Finland. High rates of drowning among adult males were observed as well as dramatic decreases in rates of drowning over the past 30 years for those aged less than 55 years with the largest decreases occurring for ages less than 35 years. The authors point to alcohol use as a specific risk factor in their study population. Among victims 15–64 years, 75% of those tested had a blood alcohol concentration ≥50 mg/dl. The quality of Lunetta et al.’s data is excellent. For the years 1998–2000, 97.6% of case diagnoses were based on a medico-legal autopsy and blood alcohol concentration was available for all victims ≥55 years. The authors point to alcohol use as a specific risk factor in their study population. Among victims 15–64 years, 75% of those tested had a blood alcohol concentration ≥50 mg/dl. The quality of Lunetta et al.’s data is excellent. For the years 1998–2000, 97.6% of case diagnoses were based on a medico-legal autopsy and blood alcohol concentration was available for 90.1% of victims 15–64 years of age. There are certain aspects of Lunetta et al.’s study that, while not deficiencies, are limitations shared by similar studies that...
have relied on existing data sources. Rates based on the number of drownings in the entire population do not take exposure prevalence into account. Therefore, trends over time are difficult to interpret since changes in rates may reflect changes over time in exposure to aquatic activities, or successful prevention efforts, or some combination of the two. Drowning studies conducted to date have provided important information on the descriptive epidemiology of drowning and have identified a number of personal risk factors (summarized in ref. 2). However, more analytical research is needed on the aetiology and prevention of drowning to provide a scientific basis for drowning prevention efforts.3 Aetiological studies designed to measure specific risk factors are essential for guiding the development of prevention strategies.4 Equally important are studies evaluating the effectiveness of prevention intervention methods. The time has come to take epidemiological research of drowning to the next level through the collection of primary data that will enable more informative characterization of risk and better evaluation of prevention programmes.

Case-control studies of drowning should be expanded to include both natural and manmade bodies of water as well as victims of all ages. More detailed information on victims’ personal risk factors and the circumstances of the drowning (e.g. swimming skills, personal flotation device use, and use of drugs and alcohol) are needed to estimate risk attributable to various personal risk factors and behaviours.

As mentioned, population-level exposure data are important in interpreting changes in population rates of drowning. Periodic surveys of aquatic activities including boating and boat ownership can provide information on patterns of exposure in the general population. These data, along with survey data on swimming skills, use of a personal flotation device, alcohol use in aquatic settings, and safety knowledge would be valuable in interpreting changes in population rates of drowning and in evaluating drowning intervention programmes. Assessment of risk perception and the role of behavioural and social influences on drowning occurrence and prevention are also useful in developing approaches to injury prevention.5 More rigorous investigations of the causes and prevention of drowning are important in focusing limited public health resources on worthwhile prevention strategies.

Lunetta et al. are to be commended for their study that utilizes the high quality Finnish data to provide important information on patterns of drowning in Finland. Despite dramatic declines in drowning rates and the establishment of various prevention programmes, the drowning rates in Finland are still relatively high.1 The opportunity exists in Finland and elsewhere for scientific advancements in injury control research. We must keep in mind that most drownings are preventable.2 Epidemiologists have an important role to play in describing the patterns and causes of drowning and in evaluating prevention interventions.

References