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How to do (or not to do) . . .

Conducting a roadside survey of drivers in Kenya: methods and experiences

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Introduction

Road traffic accidents (RTAs) are the leading cause of mortality in adolescents and young adults in all regions of the world and rank among the top five causes of death (Feachem et al. 1992; World Bank 1993). Traffic-related fatality accounts for 10% of all deaths in the 5–44 year age group in developing countries and is increasingly becoming an important public health problem (Downing et al. 1991). In Kenya, deaths from RTAs increased by 43% over the last 10 years, and alcohol is suspected to be an important contributing factor. There are, however, no specific drink driving countermeasures or legislation setting a blood alcohol concentration (BAC) limit for drivers, and the prevalence of drinking and driving is unknown.

Roadside surveys have been used widely for collecting BAC data from the driving population since the Grand Rapids Study in 1964 (Borkenstein et al. 1964). A standard roadside survey requires specific facilities, a high level of organization and a significant amount of resources. The study design involves sampling drivers from the main traffic stream into specially prepared, highly visible off-road survey sites fitted with a portacabin or a designated research vehicle where interviews and breathtests can be done in privacy, and is most suited for highways in rural locations with ample parking spaces. Permanent police roadblocks, usually placed along inter-urban roads, may also be used as sampling sites, but they present serious biases, in terms of their locations and vehicle selection criteria. Alternatively, a method of sampling drivers stopping at a red traffic signal in a metropolitan area has been reported (McLean and Holubowycz 1981). The procedure does not involve working with the police, but it presumes the availability of a network of signalized intersections in the city, and is therefore not suitable for urban centres (like Eldoret) without such facilities.

This paper describes how traffic police checks were used in conjunction with a roadside survey in Eldoret, a town with a population of 178 000, located in western Kenya. The purpose of the study was to obtain drivers' BAC data that can be used as reference in formulating drink driving policy in Kenya, as well as to assess the feasibility of random breathtesting as a strategy for implementing such a policy.

Study organization

Ethical approval from the Government and the University's Research and Ethics Committee was obtained prior to commencing the study. The traffic police chief was briefed about the study and collaboration of the police department was sought. The police department's views were also sought with regard to timing, site selection and breathtesting procedures. The location of check points, time and duration for intake at each site were finally agreed upon.

The survey was done at times when drinking is known to be common, between 19.00 and 24.00 hours, in 8 different spots, for 7 consecutive days. This was necessary in order to catch a large sample of drivers who had taken alcohol, which would increase the

statistical power of the study and strengthen advocacy for establishing a legal limit. It also allowed for consistent allocation of police officers outside their normal working schedules.

Four uniformed traffic police in a patrol car were provided throughout the survey period to stop drivers and to maintain orderly traffic flow and security. Four medical students were selected and trained to administer a short questionnaire and a breathtest using a portable *Alcolmeter SD-2* accessed from the manufacturers (Lion Laboratories, UK). The device gives an immediate digital reading of BAC and has been used extensively for roadside surveys and random breathtests in the UK, Canada, United States and Australia.

Survey procedure

On arrival at the sampling site, the police stopped the first approaching vehicle from either direction. After conducting a routine traffic check, a policeman asked the driver if he was willing to be questioned on road safety issues by a research team from Moi University. Interviewers, working in pairs and wearing white coats and identification tags, approached consenting drivers, introduced themselves, then conducted a short interview and a breathtest. Age of the driver, gender, number of passengers and type of vehicle were recorded. A subjective assessment of whether a driver had taken alcohol or not was noted.

One set of interviewers and a police officer sampled drivers travelling in one direction, while the second team, stationed on the other side of the road, selected vehicles from traffic in the opposite direction. The next vehicle was stopped whenever interviewers were free to ensure that no driver was made to wait. Interviewing one respondent and getting a breathtest took two minutes on average. We stayed at one spot for two and a half hours, then shifted to another location for the same period of time. This was done in order to minimize evasion of checkpoint sites by drinking drivers or those who wanted to avoid contact with the police for some other reason, after becoming aware of the exercise.

Some key findings

433 (90.4%) out of a sample of 479 drivers were breathtested. They were predominantly male (98.2%), and 75% were aged 25–44 years. Alcohol prevalence was 20% (BAC >4 mg%). 8.3% of the drivers had BACs above 50 mg%, and 4% exceeded 80 mg%. All (8) female drivers participated. Most non-responders for the breathtest did not give any reasons, but possible intoxication could have been a reason. Some motorists (mainly taxi drivers) who were sampled more than once at different times became angry, impatient and declined to be interviewed on subsequent occasions. Drivers who tested positive but not impaired were cautioned by the police. Only one arrest of a severely intoxicated driver (BAC 285 mg%) was made; he later admitted the offence and paid the appropriate fines. BAC readings from the survey were not used for prosecution purposes.

Advantages of the study design

A roadside survey carried out in conjunction with traffic police checks is a feasible undertaking in Kenya, and perhaps in other developing countries where the association of alcohol and traffic accidents is suspected. Planning and organization can, however, be delicate and involves the establishment of mutually agreeable working relationships with the police, which may compromise research design and the quality of data collected. There are a number of advantages to having such a joint arrangement, these include:

- Provision of security protection for interviewers and motorists.
- Maintenance of orderly traffic flow.
- Obtaining the cooperation of the police enforcement hierarchy that is necessary for the collection of blood alcohol data and future use of such data in establishing legal limits.
- Public acceptability is enhanced if data collection procedures are incorporated with the usual traffic checks; it is less likely that drivers will agree to stop and have their night-time travel disrupted solely for research purposes, especially those driving public service vehicles.
- The procedure is politically feasible if done as part of law enforcement; concern for intrusion in personal liberty, such as disclosure of drinking status, is less likely to be a factor (motorists usually tolerate police questions and inspections).
- Operational costs are shared between the police department and researchers (personnel, vehicle and fuel costs).

Disadvantages of the study design

If the focus of a roadside survey is strictly epidemiological (to determine the prevalence of drink driving) without incorporating an assessment of feasibility of acceptance of survey procedures in a given social, economic and political context, then the results will be weakened by a number of factors. Constraints experienced included the following:

- Dependence of support of the police department, with regard to duty schedules and staff availability, affected the timing, duration and coordination of the survey. It was, for instance, impracticable to schedule the survey during daytime or public holidays.
- Ethical aspects: it was difficult to assure drivers that their participation was voluntary in the presence of the police. An element of coercion was apparent.
- Non-response for breathtests by motorists who had been drinking or those in powerful positions, in the absence of a statutory BAC limit and enforcement procedures. This problem may be even more difficult to overcome in standard roadside surveys.
- External factors, such as major political events in town that required services of the police force, rainy weather, and unavailability of the same trained interviewers (unscheduled closure of the medical school), meant the duration of the survey was shortened.

Conclusions

Data on the alcohol prevalence of the driving population is needed to support advocacy for the development of drink driving policy and interventions. A roadside survey of the driving population that is undertaken in combination with traffic police checks has the distinct advantage of being acceptable to the public and is operationally feasible. It thus presents a potentially viable alternative for obtaining BAC data in the Kenyan context. However, periodic surveys spread over a long period and at different times of the day would be needed to capture a more representative sample of drivers on the road. The method can also be used to monitor the effectiveness of drink driving countermeasures (Foss et al. 1995). This pragmatic approach is capable of providing an estimate of BAC levels in the driving population and has the potential of attracting police support, for both research and the policy formulation process, from the initial stages of problem identification and agenda setting to implementation of drink driving countermeasures.

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Biography

Wilson Odero, MB ChB, MSc, is a lecturer in epidemiology and community health at the Faculty of Health Sciences at Moi University in Eldoret, Kenya. He is currently based at the Health Policy Unit in the London School of Hygiene and Tropical Medicine, where he is writing a doctoral thesis on the epidemiology of traffic injuries in Kenya and policy implications in prevention, with particular reference to the role of alcohol. He completed his medical training in 1979 at Minsk Medical College in the former USSR and later trained in Community Health at the London School of Hygiene and Tropical Medicine in 1985. He also undertook a course in Communicable Disease Epidemiology at the WHO Africa Regional training centre in Nairobi. He worked as a district medical officer of health for several years before taking up the university position.

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