

# CHAPTER 19 : ALCOHOL POLICY AND PUBLIC HEALTH IMPLICATIONS IN A GLOBAL PERSPECTIVE

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## Introduction

Given the evidence of alcohol as a major risk factor for disease, disability and mortality both globally and regionally (WHO 2002), it is timely to examine alcohol-related trauma by using the 'window' of the evidence gleaned from studies conducted in emergency room settings. Emergency rooms provide a useful setting for monitoring, testing hypotheses and exploring new topics about the relationships between alcohol consumption and trauma and chronic disease.

As this volume illustrates, the field has grown dramatically in the over 20 years since the 1st international symposium on this topic (Giesbrecht et al. 1989). There have been substantial changes in the methods and analysis since the mid-1980s, and the number of countries where emergency room (ER) studies have been conducted is now in the dozens. Last but not least, this research has contributed to raising the profile of alcohol as a contributor to trauma. It has provided policy advocates and analysts with important tools and resources for prevention activities, and supported the work of clinicians in the development, implementation and evaluation of brief interventions.

## Context

However, there is substantial local, intra-country and international variation in the accessibility of ER services and the populations that use them. There is also considerable variation across countries in the ER capacity – e.g. volume of patients seen at ERs per 10 000 population. Also, health care financing, and the availability of alternatives to ER treatment, may greatly influence the likelihood of an injury being treated in an ER. Even in developed countries it is likely that there is considerable variation in the percentage of accidental injuries that show up in an ER. For example, in isolated workplace settings such as mines or other primary industries, many accidents may be treated on-site. Violent incidents are likely to be under-represented in ER settings, given that perpetrators (e.g., gang violence) and victims (e.g., sexual assault) may consider it more threatening to be exposed, and have their identity registered by seeking professional medical attention, than to seek ways to treat their injuries informally and in a less transparent manner. Where there is armed conflict, especially for extended periods, there are likely to be high rates of trauma, but these may not be represented in the ER statistics, since hospital services may be disrupted during this time, and the armed force will likely have some treatment capacity in the conflict zone. Nevertheless, there are numerous contexts and periods of economic stability and relative consistency in health care delivery, where it may be assumed that ER-based data are representative of the trauma and other acute morbidity that took place in a jurisdiction at a given time interval.

## Utility

ER studies are useful in surveillance, in documenting the scope of alcohol problems, in identifying causal relationships between alcohol and injuries, and as a resource for developing prevention initiatives and policies and monitoring their impact. Furthermore, they offer an opportunity to examine interactions between alcohol and other drugs and their combined contributions to casualty experiences and statistics. In the past two decades there has been a substantial elaboration in ER-based research, and also in the awareness of and application of this research along the lines noted above.

In the broader context, ER studies can serve a critical “canary in the mine” function. The findings and statistics that they generate highlight emerging alcohol problems, trends in drinking-related damage and causal processes. This is especially critical during an era where many countries are experiencing a combination of deregulation of alcohol controls combined with an increasing globalization of alcohol production and enhanced marketing of alcoholic beverages. The initial impacts of these developments on drinking patterns, high risk drinking and trauma may be first detected in ER studies, well before their impacts show up in chronic disease statistics.

ER studies are particularly important in environments where no data exist on alcohol-related health problems, where data are sketchy, or when other approaches to study alcohol involvement in health problems, such as surveys or interviews by clinicians, face considerable difficulties, as is the case, for example, in countries where beverage alcohol is banned. For example, it may be feasible to obtain consent for urine or blood samples, whereas direct questions about drinking may be considered too intrusive in a culture where the official position is abstinence from alcohol.

Studies using ER data can also contribute both to monitoring of alcohol-related conditions in a jurisdiction and to evaluation of the prevention activities and programs. However, there are a number of noteworthy challenges. It may be difficult to find a good match between the agenda and foci of the ER study and goals of more generic monitoring initiatives. Also, good monitoring involves a combination of standardized protocols with the aim of collecting data using the same procedure over an extended time period. Most ER studies are time-limited, involving a few weeks or months of on-site data collection. Thus an ER study may point the way to establishing a monitoring system or include piloting of a monitoring protocol, but typically it is not designed to also serve as a monitoring tool.

Nevertheless, where protocols are established to collect data routinely from ER settings, then this becomes a powerful tool for tracking trends in the type and severity of injuries where alcohol plays a role, and also the changes over time in the demographic characteristics or drinking patterns of those so injured. Thus, the ER data might serve as an ‘early warning system’, illustrating, for example, a rise in alcohol-related problems before the change is evident in in-patient morbidity statistics or mortality data. Despite this clear potential, it appears that there is a long way to go to establishing ER-based monitoring systems that include alcohol tracking in a number of countries.

There is also substantial potential for ER studies to be linked to prevention activities either through stimulating community-based or nationally-based prevention activities or by using the ER study protocol as a resource (not necessarily the primary or only one) to track the impact of a prevention-oriented intervention. Both of these potential applications and linkages to prevention have been under-utilized, but there are signs that this might change. Chapter 14 provides several illustrations of how data from ER studies have been a resource for stimulating local or national prevention activities and assessing its impact – see papers by Borges, Cremonte, Swiatkiewicz, Sovinova and Csemy, and Benegal in this volume.

Looking outside the alcohol arena, it is also clear that ER studies provide a resource in the injury surveillance area. The evolving protocol of ER studies focusing on alcohol (see Cherpitel – Chapter 7 in this volume) – having been used in dozens of countries – provides a substantial resource for injury surveillance – even in those instances where the surveillance system does not yet include an alcohol tracking dimension. All major aspects of a high quality surveillance system are addressed in the higher quality ER studies focusing on alcohol, and thus provide a rich, but often under-utilized, resource for injury surveillance specialists to borrow from and implement.

ER studies have also contributed to broadening perceptions of the range of alcohol problems. To the non-specialist who is not involved in alcohol studies, alcohol problems may be perceived as involving drinking and driving, liver cirrhosis, alcohol dependence and possibly alcohol poisoning. In developing countries the range of perceived links between alcohol and health problems is likely narrower. However, alcohol has been identified as a contributing cause to over 60 disease conditions or types of trauma (e.g., Babor et al. 2003), and the list is growing with further research. ER studies provide a rich resource for the policy planner, advocate and analyst by illustrating the role of alcohol in a wide range of trauma as well as chronic diseases. These include, for example, falls, fires, water accidents, motor vehicle crashes and various types of violence including self-inflicted injuries (see especially Chapter 5 by Roizen).

Last but not least, ER studies also make a substantial contribution to identifying alcohol-injury causal relationships. This is a major theme of a number of chapters in this book – see especially papers by Ye and Cherpitel (Chapter 1), Borges et al (Chapter 2), Bond and Macdonald (Chapter 3), Rehm, Popova and Patra (Chapter 4), and Rehm and Room (Chapter 6). Nevertheless there remain opportunities for further work, including that of developing a better understanding of the causal relationships between alcohol use and trauma in developing countries where the place of alcohol in society and contexts of drinking and drinking-related activities is quite different from the patterns in western societies with established drinking cultures.

## Challenges

ER studies provide a nexus between epidemiology, treatment, prevention practice, policy development and evaluations of interventions. The challenges of conducting this research and translating it into clinical practice or policy advice are considerable and they have already been explored in some depth in sections II, III and IV of this publication. However, it should be noted that in developing countries the challenges might take on added dimensions and intensity. A few are highlighted below.

A major challenge internationally is to develop the capacity to do the studies and to disseminate the findings so as to inform practice and policy-making. Conducting an ER study requires a combination of capabilities, including the following: obtaining funding, conducting fieldwork research, facility in project and data management, and skills in data analysis. If the findings are to be translated into policy initiatives, this requires at least two parties: persons knowledgeable about the research who have links to policy makers and can provide policy-relevant synopses; and persons in the policy-making arena who are interested in receiving the research findings and using them to inform policy development. At the systemic level it requires a 'window of opportunity' where there is the convergence of problem recognition, the formation and refining of policy proposals and political support (Kingdon, 1984). These windows of opportunity cannot be fully managed, but their potential will be enhanced where ER clinicians and researchers are involved in capacity building on alcohol issues and highlighting their implications for effective alcohol control policies.

Another challenge is that of finding areas of convergence and comparability when the research and its applications are drawn from institutions that are quite different. There is a diverse mosaic of settings, contexts and cultures evident under the 'emergency room' umbrella. In many countries other institutional arrangements may substitute for emergency departments. And in developed countries there is no clear consistency in the range of services provided in an ER, the type of clients or presenting problems that are dealt with in these settings, and the response capacity of an institution. Studies based in ER settings continually face the limitations and challenges of generalizing from institutions that are not identical on these key dimensions.

There are also challenges related to variations in the drinking culture where the ER studies were conducted. Drinking styles, characteristics of heavy drinkers and activities typically conducted during heavy drinking episodes vary substantially by country and within regions of a jurisdiction. The normative dimensions combined with perceived access to services, may encourage minor injuries to be taken for professional attention in one setting and discouraged in others. These variations in drinking behaviour and informal 'rules' about use of services will impact the scope of injuries that come to ER attention and what policy interventions can attain priority.

## Roles for WHO and its National Partners

The World Health Organization plays a key role in many aspects related to the areas of ER studies and drawing out their implications for practice and policy development. This includes providing a horizontal connection among national and regional initiatives, and also making the links between injuries and alcohol, and mental health issues and alcohol. The WHO has been

a co-sponsor of several initiatives related to ER research, including conferences in Toronto in August 1985 and in Berkeley in October 2006, and undertaking the multi-site Collaborative Study on Alcohol and Injuries, which was an epidemiologic study of the association of alcohol and injury, as well as an examination of the concordance of clinical observation of alcohol intoxication (ICD-10 Y91 codes) with estimated blood alcohol concentration using breath analysis (ICD-10 Y90 codes) in emergency rooms in 12 countries.

## **Future Initiatives**

There are a number of topics and themes for future initiatives, some of which are summarized briefly below.

### **Epidemiological studies**

While we know that alcohol consumption is associated with injury, further studies are needed of the magnitude of alcohol involvement in injury occurrence and alcohol involvement by type and cause of injury. These can include secondary analyses of existing data, and aggregations of different datasets. Issues to be investigated in these studies include: the distribution of level of alcohol impairment of those with a particular injury; dose-response relationships; the existence and extent of co-factors which contribute to the occurrence of the particular injury (e.g., other drug use, icy conditions or other environmental factors); distribution in terms of the context of occurrence of the particular type of injury; distribution of usual drinking patterns (volume and heavy episodic consumption) and injury; and, hangover effects associated with drinking in the event. Contextual variables affecting associations at the study level are also an important consideration. Particularly for intentional injuries, studies are needed which measure and analyze cultural variations in alcohol expectancies and in the excuse value of alcohol. The impact of alcohol involvement by severity of injury and extent of disability, and alcohol dependence and abuse as predictors of severity and disability are also important to examine.

### **Clinical assessment of alcohol intoxication**

Research is needed on optimal ways of recording estimated BAC, degree of intoxication and other clinically significant information for use in replacing or reformulating the alcohol codes (Y90 and Y91) in ICD-10, looking towards their adoption in ICD-11.

### **Methodological comparisons of control subjects for estimating risk of injury in ER patients**

Studies of general populations concerning injuries and alcohol involvement in the injury are needed. Analyses of such population surveys and of ER samples in the same catchment area can be used to highlight the effect of alcohol on whether and when an injured person presents to an ER, and can illuminate factors that distinguish injury-prone from other heavier drinkers. Furthermore, studies are needed with designs which allow for estimation of the relative risk of injury from a given blood-alcohol level in particular contexts and with other particular co-factors. These can include case-control, case-crossover and other designs that yield a control condition.

### **Methods of obtaining BAC estimates**

Development and testing of methods of obtaining BAC estimates with the least possible intrusion is needed. The forensic significance of accurate measurements makes them much more problematic for clinical use, and unlikely to actually be collected on a routine basis. Given this, the emphasis should be on methods that yield estimates that are sufficient for monitoring and epidemiological research purposes, but not accurate enough to be useful forensically.

### **New controlled study methods to obtain relative risks (RRs)**

For ER studies to be used in estimating the population burden of alcohol in injuries, there is a need to obtain measures in control populations of comparable drinking events without injury. Two main methods have been used: control-group respondents matched on various characteristics with the ER clients, and the case-crossover method where the ER client serves as his/her own control, e.g. in terms of drinking exactly one week before the injury. Both methods have their drawbacks as well as their advantages, and there is a need for further development of methods in this area.

### **Comparisons of individual-level risk of injury estimates from ER studies with aggregate-level data**

Comparative analysis is needed of individual-level estimates of risk of injury (RRs) obtained from ER studies with those estimates obtained from aggregate-level data. These analyses will contribute data on the magnitude of alcohol's causal role in injury as well as inform and improve the estimates of the global burden of disease for injury attributable to alcohol consumption.

### **Studies of capacity development**

While the focus of alcohol-specific ER studies is on damage from alcohol, the work presented in this volume raises awareness of response capacities, systems and gaps in the response network for ER systems and monitoring generally. Thus, future work should include a combination of retrospective analyses as well as pilot studies on how these gaps can be narrowed, and what is required to increase capacity. This line of investigation will likely also involve cost analyses as well as an examination of knowledge exchange models and their relevance to different cultural settings.

### **Brief intervention studies**

In the area of screening and brief intervention (see section IV) the promising findings are mainly limited to studies in developed countries. Further work should explore several themes: who delivers the intervention, the type of ER settings most amenable to this protocol, recidivism outcomes, and the feasibility of on-going implementation. There are opportunities for further work in developing countries that involve fine-tuning of protocols, capacity development and training. This line of intervention and evaluation also has implications for development and application in other settings, such as community health facilities, college health offices, and employee assistance programs. These analyses might be particularly useful in developing a transportable brief intervention package that can be easily distributed across cultures in a multitude of ER settings.

### **Dissemination of research and policy development**

Studies are needed of the best approaches for disseminating major research findings from recent ER studies to inform prevention activities and to encourage consideration of the ER as an epidemiologic resource and a resource to inform brief intervention and policy development.

### **Continued work on alcohol and injuries in ED**

An on-going project for continued work in the area of alcohol and injuries in ER studies is the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP) and the WHO Collaborative Study on Alcohol and Injury which has combined data using the same instrumentation and study protocols (see Chapter 7 by Cherpitel) on nearly 17 000 injured patients and over 10 000 non-injured patients across 46 ER sites in 17 different countries. These data have been used for further establishing the alcohol-injury relationship (see Chapters 1 – Yu and Cherpitel, 2 – Borges et al., 3 – Bond and Macdonald, and 9 – Room), as well as for determining the lifetime risks of injury associated with alcohol consumption to inform drinking guidelines development for Canada (Taylor, Rehm, Room et al., 2008) and Australia (Rehm, Room & Taylor, 2008), and for informing the formulation of revised criteria for alcohol use disorders. Future planned work on this project, with continued funding from the U.S. National Institute of Alcohol Abuse and Alcoholism (Cherpitel PI) includes the addition of similar data from 20 countries with a doubling of the ER sites for, among other research aims, updating estimates of the alcohol attributable fraction of injury morbidity to alcohol, in order to inform comparative risk assessment for the Global Burden of Disease 2005.

### **A Sense of Urgency**

Measuring and monitoring the role of alcohol in injury is an important area for further development. The alcohol policy arena is still under-developed and under-resourced in most countries. Alcohol is the 5<sup>th</sup> leading contributing risk factor to the global burden of disease and disability of the 26 examined (WHO 2002). More than half of the alcohol burden is estimated to be in the form of injury, intentional or unintentional. In light of the increase in consumption in some of the more populous countries it is expected that alcohol-related damage will increase.

ER studies continue to draw attention to the associations and causal links between alcohol consumption and trauma. They also provide a significant resource for those who wish to advocate for greater attention to alcohol issues, and implementation of sound alcohol policies so that the global harms from alcohol can be more effectively curtailed. Further work on the alcohol dimension in emergency services is thus a public health priority.

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