Problems of Enforcement, Adjudication and Sanctioning

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A dozen years ago, the North American continent had half the improved highways and three-quarters of all the automobiles, vans, and trucks of the world. This system served only about seven per cent of the world's population (6).

In spite of the continuing increase of such vehicles on this continent, we are rapidly losing our plurality. The automobile age is exploding everywhere in the world. In Asia, the rickshaw and pedicycle have given way to the truck, bus, motor scooter, and taxi. The bullock cart is fading from Delhi, and the camel from Karachi. In nations such as England and Germany, the man who two decades ago would have denied the need for an automobile is now the head of a two-car family. The traffic jam has become a world-wide problem (7).

All this has happened in about half a century. Sixty years ago North America was producing more horse-drawn vehicles than motor cars. Obviously, as human control of these vehicles replaced animal sense, regulatory systems had to be developed. These eventually became traffic laws, suited to the needs of the day for their particular jurisdictions, but hardly necessary or directly transferrable to those nations still in the primitive stages of motor transportation.

In any nation, mobility through transport goes through a series of stages. First there is low mobility, due to primitive conditions; then comes ox-cart mobility, adequate to carry on inter-tribal or inter-village trade; third is mechanized transport, necessary to support an industrialized society; fourth is the new mobility — the automobile and an efficient mass transport system; fifth is the conquest of distance through air and space travel; and, finally, a return to low mobility through affluence — too many cars, too little fuel, high cost of transportation, strangled streets and highways, and excessive pollution of the atmosphere.

Since the American continent was first to experience the extreme expansion of the automobile, it was also the first to face the need to develop countermeasures against the principal early dysfunction of the system — traffic crashes resulting in death, injury, and property damage.

One of the earliest factors recognized as needing regulation was the impact of alcohol misuse on the transportation system. Such regulatory functions as have been developed for application on this continent are not necessarily directly transferrable to other nations, principally because of differences in road networks, traffic density,

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types of motor vehicles, temperament of drivers, maturation of the driving public, and the cultural use of alcohol. Therefore, because of the extreme variations which exist among nations of the world, and because of the lack of reliable statistics, only nations with high traffic density will be considered, that is, those nations which are heavily involved in the new mobility — the automobile and associated vehicles.

The following discussion attempts to show what is really being done in the law enforcement effort to reduce alcohol related crashes. It also describes criteria for measuring what is actually being done in your own jurisdictions.

About 40 years ago an American jurist (8) studied the role of the American police and courts in the prevention of automobile crashes. He listed four types of offences which were, in his opinion, highly correlated with traffic crashes. These were excessive speed, alcohol, improper lane usage, and following too closely. These crude cause-effect relationships comprise, even today, the basis for classification of our traffic laws.

During the same period about 40 years ago Franklin Kreml2, then a member of the Evanston, Ill., police department, conceived the idea of using accident records as guides for establishing enforcement priorities. This resulted in the concept of selective enforcement, that is, enforcing the laws regulating driver behavior at the times and in the places where traffic crashes attributable to these violations were happening. This was one of the early attempts to make better use of the resources allocated by police agencies to traffic law enforcement.

It is surely more than coincidence that this more specific type of accident investigation and enforcement generated the first roadside survey to determine the frequency of drinking/driving in the general public as compared with the frequency of occurrence of alcohol in the victims of crashes in the same city. It was this study, carried out in Evanston, Ill. under the aegis of the Northwestern University Traffic Institute and the American Medical Association by Richard Holcomb (3) and reported in 1938, that drew attention to the significance of the alcohol component in highway safety. This study, and others which followed, have been cited heavily in the evolution of laws dealing with the drinking driver.

The use of the term 'law enforcement,' in this paper implies the entire system of apprehension by the police, adjudication by the courts or some alternative institution. The imposing of sanctions, shaded from condemnatory and punitive to therapeutic and educational, are also included.

RESOURCES ALLOCATED TO TRAFFIC LAW ENFORCEMENT

In a typical American city, 10 per cent of police resources are allocated to traffic law enforcement, but included in the violations are such mundane offences as blocking driveways and parking violations. Competition for police and court resources is fierce. Except in special traffic law enforcement agencies such as those which exist in New Zealand and some of our American states that have special highway patrols, the police have never been very enthusiastic about their traffic responsibilities. Public demand to control criminal activities has almost always resulted in placing traffic law enforcement in an inferior position.

This situation is not much different in other nations which I have sampled. Very generally, traffic law enforcement is relegated to the patrol function, which must also

2Founder of the Northwestern University Traffic Institute, Evanston, Illinois.
respond to criminal complaints. A rule of thumb measure of the enforcement density in urban areas is one patrol policeman per 1,000 population (9).

In those nations with a low motor car density, such resources for effective traffic regulation may be adequate. But as the density increases, the problem changes dramatically. Police resources and supporting organizations remain relatively fixed, even as road traffic problems increase. This makes the establishment of priorities even more imperative.

There are several approaches to illustrating the traffic safety problem in a nation. Each has its own use. For instance, from the standpoint of making decisions at the top executive level, the basis might be traffic fatality/population ratio, with possible consideration of the age groups affected. Some of the following illustrations are based on the best information available, which is admittedly imprecise.

Figure 1 shows fatalities due to automobile crashes per million population per year in various nations (10). This type of statistic can be used to illustrate the position of traffic fatalities as a cause of death in competition with other causes. If age of the fatally injured persons is considered, the statistics can have actuarial value. For instance, among the nations shown, the percentage of deaths that can be attributed to automobile crashes for all ages of persons is 2.9; however, in the age group 15 to 24 years, the percentage of deaths which can be attributed to automobile crashes is 41. These percentages must be viewed with caution. The figure of 2.9 per cent is based on a 100 per cent death rate since eventually everyone dies. The figure of 41 per cent is based on the relatively small proportion of persons who die in the 15-24 year age group. However, traffic crashes are the principal cause of deaths in this low age group regardless of these considerations.

![Figure 1: Fatalities per million population for 20 countries.](image-url)
Another approach is to measure fatalities against the task being performed—that is, the ratio of deaths per unit of distance driven. Figure 2 shows the number of highway deaths per 100 million vehicle kilometers in the same nations included in Figure 1 (4). The difference in order is obvious. If a nation has a very low density of motor cars, and very few deaths result from traffic crashes in proportion to the population, the problem will probably be assigned very low priority, even though fatalities per unit of distance driven are high. On the other hand, if the number of highway fatalities competes closely with other causes of death, high priority may be assigned to the problem, even though the rate of death per unit of distance driven is low. For instance, the United States, with a rate of highway deaths of 3.3 per hundred million vehicle kilometers, kills more than 56,000 persons per year from a population of somewhat over 200 million. When considering fatalities per million population we see from Figure 1 that the United States is near the top of the list. A governmental administrator or parliamentary body, charged with allocating resources to relieve public health problems, will consider several factors: first, the problem as competitive with other causes of death; second, the actuarial figures which concern the age groups most highly affected; third, the feasibility and cost of countermeasures; and fourth, but not least important, emotional response of the community.

<table>
<thead>
<tr>
<th>Country</th>
<th>Deaths per 100 million vehicle/kms</th>
<th>DEATHS OCCURRING WITHIN 30 DAYS EXCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>KENYA</td>
<td>7.75</td>
<td>BELGIUM D.O.A. AT HOSPITAL</td>
</tr>
<tr>
<td>SYRIA</td>
<td>49.17</td>
<td>JAPAN 24 HOURS</td>
</tr>
<tr>
<td>TURKEY</td>
<td>31.17</td>
<td>FRANCE 5 DAYS</td>
</tr>
<tr>
<td>INDIA</td>
<td>29.17</td>
<td>ITALY 7 DAYS</td>
</tr>
<tr>
<td>YUGOSLAVIA</td>
<td>19.17</td>
<td>U.S. 1 YEAR</td>
</tr>
<tr>
<td>BELGIUM</td>
<td>14.17</td>
<td></td>
</tr>
<tr>
<td>JAPAN</td>
<td>10.17</td>
<td></td>
</tr>
<tr>
<td>ISRAEL</td>
<td>10.17</td>
<td></td>
</tr>
<tr>
<td>FRANCE</td>
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<td></td>
</tr>
<tr>
<td>NETHERLANDS</td>
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<td></td>
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<tr>
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<tr>
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</tr>
<tr>
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<tr>
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<td>SWEDEN</td>
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<tr>
<td>GREAT BRITAIN</td>
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<td></td>
</tr>
<tr>
<td>U.S.A.</td>
<td>3.31</td>
<td></td>
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</tbody>
</table>

Figure 2  Fatalities per 100 million vehicle/kms for 20 countries.

When the problem of highway safety and enforcement of the traffic laws is handed to the enforcement arm of government, the basis of decision changes drastically. The problem now becomes one of attacking the so-called “causes” of fatal crashes that have been translated into traffic law. This means taking a look at the fatality rate or other statistics and deciding, hopefully on valid evidence, which causes as defined by law are contributing most heavily to the problem.

Figure 2 shows that the difference in fatality rates per hundred million vehicle kilometers are enormous. The reasons for these differences are many but we are concerned with the alcohol factor. Figure 3 indicates roughly the percentage of
fatalities which were alcohol related in those nations from which I could elicit figures (4). It is now easy to see why Sweden, England, Canada, and the U.S.A. consider the alcohol component of traffic safety such a high priority factor, and why much attention is being directed at countermeasures against the drinking driver. The drinking driver seems to remain as a stubborn residue even when the traffic fatality rate of a nation is very low. It is also quite obvious why other nations, while recognizing that the alcohol factor is about the same for them on a strictly rate basis, still might assign lower priority to this factor because other factors much more susceptible to less expensive countermeasures still must be regulated.

KENYA
SYRIA
TURKEY
INDIA
YUGOSLAVIA
BELGIUM
JAPAN 8%
ISRAEL 10 (16.257)
FRANCE 13% 8.5 (14.664)
NETHERLANDS 7 (3075)
GERMANY 7 (16.646)
ITALY 6.6 (989)
AUSTRALIA 61 (3382)
FINLAND 13% 6 (1006)
NORWAY 15% 5 (496)
DENMARK 5 (1190)
CANADA 52% 4.2 (5425)
SWEDEN 30% 4 (1275)
GREAT BRITAIN 3.8 (1783) 25%
U.S.A. 50% 3.3 (56400)

Figure 3  Percentage of alcohol related fatalities per 100 million vehicle/kms for 8 of the 20 countries.

It seems that alcohol involvement in fatal crashes is more closely related to the cultural use of alcohol and social stratification of drivers than it is to enforcement and related activities. There is little evidence that law enforcement, adjudication, and sanctions, as currently practised in most nations of the world, have a significant effect. This is without doubt related to the very low level of enforcement, even in those nations of the world which claim to give it great emphasis (1).

To ascertain what is being done about the drinking driver from an enforcement point of view, I collected information from a number of jurisdictions, both in the United States and other nations. On first being asked questions, enforcement authorities often responded with a bit of indignation; but when the actual figures were produced, they had to concede that they fit into an amazingly consistent pattern. The similarity between American and Swedish averages is striking. Police officers in a position to make traffic violation arrests make on the average two alcohol related traffic arrests each year. The range is considerable for individual police officers, but this is the average level of effort being applied to what has been determined to be the number one human factor in traffic safety in America and Sweden. This average is based on dividing the number of police officers in a position to make traffic arrests into the number of arrests actually made per year.
Roadside surveys of occurrence of alcohol in the driving public have shown that when enforcement is at the current level of two arrests per officer per year, and with automobile density what it is in the average congested city today, there are about 2,000 violations for each arrest. A “violation” is a trip from one point to another with a blood alcohol concentration (BAC) of .10% or higher. Thus, in a typical community of one million population, with 1,000 patrol officers making two arrests per man per year, there will be 2,000 arrests and four million violations.

These are very broad cuts, but even if they err by 50 per cent, the problem is still apparent. An arrest rate of 2,000 per year to control four million violations is futile. Even if this rate were tripled or quadrupled or, as usually stated for emphasis, increased 300 to 400 per cent, the attempt would still be feeble. Public deterrence through propagandizing these figures may be effective for a short period, but low perception of actual risk of being caught soon sets in and drinking/driving behavior is bound to regress to the long-term mean. It results in low-yield screening and the basic problem remains untouched, at least in terms of goal achievement — significant reduction of traffic crashes and identification of problem drinkers.

A study conducted a few years ago (2) showed that in a sample of 1,000 subjects from social strata of persons who should have been aware of and influenced by traffic laws, not a single subject was fearful of being apprehended by the police when driving home from a party after drinking too much. This low perception of risk of being apprehended is hypothetically the reason why drinking/driving remains a stubborn residue in those cultures and nations which seem to have reduced traffic fatalities to very low rates.

The big question is, can we afford the resources necessary to achieve general deterrence and at the same time to deal effectively with the individual driver? If the emphasis on therapeutic measures is to be one of our principal goals, it means that we should be screening the corporate whole of the driving population to identify an optimal number of drinking drivers, to classify them as to their drinking problems, and to assign to them the proper sanctioning countermeasures. This might mean increasing our enforcement effort, or at least our apprehension rate by 5, 10 or 15 times our current rate.

The thought of such an increase immediately suggests enormous increases in necessary resources. This need not be the case. A typical American city of one million population makes 325,000 hazardous moving traffic arrests per year. Of these, only three per cent are alcohol related. If patrols were assigned when and where alcohol related offences tend to cluster, the number of arrests need not increase, but the number of alcohol related arrests could increase dramatically. It might mean neglecting some other violations but if alcohol is the highest priority factor, would this not be a logical decision? One important psychological factor must not be ignored. This is the Hawthorne effect (5). Any contact with a driver for any violation will affect his entire driving behavior for some period of time. Is it not logical to increase contacts involving the most significant factors and trust that these contacts will do more for drivers than inhibit only the specific acts for which they are cited such as drinking/driving or speeding.

About a year ago I interviewed a group of police officers and asked them how many alcohol related traffic arrests they had made during the prior year. The answers ranged from none to three. I also asked them how many motorists they had stopped for hazardous moving traffic violations whom they thought should have been tested for BAC and possibly put through the formal system. The answers ranged from 75 to 100.
The reasons for this exercise of police discretion are numerous. Cynicism as to the support the charge of driving under the influence will receive in the courts, empathy with the driver, the feeling that sanctions are far too severe, the feeling that this poor individual (poor in the sense of income) is going to be deprived of a substantial part of his livelihood if he loses his driver’s license, the cumbersome system employed to handle the drinking driver through the charging, arraignment, and court procedures, are among the reasons given. At any rate, I have tried to set out some of the problems faced by those enforcing the drinking/driving laws, which must be met if we are to be effective in the enforcement of countermeasures.

There are three quantitative terms which can describe the level of activity directed at the drinking driver: maximization, optimization, and minimization of enforcement. Maximization is not practical. It would mean apprehending every drinking driver under every type of circumstance.

From the data I have cited, it is obvious that even in our most ambitious programs we are applying enforcement at a minimal level. The question is, what is optimization?

In the present section of these proceedings Professor Ross used the words “optimum enforcement,” and Dr. Havard implied the same. Optimization is a level of enforcement which, coupled with adequate and effective public information, will create a high level of general deterrence. We can hypothesize on the basis of experience in other fields of endeavor that there is a critical point where optimization will be achieved. However, even when this optimum level is reached, it may not be a permanent condition. When the British so-called Breathalyzer Law was enacted and put into action coupled with a very adequate public information program, there was an immediate impact. Dr. Havard called this the “shock” effect. We might say that the level of enforcement, even though very low, coupled with a public information program, was an optimal situation at the time. However, the driving public soon adapted to this situation and regression set in. So what is optimal at one moment may not be optimal at the next. We rebel at inflationary prices but soon acquiesce and adapt to them. Thus, optimization is not necessarily a fixed factor.

Possibly, instead of applying a constant level of effort against a factor such as the drinking driver, it would be more effective to use the principle of occasional re-enforcement. Enforcement would reach the optimal level for some period of time. The effect could be measured by counting the frequency of occurrence of excessive BACs in drivers in the traffic flow by employing roadside surveys. When the effect of enforcement would become quantitatively evident and consistent with pre-determined goals, enforcement could be relaxed until a point of undesirable regression would be reached, when another re-enforcement could be imposed until the desired suppression of the frequency of occurrence of alcohol would again be evident through a roadside survey. This would be a continuous process. Under these conditions a massive amount of the resources allocated to traffic law enforcement could be used during the re-enforcement periods. It would release a large segment of police resources to be used for other purposes during the intervals between the re-enforcement periods. It is hypothetically possible that after a time, the life style of drivers regarding their combining of drinking and driving would be permanently altered.

Our current traffic law systems are based on principles more than 40 years old. They were conceived at a time when people, motor cars, and highways were very different to what they are today. They were conceived when transportation technology was in its infancy. They were conceived before the behavioral and social sciences became involved in the field.
As in any profession it is imperative to re-examine the tools with which we work from time to time to see whether or not they comprise the best of all worlds at the moment. If they do not we must change. Perhaps the Alcohol Safety Action Projects of the U.S. Department of Transportation have been the first real attempt to systematize thinking in this area. Our approach has been largely one of catching a few fish from the sea of drunken drivers and making horrible examples of them. This approach apparently has not been successful. Perhaps we should be looking at the deterrent effect through optimal enforcement as our only primary means of reducing driving while impaired by alcohol, and at the same time identifying an optimal number of problem drinkers who are not only problems in highway safety, but problems in their homes, on their jobs, and in other areas of their lives. It is the only process by which we can obtain legal coercive control on such individuals. This gives meaning to the task. If effective feedback can be provided to the patrol police officer, to the courts, and to the supervisors of sanctions, would this not provide job satisfaction? Would not reduction of frequency of alcoholic drivers, measured by roadside surveys, give added meaning to the activities of the patrol officer? Would not the principle of task variety enrich the police job by reducing monotony? There is nothing more boring than routine police patrol. Would this not increase the perceived omnipresence of the police by sub-populations engaged in other deviant activities proscribed by laws which could also receive occasional emphasis enforcement through such a system of resource allocation?

Apparently we do not have the answers to these questions. To my knowledge such systematic usage of police and court resources has never been employed. All this requires a change in thinking. We must be concerned about the individual driver and at the same time about the public safety aspects as they affect the entire community.

This is a new methodology for the field that requires flexibility in thought. Introducing change into law enforcement and the traditional courts is difficult, but we must always be aware of the implications of an old Chinese proverb: The willow that bends is stronger than the oak which resists.

REFERENCES