The role of police enforcement in the decrease of DWI in The Netherlands, 1983-1991

René Mathijssen and Paul Wesemann
SWOV Institute for Road Safety Research, The Netherlands

1. Introduction

In the early 1970s, no legal limit was in force in the Netherlands yet with regard to the alcohol consumption of road users. At that time, the level of alcohol consumption was still very high. SWOV measurements taken during weekend nights in the autumn of 1973 showed that 15% of motorists had a BAC of > 0.5 pm. The measurements were performed on motorists drawn at random from moving traffic.

On October 1, 1974, a legal BAC limit of 0.5 pm came into force. The police were given breathalyser equipment to allow detection of those suspected of driving under the influence, and the blood test was admitted as legal evidence. The introduction of the new alcohol law was associated with large scale national information campaigns against drink driving. The campaign in general had a fairly low key character and went under the motto "Don't drink and drive". Soon after the introduction of this law, however, the character of the campaigns changed for a brief time. It was even suggested that any motorist who dared to drive after drinking one glass of alcohol was in fact risking gaol. Police enforcement after introduction of the new law was for some time very intensive.

The short term effect of this range of measures was very high. SWOV measurements performed soon after introduction of the new law showed that only 1% of motorists exceeded the permitted BAC during weekend nights (see Figure 1). But in 1975, the proportion of offenders had again risen to 11%, and in 1977 to 12% (Noordzij et al, 1978). Measurements taken in 1981 and 1983 showed that the alcohol consumption of motorists had stabilised at this level (Noordzij, 1984). Although the effect of the amendment in the long term therefore compared very unfavourably with the short term effect, there was still question of a substantial and statistically significant effect.

In the period from 1984 to 1986, the series of SWOV measurements was interrupted, since during this time, no significant legal measures were
introduced that increased the risk of detection, nor did punitive measures against motorists found driving under the influence become more severe. Only in 1987 did the measurements commence again, due to the gradual introduction after October 1, 1987, of breath testing which carried evidential weight. These measurements, performed in the months of August and September, showed the proportion of motorists driving under the influence on weekend nights to have meantime dropped to 8%. In 1988, a further drop to 6% was noted, followed by consolidation in 1989. In 1991, the proportion of motorists driving under the influence proved to have dropped even further - to 4%, in fact (Mathijssen, 1992a). It is not possible to determine with certainty when exactly this 1980s drop commenced, but the change in the number of registered alcohol accidents would indicate that 1985 represented the turning point.

2. Factors of influence

It cannot be said with certainty which factors influenced the development of driving under the influence since the early 1970s, nor the degree to which they were responsible. It is likely that a combination of factors served to reinforce each other. For example, it is assumed that the early, very marked effect of the law amendment that came into force in 1974 was mainly due to the fact that road users estimated the risk of detection to be much higher than it was in actuality. Although police enforcement had indeed increased markedly, the
relatively high cost of the breathalysing equipment meant that road users were only tested if they showed outward signs of alcohol consumption. In addition, early breathalysers proved to be a fairly unreliable method of detection, and in many cases provided a false positive result. These factors rapidly led to primarily serious offenders having to undergo a blood test. In addition, the impracticality and the high costs of the blood test, as well as the effect on the physical integrity of suspects, played an important role in this regard. When, after some time had passed, it became clear that the chance of being caught was (much) less great than initially feared, many road users lapsed back into their old drink driving habits.

The people behind the national information campaigns were quick to ascribe the drop manifested in the mid 1980s to the more severe tone of the campaigns: "Alcohol, all too easily a crime" (1984/1985); "Cheers, there you go" (1986); "Alcohol, not when I drive" (1987); "Alcohol and traffic don't mix" (1988).

During that same period, however, a number of additional developments occurred, that in retrospect could also have offered a major contribution to the drop in driving under the influence:
- 1984: Gradual introduction of electronic breathalysers to replace the original equipment, so that the likelihood of false negative results decreased and the cost per breath test became less.
- 1985: Gradual transition from selective to random police controls (random breath testing), leading to a marked increase in the risk of being caught.
- 1987: Introduction of breath tests for evidential purposes, increasing the efficiency of police enforcement.
- 1988: Introduction of "tit for tat" policy for lesser offenders (sanction proposal immediately following the evidential breath test); Introduction of special public transport for visitors to discos, the so-called 'disco buses.'
- 1989: Growing popularity of low alcohol and alcohol-free beers.
- 1991: Marked expansion of "tit for tat" policy by the Justice Department (more serious offenders also received a fully completed summons immediately after being breathalysed for evidential purposes, usually accompanied by a settlement proposal).

To what extent each of these possible factors of influence has contributed to the positive change in alcohol consumption in traffic is difficult to establish, due to the many possible interactions. However, it is clear that police enforcement plays an essential role in counteracting driving under the influence, as will be shown in the following section. Not only the number of man hours invested, but also the enforcement strategy is of importance in this regard.
3. Effects of police enforcement

In order to discover whether driving under the influence can nevertheless be substantially reduced at a realistic level of police enforcement, the city of Leyden and surrounding municipalities were subjected to a enforcement experiment at the end of 1988, for the duration of one year. The experimental area represented approx. 200,000 inhabitants.

The most significant characteristics of the experimental enforcement in Leyden and the surrounding municipalities included:
- a high enforcement level at the start of the experiment, followed by a gradual tapering off: in the second half of the year, police effort was less than half the effort expended during the first half of the year (71 versus 152 man days);
- controls by small investigation teams of 2 to 4 policemen;
- stopping motorists at random, all of whom had to undergo a breath test (random breath testing);
- very conspicuous controls at places and times with a high traffic volume and a small number of offenders;
- unobtrusive controls at places and times with a low traffic volume and a large proportion of offenders;
- great continuity in enforcement during the entire experimental period; at least once a week, random alcohol control took place somewhere inside the area of enforcement;
- extensive publicity surrounding increased police enforcement; the major aims included:
  (a) to increase the subjective risk of getting caught; emphasising the continuity of enforcement, also by regularly publicising control results; emphasising the accuracy and reliability of detection equipment, and the ensuing certainty of being caught if stopped;
  (b) to increase public knowledge about the legal limit, the risks of driving under the influence and about sanctions against those offenders caught;
  (c) to keep the public informed about positive developments concerning driving under the influence (through regular publication of an 'alcometer' graph);
- unpredictability of control locations and times for the public, through frequent relocation of control teams.

During the experiment, the police tested 7250 motorists at random for alcohol consumption. This is equivalent to 1 test per 28 inhabitants of the enforcement area, or 1 test per 14 motorists.

In the year preceding the experiment, the Leyden police twice held a very large scale blitz on drink driving, when the total police capacity amounted to about half of that used during the experimental year. In comparison, controls held in the preceding year only required a proportion of the motorists stopped to submit to a breath test.
The behavioural effects of the experimental enforcement programme were determined with the aid of a before, during and after measurement. The during measurement took place halfway during the experimental period, to determine the short term effect of the stepped up enforcement, the after measurement was taken to determine the long term effect. During all three measurements, motorists were stopped at random during weekend nights and tested. The days, times and locations at which each of the measurements occurred was the same at all times. With the before measurement, the random test included 669 motorists; with the during and after measurements, 1000 and 1033, respectively.

During the course of the experiment, the proportion of motorists with a BAC of > 0.5 pm dropped from 8.1% to 6.0% (significant at a 10% level: \( Z = 1.65; P = 0.10 \)). This lower level was already achieved at the time of the during measurement (see Figure 2).

In the rest of the Netherlands, the proportion of motorists driving under the influence during weekend nights between the end of 1988 and the end of 1989 did not drop (Bakker & Verschuur, 1990; Mathijssen, 1991).

Local differences in police enforcement are immediately expressed through the alcohol consumption of road users. This is also shown by an evaluation study with respect to a large scale enforcement and publicity campaign in the province of North Brabant. The campaign was conducted between the end of November, 1989, and the end of February, 1990. During the campaign, the North Brabant police checked 80,000 drivers at random for alcohol intake.

![Figure 2](image_url). Car drivers > 0.5 pm, Leyden.
This is equivalent to approx 1 control per 25 inhabitants of the province. By means of a before and after measurement, the SWOV determined the behavioural effects of the campaign in North Brabant on the alcohol consumption of motorists during weekend nights (Mathijsen, 1990). The before measurement was carried out in early November 1989, the after measurement in March/April 1990. During the before measurement, 1212 motorists were tested at random, and 1337 during the after measurement. The sample included eight enforcement areas; four of these were already subject to a high level of enforcement prior to the campaigns, while in the four other areas a low level of enforcement existed prior to the campaign. In the areas with a low level of enforcement, 9% of motorists were found to be driving under the influence during weekend nights prior to the campaign, compared to 4% in the areas with a high level of enforcement (see Figure 3).

In the adjoining enforcement areas of two national police corps, the importance of enforcement was even more marked. In one area, where the police hardly exercised any control, 17% of the motorists were driving under the influence. In the other area, which was subject to a high level of control, the recorded level was only 3%.

During the campaign, all areas from the sample were subject to intensive police enforcement. Upon completion of the campaign, no difference was found between the two area groups: after measurement showed that for both groups, 4% of motorists had a BAC of > 0.5 pm.

![Figure 3. Car drivers > 0.5 pm, North Brabant.](image-url)
The SWOV evaluations of alcohol campaigns in North Brabant between 1990/1991 and 1991/1992 showed that alcohol consumption of motorists appeared to have stabilised at the relatively low level found after the 1989/1990 campaign. Significant differences between alcohol consumption before and after these campaigns were no longer found (Mathijssen, 1992b). In the periods between the campaigns, drink driving control in North Brabant tended to be at a low to very low level.

The study results for Leiden and North Brabant as discussed above demonstrate that intensive, random alcohol controls by the police can have a marked effect on the alcohol consumption of road users. Such an effect can be achieved within a period of several months, and can subsequently be maintained over a fairly prolonged period (at least 9 months) at a considerably lower level of police enforcement.

References


