POLICE ENFORCEMENT OF DRINKING AND DRIVING LAWS: 
a field study of police decisions for requiring a roadside breath test

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INTRODUCTION
Prior to arresting a driver on suspicion of alcohol intoxication, a police
officer needs good reason to believe that such an arrest is justifiable. He
is then often forced to rely on his own judgement, and often looks for gross
signs of impairment. Unfortunately, these signs may only be apparent by
rather high Blood Alcohol Concentrations (BAC). Sobriety test batteries have
been tested (1,7), but they can be rather complex, are not yet in widespread
use, and are unnecessary when accurate roadside breath testing devices are
available. Even when accurate devices are available, until random breath
testing or the use of adequate passive alcohol sensors becomes widespread,
officers are still forced to rely upon their own judgement in deciding whether
to test a given driver.

Several studies (1,4,5,6,7) have investigated the accuracy of this deci­sional process. However, these studies have often been conducted in rather
artificial settings with pre-selected and -dosed subjects, have achieved
widely disparate results, have employed decisional aids, or have used the
decision to arrest as criterion instead of the decision to test. Furthermore,
they have often been conducted in jurisdictions with higher permitted BAC
levels than the 0.05% presently allowed in the Netherlands.

This paper presents part of the results of a field study which investi­
gated the quality of police officers' unaided decisions for requiring a
roadside breath test in a (semi) natural setting.

METHOD
About 60 police officers stopped approximately 930 randomly selected drivers
during weekend nights over a period of two months in three different cities.
These officers were asked if, in their judgement, the driver in question
should be breath tested. If a breath test was not indicated, that driver was
nevertheless requested to consent to a voluntary test. Breath test data was

* For a complete report the reader is referred to Gundy & Verschuur, 1986a.
**This study was conducted by order of the Ministry of Transportation and
Public Works. Two related studies were conducted: Gundy & Verschuur, 1986b
and Tijssen, 1986.
obtained for 95% of all drivers stopped.

Prior to any testing, officers were asked to estimate the driver's BAC and to indicate whether there were any reasons to suspect alcohol use or impairment. In addition, all drivers were requested to consent to an interview.

The Dräger Alcotest 7010 was used for breath testing. This device uses infrared absorption and converts breath alcohol concentrations to BAC.

RESULTS

These police officers seem to have been quite strict in their decisions to administer a breath test (see Table I). They tested (almost) all drivers who they suspected of exceeding the legal limit and a large majority of drivers only suspected of having consumed some amount of alcohol. Officers tested few drivers who were thought to have consumed no (or very little) alcohol.

TABLE I
PERCENTAGE MANDATORY BREATH TESTS PER ESTIMATED BAC CLASS

<table>
<thead>
<tr>
<th>BAC Class</th>
<th>&lt; 0.02%</th>
<th>0.02%–0.05%</th>
<th>0.05%–0.08%</th>
<th>&gt;0.08%</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Drivers</td>
<td>609</td>
<td>180</td>
<td>80</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>Percent Tested</td>
<td>8%</td>
<td>81%</td>
<td>98%</td>
<td>100%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Officers indicated that alcohol odor or the drivers' admission of alcohol use were the primary reasons for suspecting alcohol use. Other reasons, such as bloodshot eyes or strange odors, were also mentioned. Slurred speech, poor motor coordination and such were only rarely indicated.

The presence of any indication of alcohol use appeared to justify breath testing, the officers being apparently willing to err on the side of caution. (This attitude was possibly influenced by the presence of interviewers.) Nevertheless, they apparently tried to avoid unnecessary testing, and a large majority of them opposed random breath testing. (Even so, about 90% of the drivers interviewed thought that breath testing was justifiable in their own case, even though unnecessary.)

Despite the cautious approach of these officers, they only tested about 75% of the drivers with BACs above the legal limit, and about two thirds of those who had a BAC larger than 0.02% and less than 0.05%. (See Table II.)

This result is somewhat worse than Compton's (1) (unaided) officers who suspected about 87% of the (pre-selected) group of drivers with BACs
TABLE II
PERCENTAGE MANDATORY BREATH TESTS PER ACTUAL BAC CLASS

<table>
<thead>
<tr>
<th>BAC Class</th>
<th>&lt;0.02%</th>
<th>0.02%-0.05%</th>
<th>0.05%-0.08%</th>
<th>&gt;0.08%</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Drivers</td>
<td>672</td>
<td>98</td>
<td>64</td>
<td>54</td>
<td>43</td>
</tr>
<tr>
<td>Percent Tested</td>
<td>19%</td>
<td>65%</td>
<td>73%</td>
<td>78%</td>
<td>14%</td>
</tr>
</tbody>
</table>

greater than 0.05%. On the other hand, McGuire's (4) trained graduate students were able to point out with certainty only 21% of a random sample of drivers whose BACs exceeded 0.1%.

Table III shows the distribution of estimated BACs per measured BAC class. About 70% of the BACs were correctly predicted, a chi square test was highly significant \( p = 0.001 \), and a (non-linear) correlation of about 0.60 was found. It would appear that these officers are quite capable of predicting BACs. Nevertheless, it also appears that there is an overestimation of very low (less than 0.02%) BACs, which is partially explainable by a floor effect, and an obvious tendency to underestimate higher BACs, which is not due to a ceiling effect. (Higher estimated BAC classes were available but hardly used.) About 60% of the drivers who exceeded the legal limit of 0.05% were estimated as being under that limit and more than 90% of the drivers with a BAC larger than 0.08% were thought to have a smaller BAC.

These results are comparable with Compton's (1), with the exception that he found no underestimation of the higher BAC classes. This exception may be partially explainable by sampling and procedural differences.

TABLE III
ACTUAL VERSUS ESTIMATED BAC CLASSES

<table>
<thead>
<tr>
<th>Actual BAC Class</th>
<th>&lt;0.02%</th>
<th>0.02-0.05%</th>
<th>0.05%-0.08%</th>
<th>&gt;0.08%</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Drivers</td>
<td>672</td>
<td>98</td>
<td>64</td>
<td>54</td>
<td>43</td>
</tr>
<tr>
<td>Estimated BAC Class</td>
<td>&lt;0.02%</td>
<td>81%</td>
<td>31%</td>
<td>27%</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>0.02%-0.05%</td>
<td>13%</td>
<td>47%</td>
<td>38%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>0.05%-0.08%</td>
<td>4%</td>
<td>16%</td>
<td>30%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>&gt;0.08%</td>
<td>0%</td>
<td>3%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>?</td>
<td>1%</td>
<td>3%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
DISCUSSION AND CONCLUSIONS

These results indicate that under reasonably ideal field conditions and with accurate breathtesting equipment, unaided police officers can correctly indicate a breath test for about 75% of drivers exceeding a legal limit of 0.05% when a cautious selection criterion is used. They are also capable of estimating a driver's BAC, even though there is a pronounced tendency to underestimate BACs higher than 0.05%. (It is not clear if this last tendency also generalizes to very high BACs, the sample size here being inadequate for this purpose.)

These officers' performance appears to be reasonably satisfactory, albeit not perfect. However, under less than ideal conditions (which may be much of the time), officers may tend to relax their criterion and select breath testing candidates on the basis of higher estimated BACs (or some surrogate measure thereof). If, in those cases, they also consistently underestimate actual BACs, then they may unintentionally miss a disproportionately increasing percentage of drivers whose BACs exceed the intended criterion.

REFERENCES


