Summary Evaluation DIV

Driving under the influence of drugs part 2: research into the work processes and saliva drug tester, conditions regarding storage and transport of blood and data registration

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Summary

1 Reason for research

With effect from 1 July 2017, Article 8 of the Road Traffic Act has been expanded with paragraph 5 to better tackle driving under the influence of drugs – or as we call here: drugged driving. This can contribute to increasing road safety. The amendment to the law provides, among other things, for a set of instruments with which the police and the judicial authorities can more easily determine the use of drugs. The police are thus authorized to test road users for drug use by means of a saliva drug tester and by examining the psychomotor functions and eye and speech functions (by means of a psychomotor test or PMT). If the saliva tester or PMT has a positive result, a blood test will follow. If, based on the blood test, the concentration of drugs turns out to be above the limit value set by AMvB or if combined use of drugs or one or more drugs and alcohol exceeds the limit value set for that purpose, this is a criminal offence.

During the consideration of the proposal to amend the law in the Lower House (in Dutch: Tweede Kamer), various parties asked for an evaluation of the new law. In response, the Minister of Security and Justice undertook to evaluate the law five years after the amendment of the law (Acts of the Second Chamber, 32859, no. 28, p. 20). With a view to this evaluation, a study was conducted in 2015 and 2016 to describe the state of affairs before the law came into force and the use of the saliva drug tester (Abraham and Nauta, 2017, DSP-groep). On behalf of the Directorate General for Police (DGPol) and the Directorate General for Justice and Law Enforcement (DGRR), the Scientific Research and Documentation Center (WODC) of the Ministry of Justice and Security (JenV) has commissioned DSP-groep to carry out a study of the situation after the law amendment came into effect. In addition, this study must provide insight into the requirements for storage and transport of blood samples and the necessary data collection with a view to the mandatory evaluation five years after the law comes into effect.

2 Problem definition

The research has the following threefold problem definition (main questions) that are subsequently elaborated into research questions:

A. How is the drug testing process going?
B. What requirements should be set for the storage and transport of blood taken as part of a drug test, so that the degradation in the quantities of substances does not lead to the result being wrongly below the limits of the tested drugs?
C. What information is needed for the evaluation of the law in five years and is this information collected and stored in current practice?

3 Research approach

To answer the research questions, various methods of research were used: literature and file research, interviews with chain partners and external experts, a survey among police officers, analyses of registrations from the police, the Netherlands Forensic Institute (NFI) and the Public Prosecution Service (OM) and file research within the business process system from the police. Below we describe the findings on the basis of the research questions and draw conclusions.

When reading the findings, it is important to emphasize that the implementation of the new work process to be evaluated is still ongoing at the time of our study. In addition, a temporary adjustment of the work process has taken place. This has led to the postponement of part of the fieldwork. Fieldwork thus took place from the autumn of 2017 until the end of 2018.

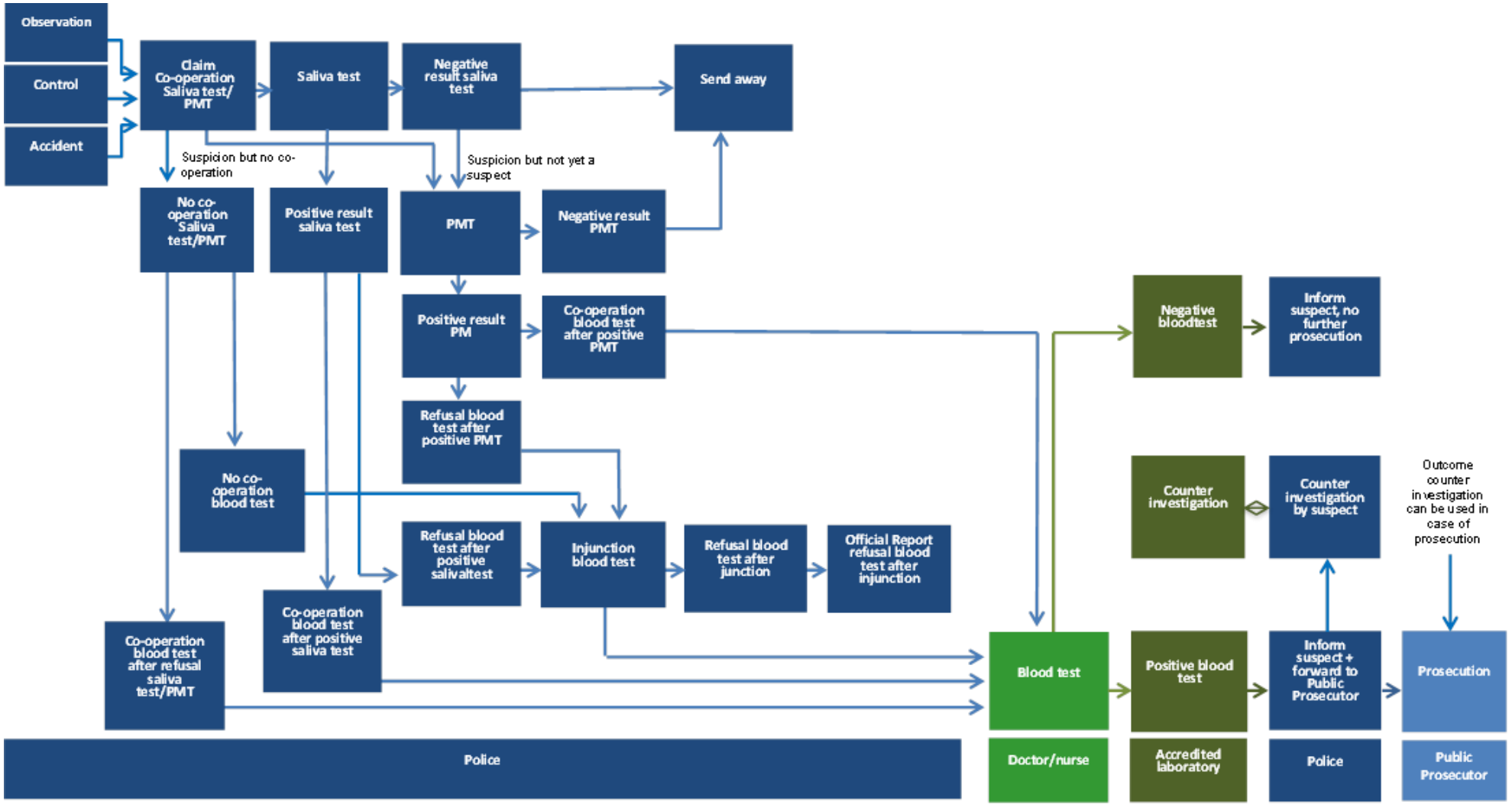
Due to the ongoing implementation at the time of the study, the situation as described is a 'snapshot'. Moreover, results at the time of publication of the report may be partially outdated. Also after January 1, 2019 - outside the scope of this study - a number of changes to the work process are foreseen (regarding storage and transport of blood by the police, the role of the NFI and other laboratories).

4 Process of drug testing in traffic

The answer to the main question how the drug testing process in traffic proceeds is based on the following research questions.

Are all steps in the process taken as they are supposed to under the new law in the tests (saliva drug test and PMT) by the police, in the blood test and in the counter test?
The amendment of Article 8 of the WVW 1994 relates to a number of subjects. The most important are the introduction of limit values above which the use of nine designated drugs in traffic is punishable, the basis for the use of the saliva tester and PMT and the description of the process of suspicion of evidence. The designated drugs are: amphetamine, methamphetamine, MDMA, MDEA, MDA, THC (cannabis), cocaine, heroin / morphine and GHB. The amendment to the law has been further elaborated and made concrete in the accompanying Decree and Regulation on alcohol, drugs and medicines in traffic.

Figure 1: schematic simplified representation of the detection and prosecution of drug use in traffic



The work process consists of various steps. It is a chain process in which the police, NFI / laboratories and the OM each have their role in enforcement, investigation and prosecution. The various steps for testing for drugs in traffic are shown in the previous figure. (This research does not consider the administrative trajectory of tackling drugs in traffic.)

At present, the course of work processes is broadly in line with what is deemed to be under the new law. There are, however, a number of components for which that is not (yet) the case. We discuss the individual components below on the basis of the research questions. Note that further development and further implementation are still taking place in parts.

Saliva drug tester

Do the actors involved carry out the steps as agreed? What works and what needs improvement?
At the time of the research (2018), the course of the work process with regard to the saliva tester broadly meets what was agreed: the police use saliva tests to obtain indications of drug use in traffic, both in the event of a suspicion of drugged driving, and without a suspicion. This is in accordance with the law, although the work instruction does not address the latter (deployment without suspicion).

Not all police staff involved use the saliva testers yet: the new working method has not yet been implemented in all units and the priority given to drugs in traffic also differs per region / team. Furthermore, there has been a temporary adjustment of the work process whereby only in the case of serious traffic accidents and (demonstrable) drug cases, the saliva tester and application for blood analysis has been used. This temporary adjustment was made because the NFI could not handle the number of requested blood analyzes at that time (see also blood analysis).

The majority of police officers involved, however, have gained experience with the new work process. These police officers are in general content with the saliva tester. It is a simple tool to establish a suspicion of drug use. A few practical points for improvement have been mentioned, in particular with regard to the user-friendliness, speed and storage conditions.
How many people have delivered saliva at the request of the police through a saliva drug tester?
Based on this study, no clear picture was obtained of the number of people who had given up saliva or the number of saliva testers used. There is, however, insight into the number of police registrations of driving under the influence of drugs / medicines (D20), which in 2018 amounted to almost 6,000. This number can be seen as a rough approximation (and lower limit) for the number of saliva testers and PMTs used.

What was the specific cause of the suspicion of possible drug use?
Suspicion of drugged driving arises mainly due to abnormal driving behavior during dynamic checks, among other, and drug-related objects and odor in the car. In addition, a suspicion is also established (and immediately confirmed) based on the results of the saliva tester and PMT.

How often did the suspect refuse the saliva drug test?

Most suspects cooperate without problems when asked. In the survey, police officers indicated that 5% of the suspects refused the saliva test.

How often did the saliva collection by the police fail and why?

Based on this research, no statement can be made about the number of failed saliva tests.
According to respondents, few failures occur. Failures occur mainly due to problems with reading the results or when the suspect's mouth is dry, so that limited saliva is available for testing. After a failed saliva test, a PMT can still take place.

What results has the saliva drug tester yielded?

Based on this study, an approximation can be given of the number of positive saliva tests, but not of the number of negative results. From police registrations it can be calculated how often a registration was based on a positive result from a saliva tester. In 2018, there are approximately 5,400 tests with positive results, based on limited file research (reliability margins taken into account).

PMT

Do the actors involved carry out the steps as agreed? What works and what needs improvement?

In addition to the saliva tester, the police can also establish a suspicion of drug use by means of a PMT. In practice, police officers use the PMT to confirm a suspicion of drug use, if the saliva tester does not indicate drug use (negative result or failed test), if there is no saliva tester available or if the investigating officer prefers the PMT. This is in accordance with agreement and law. In addition, the police also use separate elements of the PMT (also referred to as PMT characteristics), in order to get a first indication whether, for example, a saliva tester should be used.

Police officers indicate in interviews and in the survey that the PMT requires an extra administrative battle and they have the idea that the test is subjective (despite the fact that the PMT is a validated instrument if used properly). Respondents indicate that the individual PMT characteristics are useful in order to get a quick first impression of possible drug use. The term PMT is used by police officers for both the (complete) validated test and the individual PMT characteristics.

How often did the police investigate psychomotor and eye and speech functions because there was a suspicion of drug use?

Based on this research, no statement can be made about the number of PMTs deployed. However, the survey among police officers shows that the PMT is used considerably less often than the saliva tester to determine the suspicion of drug use.

What was the foundation of the suspicion?

Suspicions of driving under the influence of drugs whereby a PMT is used do not differ from those of cases where a saliva drug test is used. Suspicions are mainly due to abnormal driving behavior during dynamic checks, abnormal driver behavior, and drug-related objects and odor in the car.

How often is the saliva drug tester used in addition to the PMT?

The use of both the PMT and the saliva tester is rare. One respondent indicated in the survey that first a saliva test was started and then, after its failure, the PMT was used. According to respondents, the combination does sometimes occur that some loose PMT characteristics are used first, and then a saliva test is taken.

Blood collection

Do the actors involved carry out the steps as agreed? What works and what needs improvement?

If there is a suspicion of drug use, the police request or recommend cooperation in a blood test. Blood must be collected within 90 minutes. Transferring suspects to the police station and taking blood occurs generally without problems and as intended, with the exception of the 90-minute deadline (see below). The blood collection is always done by doctors. The law also facilitates the possibility of having blood collected by nurses. This does not (yet) happen in practice.

How often has blood collected at the request of the police been sent to the NFI for research into drug use?

Various sources can be used to calculate the number of applications and these all paint the same picture. According to NFI figures, around 5,000 blood tests were conducted in 2018 at the request of the police. On the basis of file investigations by police registrations, an estimated 5,000 blood samples were taken in 2018 for research into drug use and sent to the NFI (confidence margins considered).

How often has the blood been taken or not taken within the statutory period?

In most cases, the doctors are present within 90 minutes and able to take blood (85% according to the survey among police officers). Sometimes this period is not met, because of long physician arrival times (travel distance). At the Public Prosecution Service it is unclear to what extent the 90-minute period is a fatal period and acquittal should follow if this period is exceeded.

Blood test

Do the actors involved carry out the steps as agreed? What works and what needs improvement?

The NFI or another accredited laboratory carries out blood tests to determine the extent to which the designated drugs are present in the blood. This is done as required by law. Initially, the NFI was the only laboratory that conducted blood tests. However, the number of blood test requests turned out to be larger than expected. This led to capacity problems at the end of 2017 and the beginning of 2018: the NFI was unable to handle the large number of blood tests and this led to backlogs. To solve this problem, it has been temporarily agreed with the police to be cautious with using saliva drug testers and requesting blood tests,

and extra capacity has been sought from external laboratories. The law offered opportunities for conducting blood tests at external laboratories, provided they meet the quality requirements and procedures. A tender was started for finding external laboratories and a selection of laboratories took place. From April 2018, a German laboratory performs blood tests in addition to the NFI. The work process is since adapted: the NFI sends a selection of singular blood tests (one drug study) to the German laboratory that performs the blood tests.

The law also states that the laboratory must conduct research within 14 days. In the beginning, this period was not met due to capacity problems at the NFI. Improvements have been made at the end of 2018 due to more laboratory capacity, but it still appears to be difficult to meet the deadline with extensive research (into two or more drugs).

How are blood samples transported to the NFI?
In 2018, blood samples are not cooled and sent to the NFI in so called blood blocks: plastic isolated and in-lined boxes. Any transport of blood samples from the NFI to the laboratory in Germany takes place on dry ice.
The blood samples are accompanied by application forms from the police. In some cases, applications are incomplete, which means extra work for the NFI. This takes time and capacity. (For a further elaboration and the requirements that must be met for storage and transport of blood samples, we refer to section 5).

What values has the blood test yielded? Which drugs (or combinations of drugs, or drugs and alcohol) were involved?
The results of the requested blood tests are mostly positive. Various sources have been consulted to determine to what extent the results of the blood test are positive. Based on research into police files, this appears to be the case in 74% (reliability margins taken into account). This means that of (at least) one of the designated drugs the permitted limit value is exceeded. The NFI estimates that around 90% of blood tests result in a positive outcome.

Based on this study, no overview can be given of the values that the blood test yields. Based on OM data we get an impression of which drugs are involved. In more than half of the closed cases (2018) it appears that there is a single drug use, while the other half involves combination use. The combination of multiple types of drugs is more common than the combination of drugs with alcohol (5: 1). The most commonly found substances are: THC, amphetamines and cocaine.

Did the results of the blood test match those of the saliva drug tester?
We concluded earlier that the results of the requested blood tests are for the most part positive (90% estimated by the NFI; 74% based on research into police files, reliability margins taken into account). This implies that in those cases the results of the saliva testers or the PMT that preceded the blood test, corresponded to the results of the blood test. Note that decay occurs between the moment of application

of the salivary tester or PMT and blood sampling and the moment of blood tests (see section 5), which may also explain a possible discrepancy in results.

Counter investigation

Do the actors involved carry out the steps as agreed? What works and what needs improvement?
According to the law, the suspect is entitled to a counter investigation. In the initial phase of implementation, the police sometimes fails to report the right to a counter investigation. This does take place now and is also recorded in the police report and in the letter from the police in which the suspect receives the result of his/ her drug test. The laboratory that carries out the first blood test sends the extra blood tube to a laboratory of the suspect's choice where a counter investigation is conducted, in accordance with the agreement.

How often has counter research been performed? What was the outcome of that? Did it match the outcome of the NFI investigation?
Little use has been made of the right to a counter investigation. It is estimated that the NFI applied for about 15 counter investigations in 2018. As the suspect is the owner of the results of the counter investigation and is not obliged to share the results, the results are unknown (also with the Public Prosecution Service, among others).

5 Requirements for storage and transport of blood

To answer the main question *what requirements should be set for the storage and transport of blood, taken in the context of a drug test, so that the breakdown in the quantities of substances does not lead to the result being wrongly below the limit values of the above-mentioned substances*, we use the research questions below.

What is the influence of external circumstances on the quality of the blood sample?
The quality of the blood sample is determined by its stability: the extent to which concentrations of drugs remain in the blood and are not broken down into other substances. After all, a certain amount of the drug is required to demonstrate concentrations above the set limit values.
The most determining factor for stability is temperature, in this case during storage and transport of blood samples by the police. (At the laboratory the blood sample is frozen
(<-20 C).) The proper requirements for storage and transport of collected blood tubes should be based on the most unstable drug. Cocaine and THC at a low concentration are the most unstable drugs with a maximum of 1 day of stability, which means that the concentration of the drug is reduced in 1 day by up to 15% in blood tubes at room temperature. This period is longer for refrigerated storage and transport.

Based on current knowledge, it can be stated that the blood sample should be stored and transported in a refrigerator or frozen as soon as possible after collection (including counter sample). However, there is no

consensus about the storage and transport temperature. No specific validated data is available about the stability of the drugs under the various possible storage conditions. Further research is needed to make conclusive statements.

At the end of 2018, the police made provisions at the police stations to freeze and store blood after collection and to have the blood samples transported refrigerated (from spring 2019).

Required information for evaluation of the law

The main question *which information is needed for the evaluation of the law in five years, and whether this information is collected and stored in current practice,* is answered on the basis of the following research questions.

What information is needed for the evaluation of the law in five years' time? Is this data collected? Is this data stored? How long is this data stored for?

Within the evaluation of the law in five years' time, it must be established what changes will occur after the implementation of the new law. Based on a policy logic (see section 0.1; Abraham and Nauta, 2017), possible expected changes have been designated for the various parts of the law. For these possible expected changes, it has been checked which data is available. The results are shown in the table below.

Table 1. Summary registrations per change after legislative change, ordered by availability and retention period

Change after amendment Law	Source	Score availability[1]	Score retention period[2]
(More often) a blood sample in connection with suspected violation of drug use in traffic	Overview of registrations NFI / laboratories and Research police files	+	+
(More often) a fine as a result of drugged driving (Article 8 (5))	Registration Public Prosecutor	+	+
(More often) prosecution as a result of drugged driving (Article 8 (5))	Registration Public Prosecutor	+	+
(More often) punishment by the court for drugged driving (Article 8 (5))	Registration Public Prosecutor	+	+
(More often) order to counter investigate	Research files NFI / laboratories	+/-	+
(More often) Official Report due to suspicion of drugged driving	Registrations police and research police files	+/-	+
(More often) positive outcome of blood test	Registrations NFI/laboratories, Research files	+/-	-

[1] + Requested information is available and 'easy' to deliver; +/- Requested information is available but not complete. For example, there is a too short retention period (not all information is retained for five years or more), a possible bias because not all requested items can be conclusively selected, and / or there is an estimate based on a sample; - Requested information is not available.
[2] + Requested information has a retention period of 5 years or longer; - Requested information has a retention period of less than 5 years.

Change after amendment Law	Source	Score availability[1]	Score retention period[2]
	NFI/laboratories		
(More often) positive outcome of saliva test	Research police files and research files NFI/laboratories	+/-	-
(More often) positive outcome PMT	Research police files and research files NFI/laboratories	+/-	-
(More often) use of saliva test in connection with suspected drug use in traffic	-	-	n.v.t.
(More often) use of PMT in connection with suspected drug use in traffic	-	-	n.v.t.
Better assessment of investigating officer about ease and reliability of detection	-	-	n.v.t.

Is it possible to evaluate the law in five years' time on the basis of this information? If not, what is needed to make the evaluation possible?

If an evaluation is to be carried out on those parts of the law that are laid down in the policy logic described above, a number of data must be additionally registered. This concerns data to gain insight into the numbers of blood analyzes and the number of positive results (and counter-examinations). Agreements must also be made about the times / frequency at which data must be supplied and the retention period of data at the NFI and other designated accredited laboratories. When it comes to aggregated data, these are not bound to retention periods. Agreements have been made with the laboratories (end of 2018) about data that is to be kept. Finally, in addition to consulting registrations for an evaluation, it is also necessary to listen to the chain partners themselves, by conducting interviews and a survey.

6 Conclusions

This study looked at the process of detection and prosecution of traffic participation while being under the influence of drugs. Results show that police officers involved find the new process an improvement. Compared to the past, detection of the offence to drugged driving has been simplified and improved, mainly thanks to the introduction of the saliva drug tester. The number of police registrations of driving under the influence of drugs / medicines (D20) in 2018 was about 6,000, almost five times as many as before the amendment of the law.

It appears that the saliva drug testers and PMT are reasonably valid tools for selecting potential drug users, according to the predominantly (but not only) positive results of the blood analyzes after taking the saliva test and PMT. More than 5,000 blood analyzes were carried out for this new method in 2018 (compared to around 1,000 before the amendment of the law).

For the time being, the new work process seems promising. However, it is important that enforcement and detection of drugs in traffic are given sufficient priority and the new work process is implemented in all units, and improvements are needed in the effectuation. As from 1 January 2019 the new work process is operational in nearly all units.

The procedure was also amended and improved several times during the first 1.5 years following the amendment of the law. Therefore, in 2018 there is no crystallized implementation practice. In addition, a number of more fundamental questions need to be answered, such as the legal consequences of exceeding the 90-minute limit. Case law will provide more clarity on this (and the Public Prosecution Service has made this known to the JenV legislative lawyer).

In addition, the study confirms that the conditions that will apply from spring 2019 on the storage and transport of blood by the police are in accordance with current knowledge.

Finally, the study shows that additional information is required if a full evaluation is to take place of all of the expected effects of the law.

7 What next?

This study provides insight into the situation until the end of 2018. Implementation will be continued until 1 July 2019 in accordance with the planning. Furthermore, from 1 January 2019 new laboratories will perform blood analyzes and the NFI will be given a different role (only performs additional blood analyzes and blood analyzes for the national unit and KMAR). It would be useful to perform a brief process evaluation prior to the evaluation in five years' time after the amendment of the law. A possible prevalence study into drugged driving can be conducted to also measure the social effects of the law.

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