



# Swiss federal DNA profile information system

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## Abstract

On 1 July 2000, the Swiss Federal Council set the legal ordinance for the DNA Profile Information System, which has been operational since August 2000. The local police unit takes a buccal swab from a suspect, anonymizes the swab with an identification number (PCN) and sends it to the regional DNA laboratory. At the same time, they transfer the name of the person and his/her fingerprints to the national police database (AFIS Services). The laboratory provides the DNA profile and sends it to the central Coordination Unit where the profiles are imported into a database. Daily searches are performed and hits are reported to the AFIS Services by only providing the relevant PCNs. The AFIS Services link the PCN with the corresponding names and crimes and inform the investigating police unit about the hit. Approximately 1000 DNA profiles are entered monthly into the database and at the end of August 2001, 8974 profiles from suspects and 1039 profiles from stains were stocked. So far, 245 person-to-stain and 140 stain-to-stain hits were observed.

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## 1. Legal basis

DNA profiling is a very important tool for prosecution authorities. More and more countries are installing national databases for storing and searching DNA profiles.

On 1 July 2000, the Swiss Federal Council (Swiss Government) set the legal ordinance<sup>1</sup> for the DNA Profile Information System, which has been operational since August 2000. The legal ordinance contains a specified catalogue of crimes that regulates the admittance of DNA profiles from suspects. This catalogue contains crimes like homicide, sexual offences, bodily harm, threat, arson and theft.

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<sup>1</sup> 361.1 Verordnung über das DNA-Profil-Informationssystem (EDNA-Verordnung): [http://www.admin.ch/ch/d/sr/361\\_1/](http://www.admin.ch/ch/d/sr/361_1/).

In accordance with the legal ordinance, the comparison of profiles of unknown dead or living persons without storing permanently is also permitted.

## 2. Processing

The local police unit takes a buccal swab of every person, who is suspected of having committed a crime according to the crime catalogue. The police anonymizes the swab with a unique 10-digit identification number (PCN) and sends it to the regional DNA laboratory at the Institutes of Legal Medicine at Basel, Bern, Geneva, Lausanne, St. Gallen or Zurich (Fig. 1). At the same time, the police transfers the name of the suspect, his/her fingerprints as well as other crime-related information to the national police database (AFIS Services) at Bern. The laboratory provides the DNA profile and sends it to the Central Coordination Unit at Zurich. At the Coordination Unit, the profiles are imported into the CODIS system.

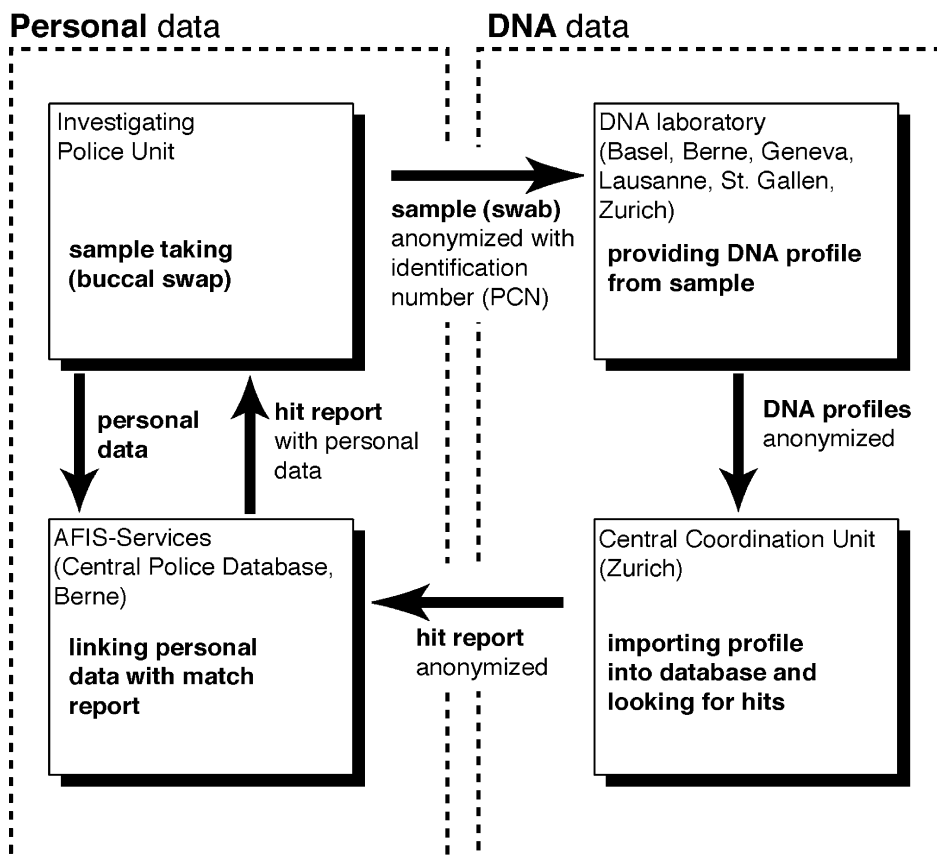


Fig. 1. Flow of DNA samples and personal data between police units and DNA laboratories at the Swiss Institutes of Legal Medicine.

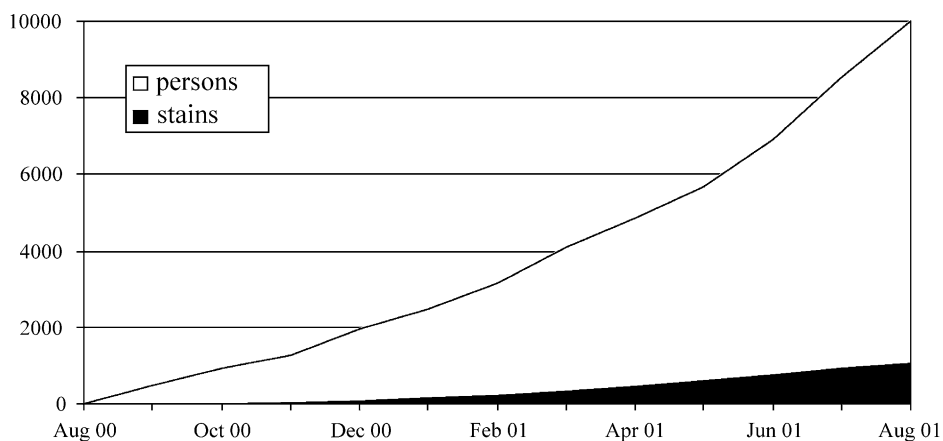


Fig. 2. Accumulated number of DNA profiles in the Swiss Federal DNA Profile Information System (8974 persons, 1039 stains) at the end of August 2001.

Daily searches are performed and so-called “Hits”—identical DNA profiles between stains or stains and persons—are reported to the AFIS Services by only providing the relevant PCN numbers.

The AFIS Services link the PCN numbers with the corresponding names and crimes and inform the investigating police unit about the hit. The whole process takes, at most, 10 days for buccal swabs and not much longer for stains.

By this procedure, a strict separation of DNA data and other personal data is achieved.

Eleven DNA systems are analyzed: D3S1358, VWA, D16S539, D2S1338, D8S1179, D21S11, D18S51, D19S433, TH01, FGA (FIBRA) and AMELOGENIN. A minimum of

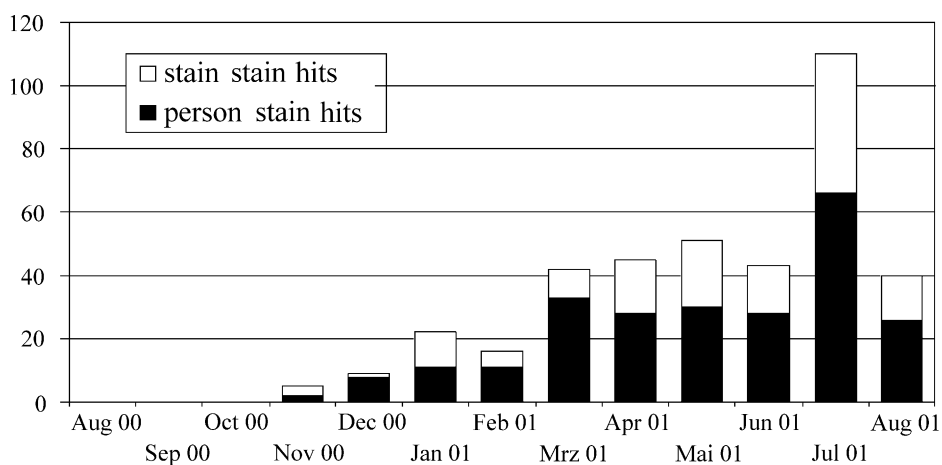


Fig. 3. Number of hits per month realized with the Swiss Federal DNA Profile Information System.

Table 1

Group of crimes of person-to-stain hits detected with the Swiss Federal DNA Profile Information System after 1 year of operation (August 2000–August 2001)

Group of crime	Number of hits
Theft (including burglary, 154)	195
Sexual offences	13
Homicide	10
Robbery	8
Fraud	5
Illegal drug offense	5
Endangerment of life	3
Bodily harm	3
Compulsion (not sexual)	1
Threat	1
Arson	1

10 systems for persons and 6 systems for stains is required for importing into the database. In a limited way, also, mixed stains are imported. Up to now, 47 foreign profiles have also been imported (requests for legal aid via INTERPOL).

To delete a profile, an adjusting of the criminal procedure and the consent of a judge are necessary. After a year, the profile of a person who has died is deleted too.

The Swiss Federal DNA Information System runs CODIS software that has enough flexibility to match the specific needs in Switzerland.

### 3. Results

Approximately 1000 DNA profiles are entered monthly into the database and at the end of August 2001, 8974 profiles from suspects and 1039 profiles from stains were stocked (Fig. 2), resulting in a stain-to-person ratio of 10.4%. So far, 245 person-to-stain and 140 stain-to-stain hits were observed (Fig. 3). The database contains two matching profiles of identical twins too.

The largest group of crimes linked by hits is burglary followed by offences like endangering life and against the sexual integrity (Table 1).

One of the most remarkable cases was a person, who has thrown repeatedly bicycles from a bridge on a highway, causing heavy car accidents. The buccal swab taken from a suspect committing burglary resulted in a person-to-stain hit and the offender—a psychiatric handicapped person—was identified.

### 4. Conclusion and future

Up to now, the Swiss Federal DNA Information System has run without major problems. The participants (police units, laboratories) work well together and because of the remarkable number of successfully solved crimes, the motivation is high.

With the strict separation between genetical and personal data, we are sure to fully adhere to the requirements of data protection.

A Federal DNA Law is in preparation and should harmonize the legal situation for the whole country and replace the actual legal ordinance that only legalizes the procedure until the end of 2004.