



**RÄTTSMEDICINALVERKET**  
NATIONAL BOARD OF FORENSIC MEDICINE



The medical link  
in the judicial chain

# The National Board of Forensic Medicine

The Swedish National Board of Forensic Medicine is the medical link in the legal chain. We are an expert authority within the judiciary that is tasked with answering medical questions from other authorities. We have specialists in areas such as forensic medicine, forensic toxicology, forensic genetics and forensic psychiatry. In total, around 70 different professional categories work within the authority.

The Swedish National Board of Forensic Medicine plays an important role in criminal processes providing medical expertise where necessary. We work on behalf of the police, prosecutors, courts, correctional services and other relevant agencies. The authority consists of four specialities: forensic

toxicology, forensic medicine and forensic psychiatry, situated at six different locations around the country.

In this brochure, we tell you more about our missions in the different areas. Across all areas, the unifying objective is to enhance legal certainty by providing reliable analyses and assessments.

The Swedish National Board of Forensic Medicine's statements provide key evidence in diverse judicial cases and must adhere to the highest quality standards.

## Research and Development

To continuously improve our methods, the authority actively conducts research and quality development initiatives. The goal is to ensure the pro-



vision of legally robust statements founded on a scientific basis.

Our research has so far led to several important advances. For example, legally secure methods for blood analyses of online drugs, new and unique knowledge about drowning accidents in Sweden, new methods for DNA analysis and increased knowledge about the connection between mental disorders, violence and norm-breaking behaviors.

Emily Elenstål, analytical chemist, weighs blood samples for drug analysis







Barbara Dell’Amico, Medical Biologist, at the Division for Forensic Genetics in Linköping.

**DVI - Disaster Victim Identification**

In the event of major disasters with a high death toll, one of the National Board of Forensic Medicine’s Disaster Victim Identification (DVI) teams is activated. These teams are tasked with working with technical experts from the police to identify the deceased. The National Board of Forensic Medicine’s DVI teams specialise in forensic

genetics, forensic medicine and forensic odontology (teeth and oral cavity). Unidentified bodies are examined with the aid of DNA sampling and dental status. Age, distinguishing features and belongings are all taken into account. The details are matched against information gathered by the police about persons who have been reported missing in connection with

the event. Dental and health care providers also make dental records, x-ray images and medical notes available. The DVI teams were activated following the Estonia disaster, the nightclub fire in Gothenburg, the tsunami in Thailand, and after the terrorist act in Stockholm among other events.

# Forensic genetics

At the division for Forensic Genetics in Linköping, identification of deceased persons and family investigations are carried out using DNA. Paternity investigations are carried out on behalf of social welfare committees or courts with the aim of determining responsibility. Parentage cases are usually cases of family reunification that we carry out on behalf of the Swedish Migration Board.

The laboratory normally examines 21 markers on the DNA molecule, but if necessary, the examination can include between 200-5000 markers.

**Family investigations**



Every year, family relationships are investigated in nearly 2,000 cases. In such cases, a certainty of at least 99.99 percent is almost always given. The results are often used as evidence in court.

In addition to family investigations, samples for species determination and samples from deceased persons are analyzed in cases of suspected sudden cardiac death.

Research and continuous methodological development contribute to answering more questions and increasing legal certainty in family investigations.



*“Today we can examine multiple aspects of the DNA molecule. This means that we can solve more cases with greater reliability.”*

Andreas Tillmar, Associate Professor in Forensic Genetics and Technical Molecular Biologist at the Division for Forensic Genetics in Linköping.



# Forensic toxicology

Linköping is home to Sweden's only forensic toxicology laboratory. In cases of suspected crime, analyses are carried out to detect and determine the concentration of alcohol, drugs, medicines and doping products. The forensic toxicology laboratory unit is responsible for the analysis of drunk driving, as well as in cases of suspected drug offences and doping offences. In cause of death investigations, samples are sent to the toxicology laboratory from our forensic medicine units around the country.

The laboratory carries out analyses on blood, tissue, urine and hair. Hundreds of substances can be detected and evaluated at the molecular level. All analysis is done using quality-assured methods and produces results that are reviewed in two

independent stages.

Our experts also help the police and courts interpret analysis results, for example in cases involving drunk driving in traffic offences.

Both working methods and equipment are updated and refined in line with technological advances. Researchers at the forensic chemistry laboratory unit have developed methods for analysing samples containing synthetic drugs. Being able to identify new online drugs in a blood sample facilitates criminal investigations.

## Analysis

Nearly 100,000 cases and approximately 800,000 analyses are carried out at the Division for forensic toxicology each year.



In just over 70 percent of the drug samples from the police, the suspicions of drug-related driving or drug-related crimes are confirmed.



*"We are constantly working to develop new methods for detecting new drugs."*

Robert Kronstrand, chief toxicologist at the Department of Forensic Genetics and Forensic Toxicology in Linköping.

Birgitta Engström, Biomedical Analyst. Preparing samples for processing on the TECAN robot for analysis of pharmaceuticals.





Tobias Gelius, forensic pathologist at the Forensic Medicine Division in Stockholm.



#### Tissue donations



All the Divisions for Forensic Medicine recover tissue that is used in the thousand or so tissue transplants carried out each year. One-fifth of

all tissue for transplant in Sweden is handled by the National Board of Forensic Medicine.

Donated skin or heart valves can save the lives of patients with burn injuries or heart conditions. Significantly impaired vision caused by illness can be corrected with

donated corneas, and a new ossicle can restore hearing.

The work of the National Board of Forensic Medicine on tissue donation means that Sweden is almost self-sufficient in terms of transplant tissue.

# Forensic medicine

Every year, approximately 6,000 forensic autopsies are carried out on behalf of the Police Authority or the Public Prosecution Authority.

A forensic autopsy is performed to rule out crime and determine the cause of death and is primarily performed in the event of unexpected or unnatural deaths, or to determine the identity of a deceased person.

A forensic autopsy includes an external and internal examination of the body and often a forensic toxicological analysis of blood and urine. The autopsy is performed by a medical examiner and forensic assistants. Administrators, biomedical analysts and investigators, and sometimes forensic odontologists and forensic anthropologists, also participate in the investigation.

#### Examination of victims and suspects

The Swedish Board of Forensic Medicine is responsible for issuing legal certificates at the request of the Police Authority or the Public Prosecution Authority. A legal certificate is a written



medical statement by a doctor about a person's injuries or other findings on the body. A legal certificate can

refer to both a plaintiff and a suspected perpetrator and can be used in a criminal investigation or as evidence in a trial.

#### Medical age assessment

Unaccompanied children who have sought asylum and who cannot prove their age are offered a medical age assessment, which is carried out by the Swedish Board of Forensic Medicine on behalf of the Migration

Board. It can also be carried out on behalf of, among others, the Police Authority in a criminal case, if the suspect's age is unknown.

We have six Divisions for Forensic Medicine around the country, from Umeå in the north to Lund in the south.



*"Forensic medicine work is very much a teamwork. Together we ensure that the work is legally secure and of high quality."*

Elisabeth Wählin, Forensic Medical Assistant at the Division for Forensic Medicine in Linköping.



# Forensic psychiatry

In order to decide on the punishment in a criminal case, a court may request a minor forensic psychiatric examination of the suspect. A person who is deemed to have a serious mental disorder should not be sentenced to prison in the first place. Each year, forensic psychiatry carries out approximately 1,200 minor forensic psychiatric examinations. Such examinations take approximately one hour to perform and the results show whether a major forensic psychiatric examination is recommended.

A major forensic psychiatric examination of a detained person usually takes four weeks. The suspect is examined by a team consisting of a forensic psychiatrist, psychologist, social worker and nursing staff. The Forensic Medicine Board's report shows whether the crime may

have been committed under the influence of a serious mental disorder.

People who are detained are admitted to the examination units and those who are at large come to the units for examination. Approximately 550 people undergo a forensic psychiatric examination each year. Almost half of these are considered to have a serious mental disorder. The Swedish



Board of Forensic Medicine's forensic psychiatry units are located in Stockholm and

Gothenburg.

## Risk assessments

Forensic psychiatry also carries out risk assessments of life-sentenced prisoners. After ten years in prison, inmates can apply to have their sentence fixed

in time. The Örebro District Court hears these cases. Our experts conduct an investigation over approximately six weeks and issue a statement regarding the risk of recidivism.



*"Working as a nurse at the National Board of Forensic Medicine is different. I still have my focus on nursing, but my mission is also to be included in investigations if anyone who is suspected of a serious crime is or has been mentally ill."*

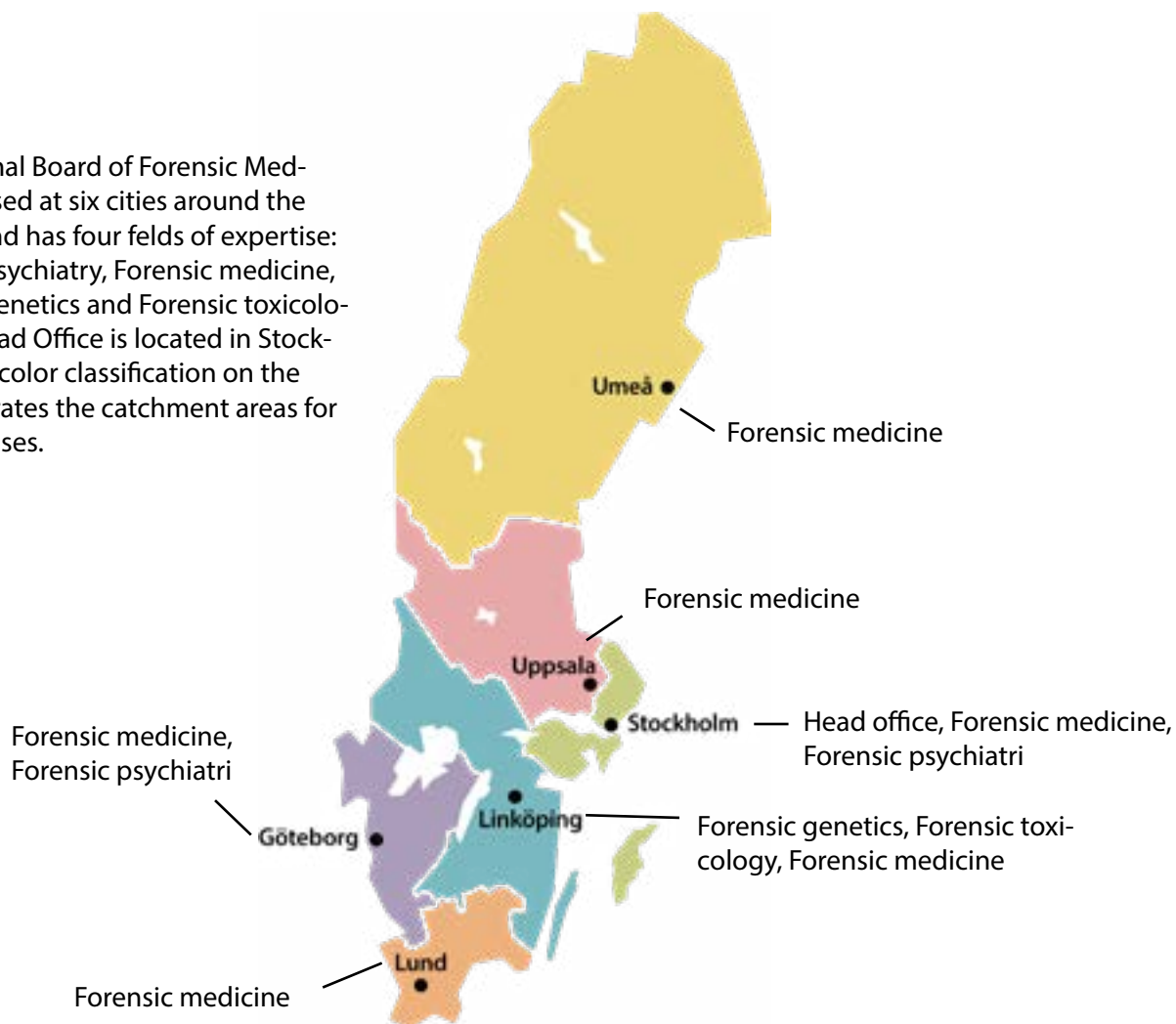
Louise Lantz, Nurse at the Division for Forensic Psychiatry in Stockholm.

Daniel Sandberg, Forensic Social Investigator at the Division for Forensic Psychiatry in Stockholm.



## Our sites

The National Board of Forensic Medicine is based at six cities around the country and has four fields of expertise: Forensic psychiatry, Forensic medicine, Forensic genetics and Forensic toxicology. The Head Office is located in Stockholm. The color classification on the map illustrates the catchment areas for forensic cases.



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## Rättsmedicinalverket – the medical link in the legal chain

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