



University Center

of Legal Medicine

Lausanne / Geneva

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Prof. Dr Silke Grabherr	Forensic and legal medicine arose from the mutual influence between law and medicine. Their increasing development is driven by a rising public awareness of the dangers due to arbitrary decisions, the desire for the justice system to respect the rights of defence and the pre-eminence of proof over confession. Thus, forensic and legal medicine are designated to a community purpose in the wider sense of the term, serving society and the public, on the one hand, and the institutions responsible for the rights of individuals, on the other hand. Over the last decade, this discipline has seen remarkable developments as it has made good use of technological advances.	
	The University Centre of Legal Medicine (CURML) was founded as a result of the fusion of the Institutes of Forensic Medicine of the Faculty of Medicine in Geneva and the one of the Faculty of Biology and Medicine of the University of Lausanne. This centre is located on the University Hospital sites of Lausanne and Geneva, and employs about 230 people working within the twelve specialised units shown in this brochure. Located at different sites in French-speaking Switzerland, the centre's expertise is both regional and international in scope.	
Director of the University Centre of Legal Medicine		

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Autopsy
Investigation
Cadaver
Victim

Microscope
Analysis
Death
Lesion

Unit of Forensic Pathology

The Unit of Forensic Pathology carries out, at the request of the judicial authorities, medico-legal assessments that help in the resolution of criminal and civil investigations. It is the link that connects the field of medicine to the legal world.

Report
Organ
Scalpel
Case

Clinical examination
Justice
Evidence
Forensic Medicine



Corpse removal
Trial
Trace
Inquiry

The main activities of the URMF include thanatological examinations (autopsies), clinical assessments and case assessments. The unit also provides graduate / postgraduate and continuing education related to a variety of professions (doctors, ambulance attendants, magistrates, lawyers, police, etc.), and is also active in forensic medical research.

Albert Einstein

**CONDEMNATION WITHOUT INVESTIGATION
IS THE HEIGHT OF IGNORANCE**

Unit of Forensic Imaging and Anthropology

Imagery
Radiography
CT-scanner
Magnetic Resonance Imaging

3D scanner
Photogrammetry
Anthropology
Forensic

Forensic imaging uses modern radiological techniques such as CT and MRI scanning, with or without contrast injection, as well as also tools such as 3D scanning and photogrammetry for surface mapping and 3D modelling. Forensic anthropology uses the methods of classical physical anthropology and all the other tools used in forensic imaging.

Tooth
Bone
Identification
Research

Comparison
Age at death
Sex
Stature

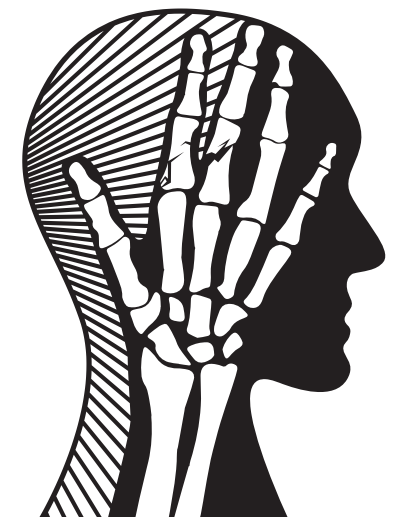
The Unit of Forensic Imaging and Anthropology has two main purposes: the first is forensic imaging and the second forensic anthropology. Forensic imaging has two main branches: one is dedicated to thanatological imaging itself, and the other to clinical radiological imaging interpreted or reinterpreted by us in the context of forensic evaluations. Our activities particularly involve performing injury assessments, determining causes of death, identifying people, 3D modelling, and estimating the ages of deceased persons.

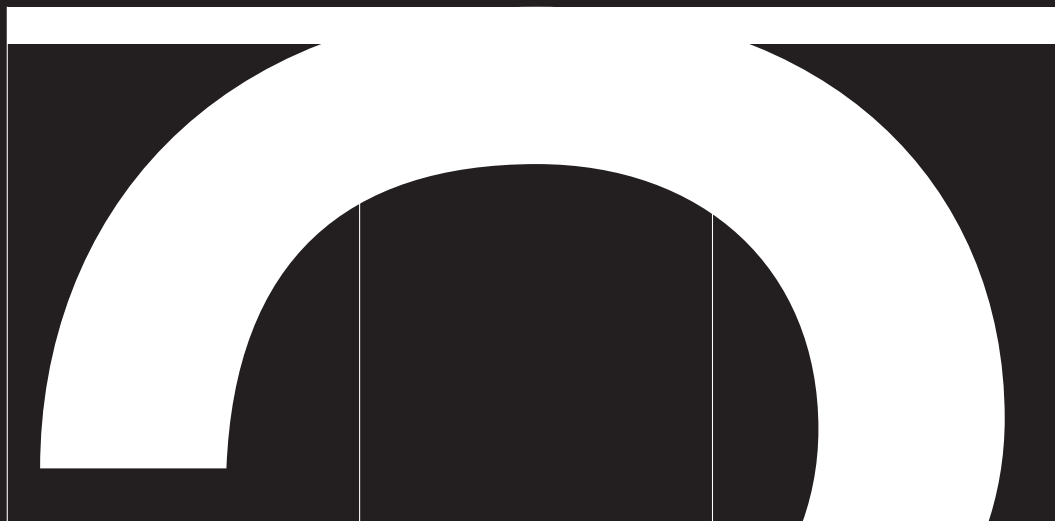
Dr Foveau de Courmelles

**X-RAYS PROVIDE AN INTERNAL MAP
OF AN INDIVIDUAL WHICH IS THE ULTIMATE MEANS
OF IDENTIFYING THEM
AS IT IS VIRTUALLY UNALTERABLE**

(1862-1943)

X-rays
Reconstitution
Lesion
3D reconstruction





Unit of Forensic Toxicology and Chemistry

Chromatography
Medications
Drugs of abuse
Volatiles



Paracelse (1493-1541)

ALL THINGS ARE POISON,
AND NOTHING IS WITHOUT POISON;
ONLY THE DOSE DETERMINES
WHAT IS NOT A POISON

Mass spectrometry
Toxicology
Analysis
Hair

The principal activity of the Unit of Forensic Toxicology and Chemistry is to analyse biological samples in order to look at the presence of substances that may have caused death, non-lethal intoxication, abnormal behaviour, risk-taking behaviour, or exposure at risk for health.

Blood
Urine
Air
Surface

The analytical techniques used in the laboratory can detect a wide variety of substances such as drugs, narcotics, alcohol, gases, volatiles, elements, as well as pesticides, especially in blood, urine and hair. Materials, air and surface analyses are also carried out by the UTCF to determine the presence of volatiles, elements, particles and asbestos.

Forensic
Elements
LC-MS/MS
Samples

Expertise
Toxics
Ethanol
Asbestos

Activity
Contact
Blood
Saliva

Unit of Forensic Genetics

Sperm
Animal DNA
Plant DNA
Paternity cases

The Unit of Forensic Genetics (UGF) helps to identify offenders by performing DNA analyses on samples provided by the police forces. DNA analyses are also used in paternity cases and to confirm the identity of deceased persons. UGF is also active in DNA wildlife forensics, as well as in research and teaching.

DNA mixture
Source
Extraction
Quantification



A wide variety of biological samples, such as sperm, saliva, blood or skin cells can be exploited. The probabilistic interpretation of the analytical results in the context of the case is also part of the activities of the UGF.

PCR amplification
Electrophoresis
Interpretation
Likelihood ratio

Nuclear DNA
Mitochondrial DNA
DNA Profile
National DNA database

Edmond Locard

**THE TRUTH IS THAT NONE CAN ACT
WITH THE INTENSITY INDUCED
BY CRIMINAL ACTIVITIES WITHOUT LEAVING
MULTIPLE TRACES OF HIS/HER PATH**

(1877 - 1966)

Interpersonal violence
Victim
Welcome
Care

The Unit of Violence Medicine (UVM) opened in 2006 and offers free and confidential forensic counselling to adult victims of domestic, family and community violence. These consultations, undertaken at the request of the patients, are provided by nurses under the supervision of forensic doctors.

Referral
Recognition
Network
Forensic consultation

Unit of Violence Medicine

Forensic documentation
Assault and battery report
Certificate of Advanced
Studies

Jacqueline Cornet

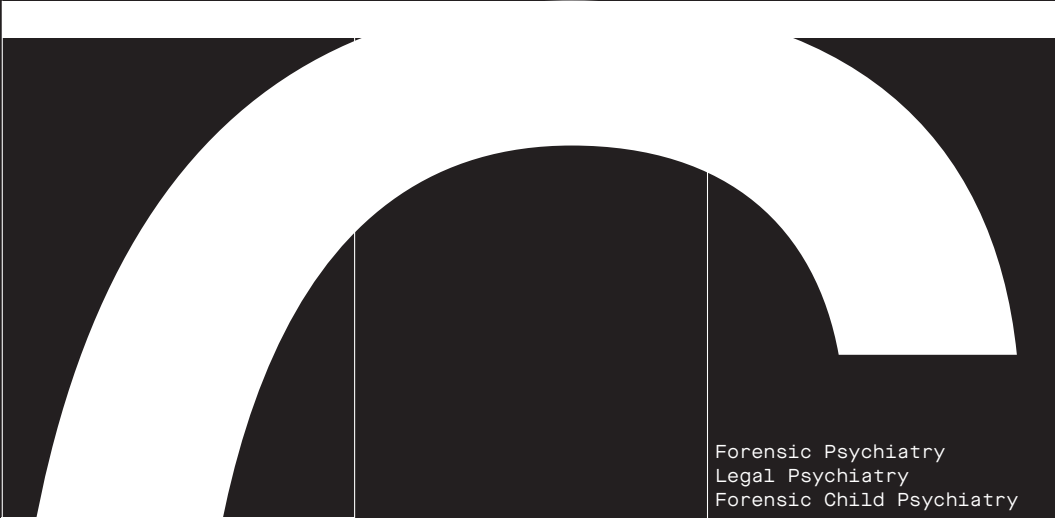
THANKS TO THE KNOWLEDGE WE HAVE ACQUIRED OVER TIME,
WE NOW HAVE DISEASE PREVENTION
AND CARE CAPABILITIES WHICH WOULD HAVE BEEN
UNIMAGINABLE JUST A DECADE AGO.
WHY SHOULD VIOLENCE,
WHICH IS A DISEASE OF RELATIONSHIPS,
NOT FOLLOW THE SAME PATH?



Assault report
Certificate of Advanced
Studies
Continuing education

During a consultation, victims are welcomed and listened to carefully as they recount the violence they have been subjected to. A clinical examination focused on the related trauma is then performed to establish the required forensic documentation («assault and battery» report, photographs of injuries) which, if necessary, will help victim to assert their rights. After assessing the needs of each patient, the nurse can then direct them to the network of institutions that can provide them with the medical, legal and psychosocial care they require.

Prevention of violence
Research projects
Forensic nursing
Aggression



Forensic Psychiatry
Legal Psychiatry
Forensic Child Psychiatry

Forensic psychiatry is mainly used in evaluations. It requires advanced knowledge, not only in the medical-psychiatric field but also in the legal field. Academic research and graduate and postgraduate activity has been developed within the faculties of medicine and law.

Unit of Forensic Psychiatry



The Unit of Forensic Psychiatry carries out assessments at the request of the civil and criminal justice authorities. The main themes of these assessments include criminal responsibility, risk assessment, adult protection measures, parental skills and children's needs, child protection and the credibility of children's statements.

Criminal Responsibility
Risk assessment
Recidivism

Criminal measures
Civil measures
Adult protection

Child protection
Parenting skills
Juvenile delinquency

Jean-Paul Sartre
ACTION REVEALS BEING



Credibility
Victimology
Criminology

Doping
Biological passport
Professionalism
Accuracy
Communication

Swiss Laboratory for Doping Analyses



Analyses
Training
Urine
Assessment
Research

**TOGETHER
AGAINST DOPING**

Quality
International
Blood
Ethics
Flexibility

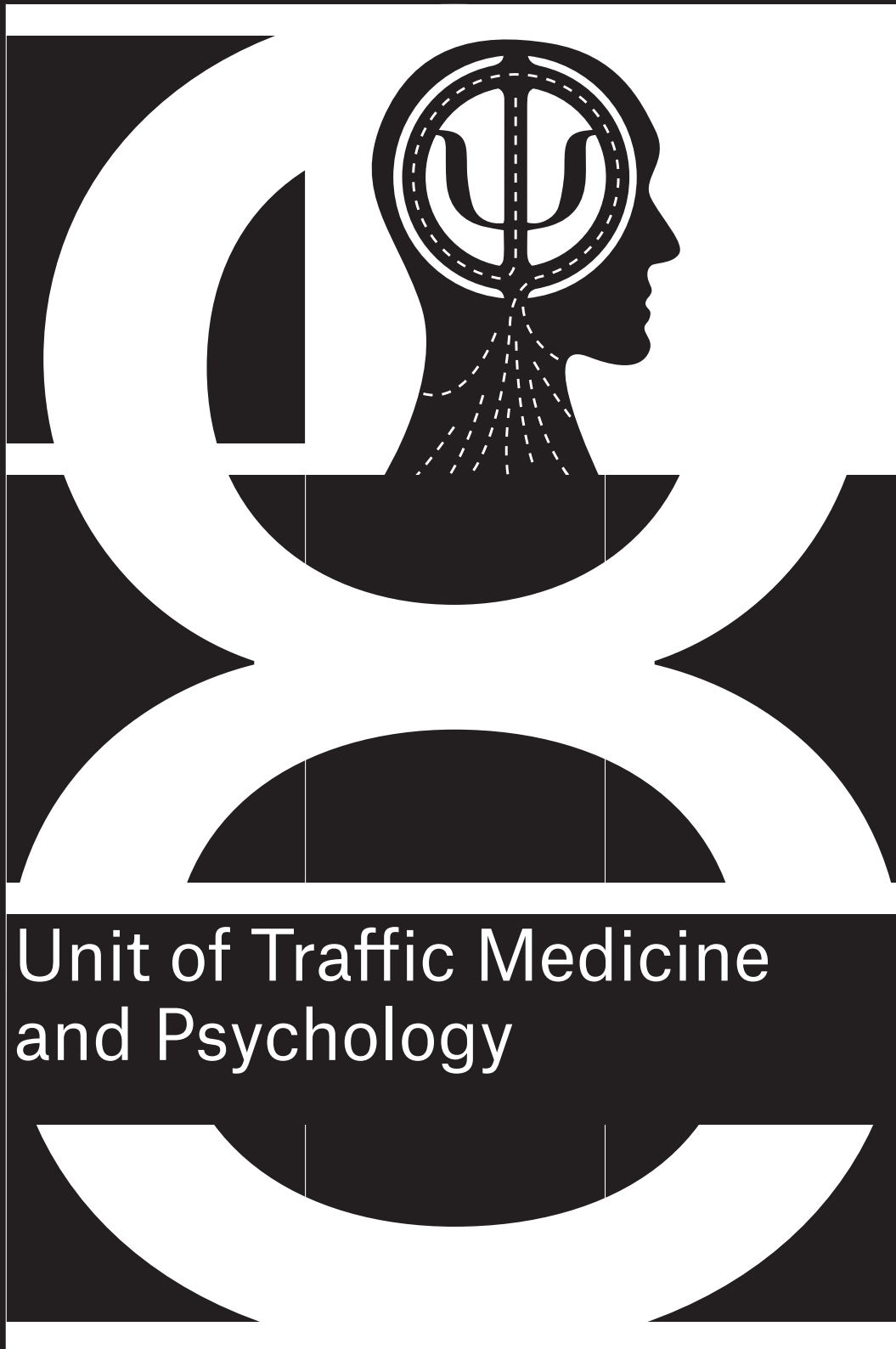
The Swiss Laboratory for Doping Analyses (LAD), the only laboratory accredited by the World Anti-Doping Agency (WADA) in Switzerland, works in research, identification and quantification of prohibited substances. The main methods are aimed at the analysis of urine and blood, although some partners ask us to analyse medical products and food supplements for forensic investigations and case management. We also provide our expertise to our clients to assist them in legal cases related to the anti-doping work. The LAD is also well known for active participation to analytical activities at a large number of national and international sport events. Additionally, the LAD operates as the athlete biological passport management unit (APMU) responsible for scientific evaluation of analytical results based on endogenous markers related to erythropoiesis and testosterone metabolism.

The LAD's duties include the following:

- To act as a centre for competence recognized by international anti-doping organisations, providing all analytical services in timely manner and with high quality.
- To carry out research projects with the focus on the endogenous haematological and steroidal markers and on the development of methodologies relating to the physiological monitoring of elite athletes.
- To develop the expertise and continuous learning in its area of competence.

The laboratory receives tens to hundreds of anonymous urine and blood samples each day, collected from athletes from all sports by the independent authorities. In order to be able to detect all prohibited substances and methods from the list of the World Anti-Doping Agency (WADA), the LAD applies a wide variety of chemical, analytical and biological methods. Gas chromatography / mass spectrometry (GC-MS), liquid chromatography / mass spectrometry (LC-MS), isotope ratio mass spectrometry (IRMS) and biochemical techniques based e.g. on electrophoresis are the main techniques used for the analysis routine. Certain techniques of clinical chemistry (such as haematology and immunology) are also incorporated to the efficient detection of prohibited substances.

Confidentiality
Forensic
Sport
Storage
Legal



Unit of Traffic Medicine and Psychology

<p>Fitness to drive Doctors Psychologists Psychiatrists</p>	<p>Drugs Medications Tests Accidents</p>	<p>The Unit of Traffic Medicine and Psychology is mandated by the Automobile Services to provide an expert opinion in case of doubt about a driver's ability to drive due to medical, psychological or psychiatric reasons. Specifically, most assessments involve the consumption of substances (alcohol, narcotics, drugs), repeat infractions of traffic laws and the effect of somatic or psychological disorders on fitness to drive.</p>
<p>Traffic Vision Cognition Alcohol</p>	<p>The unit carries out around 2000 assessments and appraisals each year on its sites in Vaud and Geneva, and more than 100 on the Jura site. It is also active in research on the effects of substances and diseases on driving and provides teaching for general practitioners and specialists in French-speaking Switzerland who are responsible for assessing drivers (for seniors over 75 and professional drivers).</p>	<p>Incapacity Vehicles Security Prevention</p>
<p><i>Raymond Devos</i></p> <p>HOW COULD I CRASH INTO HIM WHEN I COULDN'T SEE HIM?</p> <p><i>Comedian</i></p>		<p>Accidents Character Drivers Assessment</p> <p>Laws Offences Speed Behaviour</p>

Health Law and Humanitarian Medicine

The Unit of Health Law, Ethics and Humanitarian Medicine participates in pregraduate studies for medical students (Bachelor and Master) and also supervises research projects in the aforementioned fields.

Discrimination
Principle of equivalence
Interdisciplinary research
Respect for patient autonomy



Confidentiality
Informed consent
Vulnerable populations
Detainees

Health law
Humanitarian law
Ethics
Humanitarian medicine

This unit carries out teaching and research in the field of health law, humanitarian law, ethics (biobanks, research in genetics, medical paternalism, biomedical research on humans including research involving detainees), humanitarian medicine and human rights in places of detention. The courses taught by this unit include, among others, the following:

- Pregraduate studies in legal medicine, health law and ethics (Bachelor and Master) for medical students.
- Humanitarian law and medicine (optional course) for medical students.
- Health and the Law (optional course) for medical students.
- Courses in health law and ethics, taught by the CURML and the Institut Éthique Histoire Humanités (iEH2).
- Teaching of health law and ethics at the doctoral school in biomedical sciences, subspecialty in forensics.

Fiodor Dostoievski
**WE CAN ONLY JUDGE
THE DEGREE OF CIVILIZATION OF A NATION
BY VISITING ITS PRISONS**

Principle of beneficence
Principle of justice
Interruption of pregnancy
Coercion in medicine

Withdrawal of treatment
Balancing of values
and interests
Ethics commissions
Research ethics

Exposure
Toxicogenomics
Teaching
Toxicity

Toxicodynamics
Toxicokinetics
Model
Mechanisms

Faculty Unit of Toxicology

Polymorphism
Environment
Biomarkers
Research

Xenobiotics
Metabolism
Vulnerability
Population



Evaluation
Risk
Mission
Innovation

The Faculty Unit of Toxicology (UFT) is responsible for consolidating existing expertise and activities in the field of toxicology within the Faculty of Biology and Medicine of the University of Lausanne. It provides an institutional interface between basic research, applied research, teaching, service delivery and societal needs for toxicological risk assessment at the individual and population levels.

Unit's activities focus on teaching, research and services by 1) strengthening and developing graduate and postgraduate teaching in the field of toxicology 2) by fostering collaboration and the sharing of resources in the field of research and development in toxicology and 3) coordinating and improving the response to requests in the field of human toxicology, coming either from authorities (Department of Health and Social Action of the Canton of Vaud, Federal Office of Public Health...), institutions (University Hospital of the Canton Vaud, University of Lausanne), individuals or the media.

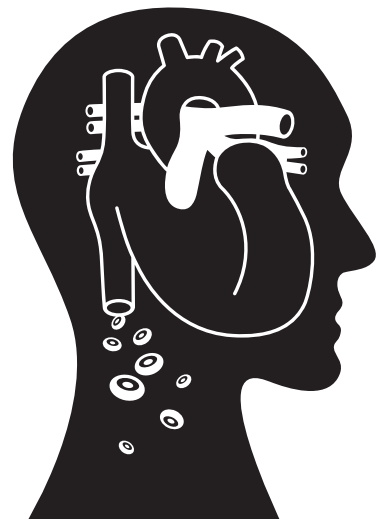
Mathieu Orfila

**LINKED WITH ALMOST ALL THE NATURAL SCIENCES,
TOXICOLOGY ATTRACTS SCHOLARS
WHO ARE DESIROUS OF ADVANCING HUMAN KNOWLEDGE**

Toxicologist, (1787-1853)

Anatomy
Histology

UFAM coordinates and teaches anatomy, histology and embryology at the Faculty of Biology and Medicine at the University of Lausanne. It collaborates with clinical services and the School of Medicine to include the teaching of morphology into the medical curriculum. UFAM is involved in research projects and postgraduate and continuing training programmes for physicians which require human bodies.



Faculty Unit of Anatomy and Morphology

Pedagogy
Death

Medicine
Embryology

Course
Practical work

Body donation
Conservation techniques

Joseph Ernest Renan

TO DISSECT THE HUMAN BODY IS TO DESTROY ITS BEAUTY;
AND YET, THROUGH DISSECTION,
SCIENCE SUCCEEDS IN RECOGNIZING IN IT A BEAUTY
OF A FAR HIGHER ORDER,
ONE WHICH A SUPERFICIAL VIEW
WOULD NOT HAVE HINTED AT

French philosopher and historian (1823-1892)

Continuing education
Dissection

The UFAM provides teaching involving around 1000 hours of contact with students and manages donations of cadavers required for its courses. It supervises master's projects in medicine, develops new strategies for teaching morphology and participates in anatomy, clinical and pathology research projects.

Confidentiality
Trust
Confidence

Secret
Health professional
Preserve

Commission for Professional Secrecy of the Canton of Geneva

Interest
Patient
Justice

The Professional Secrecy Commission interviews the health professional making the request and the patient in question to weigh up their interests and to determine whether there are valid grounds for overriding the principle of confidentiality, knowing that this must be best preserved as far as possible as it is essential for patients to be able to trust their doctors. Decisions made by the Professional Secrecy Commission may be appealed to the Court of Justice by any person who has an interest in the case. As Professional secrecy is a principle of all medical / healthcare activities it is the subject of teaching seminars at the Faculty of Medicine, as well as lectures requested by various public and private institutions (such as the HUG).

Breach
Weighing interests
Discernment

Jurisprudence
Criminal
Hippocrates



Hippocrate

WHATEVER I SEE OR HEAR IN SOCIETY
WHILE EXERCISING MY PROFESSION,
AND EVEN WHEN NOT,
I WILL KEEP SECRET THOSE THINGS
WHICH DO NOT NEED TO BE DIVULGED,
CONSIDERING DISCRETION TO BE A DUTY
IN SUCH CASES

(460-370 av. J.-C.)

The Professional Secrecy Commission is established under Article 12 of the Geneva Health Act of April 7, 2006 (K 1 03). It is composed of three members and three alternates, representing the CURML (presidency), the General Directorate for Health and the organisations dedicated to defending the rights of patients. It is responsible for handling requests for health professionals to waive professional secrecy when the patient refuses to provide information, or when the patient is unable to express an opinion (incapacity of discernment, death, not reachable) without being legally represented.

