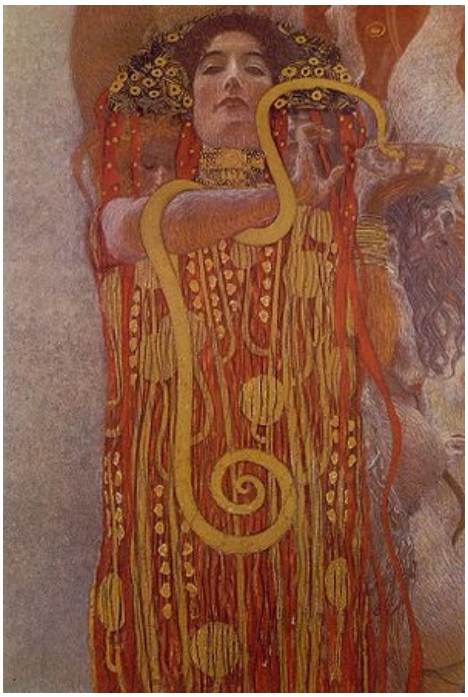
Hygiene and Epidemiology

Hygiene and epidemiology are tightly connected, partially overlapping disciplines. **The goal of hygiene and epidemiology in our present situation is to positively influence the quality of human life.**

- Hygiene, together with epidemiology, **represent the fundaments of preventive medicine** or **community medicine** representing a more recent concept.
- Unlike the social medicine, which is the third indispensable component of public health, that strongly accentuates moral, ethical, and organizational aspects of health care, **hygiene and epidemiology have been developing since ancient times based on empirical experience.** The threat of vast epidemics depopulating countryside and towns and paralysing the fighting armies, compelled medicine to develop a new medical discipline. For more than hundred years, these two disciplines have shared the same rules as other sciences.



Hygeia – goddess of health

Hygiene bears the name of the Goddess of Health – the Greek **Hygieia** who, together with Asclepias, worshipped in Epidaurus of the Peloponnesian Peninsula. She is presented as beautiful woman, whose symbol is a snake drinking water from a bowl the goddess holds in her hand.

John Snow is often recognized as the founder of **epidemiology**. He, a practicing physician, conducted what is regarded today as a classic study of the transmission of cholera in London in the mid – 1800s.

Hygiene is science of health preservation.

- Originally, it deals with all factors affecting the physical health and psychic well-being of man. Relating to man' s health it **includes** the **quality of water** and other drinks, **food and nutrition**, **clothing**, **working conditions** and **physical strain as such**, **sleep**, **cleanliness of the body**, bad habits like **tobacco, alcohol and other drug abuse**, and **mental health**.
- As to the public aspects, it covers **climate**, **soil**, sorts of **building materials and housing arrangements**, **heating**, **ventilation**, **waste disposal**, **medical knowledge of disease incidence and prevention**, down to **burial of the dead**.
- The firm link of hygienic theories and practice with health status of the population remained preserved in the original form only in infectious diseases, later on in the self-contained epidemiology the remarkable course of which to non-infectious epidemiology of today is sufficiently well known.

The **Institute of Hygiene** at Czech Faculty of Medicine at, by that time Charles-Ferdinand University of Prague, - present Institute of Hygiene and Epidemiology, First Faculty of Medicine, Charles University in Prague - **was founded in the academic year 1897/1898**. The institutional integration of hygiene and epidemiology at the First Faculty of Medicine since the academic year 1992/1993 reflects the rational integrative efforts in the past decade in the field of education and training of medical youth at the break of millenniums.

Our school of hygiene rooted from the traditional German school of hygiene founded by **Max von Pettenkofer** who implemented a sand filtration into production of a safe drinking water, and **Robert Koch**, world famous for discovery of pathogenic bacteria causing anthrax, cholera, tuberculosis and another infectioud diseases. Our school of hygiene enriched it with an experimental aspects e.g. by providing a safe drinking water (**Kabrhel's index**), later on with pathophysiological factors to be demonstrated in the works of **Teissinger**, who already in the mid-thirties laid the foundations of the present day biological exposure tests or **biomarkers of exposure to environmental toxicants**. A few years following the last London smog episode when the best reliable health indicator was recorded mortality, **Kapalin** and **Symon** tried to demonstrate the adverse environmental effects on the changes of growth and haematological parameters in exposed children, and in this way, they contributed to the application of rather sophisticated and more sensitive indicators of the health status.

National Institute of Public Health founded in 1925 in Prague was important for the development of modern epidemiology in our country. Of its representatives at least **Raška** should be remembered. He was head of the contagious diseases division at WHO headquarters in Geneva, and was one of the authors and managers of the smallpox eradication programme.

Examples of successful historical practical applications of our preventive medicine, more specifically, of epidemiology* Post-war activities against **venereal diseases** and campaigns resulting in a significant drop of the incidence of **tuberculosis** and then **brucellosis**, in a close cooperation with the veterinary service, deserve the highest appreciation.

- The former Czechoslovakia was the first country in the world that started **anti-polio mass vaccination already in beginning of the sixties**, thus being an example for other countries.

- Our physicians participanted in the first and until today the only eradication of an infectious disease – smallpox.
- Concerning the non-infectious diseases we must remember the extensive **epidemiological study on endemic goitre** performed by our clinical endocrinologists in the late forties and early fifties, which can still stand the current, relatively strict qualitative criteria for epidemiological studies, resulting in the systematic iodination of salt.
- We were among the first to introduce fluoridation of drinking water for caries prevention. This campaign was as well preceded by thorough epidemiological study.

The frequent socio-political changes, occurring in our country in the last century unfortunately too often, used to disrupt the balanced system of prevention. Today we have to adapt the primary prevention system to the extensive social and economic changes we are now undergoing. Much has already been done but a backup to complexly structured primary prevention is urgently needed.

The trends in **integrating primary prevention** into the current activities of every physician and paramedical personnel have been implemented but slowly and with **many obstacles** in all social systems in global scale. This is evident in the problems related to implementation such global WHO programs, like the decade dedicated to the “Drinking water for all”, or “Health for all by 2000” anchored in national programmes adapted to the local conditions. Intentionally, primary prevention tries to **suppress the causes of the diseases**, **reduce** their **incidence**, and **improve life expectancy and quality of life**. The constituents of primary prevention are protection and promotion of health.

Health protection strives to safeguard humans **against** any unacceptable **health risks** produced by the activities of man. In the **Health Protection Programme** the government and industry invest in our country tens of thousand millions crowns yearly. There is no need to glorify or condemn this fact, as it is a must. But for that the present day industrial sphere would collapse because of incompatibility of harmful living conditions with human existence. The purpose of the preparatory studies of the students for your final state examination in hygiene and epidemiology is to **understand the fundamental principles and importance of the primary prevention in context with medical practice**. This also covers timely notifications of infections, their flexible surveillance thereof, reports on incident malignities enabling administration of the national cancer register, and chiefly, the necessity of your **personal engagement** as physicians in primary prevention programmes and last but not least in the early diagnosis and a rational treatment of your patients, that is, the **secondary prevention**. The qualified advice on life style, occupational risks and health risks from bad habits considering the social and health situation in the family at your patient may significantly help to create your profile of a desired, competent family doctor.

The focus of interest of both disciplines remains the primary prevention of most widespread diseases and subsequent efforts to positively influence the quality of human life.