ICT developments for medicine

Innovations in genomic diagnostics for personalised medicine, quality improvement, teaching and research

5th interdisciplinary seminar
for patients, clinic, teaching, research, economy and society

Kühtai, Friday 14 (8.30 am) to Sunday 16 April 2023

Target group: Stakeholders from medicine and business (doctors, students, lecturers, scientists, laboratory specialists, nursing, IT specialists, therapists, quality managers, lawyers, administrators, insurers, ...)

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Background

Personalised medicine is a desirable goal for all medical disciplines. Each discipline requires an individual approach to the use of its **"Big Data"** and **"genetics"**, which are to be seen as a composite between clinical findings, genetic and other laboratory and imaging data. For routine clinical practice, the focus is on rational workflow and quality assurance. The scientific community is looking for **innovative tools to improve quality** and explore new approaches to **personalised medicine** with potential for integration into **clinical routine.**

Today we know rare and chronic diseases much more precisely "Orphan Diseases", about 8'000 different diseases. In Switzerland and Austria, 800'000 people are affected. Thanks to modern **genetic testing**, a lot of information can now be obtained promptly and cheaply, and the complexity of genomics has increased significantly. It is not just a matter of individual genetic defects, but of a combination of different genetic variants and their interaction. Defects in the gene can be pathological, harmless or unknown. This makes interpretation and prediction difficult.

The findings from molecular biological science in recent years have had a massive impact on medicine. Today, **the effect of certain drugs** on a patient can be predicted in accordance with his or her metabolism. This influences both the dosage and possible consequences of incorrect medication with ineffectiveness. In this way, medication side effects can be avoided or greatly reduced.

Genetic counselling is becoming increasingly important and requires a great deal of knowledge, experience and time, as well as a particularly high level of emotional ability, so that patients diagnosed with genetic variations are not unsettled. Doctors, organisations, patients and relatives have many questions about the causes, effects (outcome), response to therapy, significance for family members and their social environment.

New ICT tools therefore require a high degree of flexibility depending on the disease (acute or chronic), situation (laboratory, genetics, clinic, teaching and research), specialisation from GP to specialist, quality standards and guidelines.

In addition, there are requirements for special user-friendliness, so that IT tools can be used as needed for clinical routine, student teaching and especially then for research projects. Due to the diversity of existing systems, the establishment of innovative, new tools thus requires not only a clear utilisation concept, but also the application of new technical methods. ICT solutions for the management of "Big Data" then serve not only the clinic, but also teaching and research. This seminar addresses these challenges and seeks new ways of dealing with genetic data sets.

Goal: To find new ways of dealing with "big data" and "genetics" as a bridge between clinic, research and teaching.

Answers to the following questions:

1. what "genetic" information does the clinician need and when?
2. what is technically feasible and financially viable today?
3. what experiences are there from projects on teaching and science?

Offers

Lectures, short presentations, background talks, workshops and interactive discussions on the topic of medical documentation, interactions of medical fields and genetics & "Big Data" with a focus on long-term perspectives.