University of Basel

Faculty of Medicine

ECPM – European Center of Pharmaceutical Medicine

Institute of Pharmaceutical Medicine

Annual Report 2021.

ECPM®

European Center of Pharmaceutical Medicine

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The ECPM at a glance.

In 2021 the ECPM

- Continued the 15th ECPM course cycle with 105 participants (overall > 2000)
- Successfully moved the course modules from onsite to online via Zoom
- Worked from home starting mid-March due to COVID-19 restrictions
- Launched the new ECPM website
- Collaborated with 150 faculty members from different affiliations
- Developed and offered special modules and lecture series
- Was involved in graduate and postgraduate teaching of ten different programs
- Acquired about 670,000 Swiss Francs in third-party research funding
- Matthias was appointed Research Group Leader at the Department of Public Health of the Medical Faculty
- Annette was elected officer in the IFAPP Board and chair of the Young Professional working group

Activities in a nutshell

Research

- Health Technology Assessment
- Health Economics and Pharmacoeconomics
- Decision-Analytic Modeling
- Health Services Research
- Epidemiology; Observational Study and Clinical Trial Design
- Biostatistics

Education and Training

- Undergraduate and graduate training of medical, pharmacy, human biology, public health, and nursing students at the University of Basel
- Supervision of PhD, Master and Master of Advanced Study theses
  - PhD thesis: 1
  - MPH MAS thesis: 1
  - MMD MAS thesis: 2
  - MD thesis: 1
  - MBA Int Health: 1
- Postgraduate training: CAS, DAS and MAS in Pharmaceutical Medicine / Medicines Development
- Different modules in the Master of Public Health and Nursing Science Programs
- Final examination of the CAS / DAS in Pharmaceutical Medicine
- Specialist examination for board certification FMH in Pharmaceutical Medicine
- Two MAS in Medicines Development defenses
- Worked on 17 research projects
- Authored and co-authored about 20 published peer-reviewed articles and multiple conference abstracts
- Gave multiple scientific presentations to external audiences
- Employed 12 people in education/research

Organizational chart.

Director
Prof. Thomas D. Szucs
MD, MBA, MPH, LLM, JSD

Education & Training

Dr. Annette Mollet
PhD, MBA

- Stefanie Zechner
- Beatrice Schmid

Research

Prof. Matthias Schwenkglenks
PhD, MPH

- Dr. Michaela Barbier PhD
- Dr. Katya Galactionova PhD
- Dr. Judith Lupatsch PhD
- Dr. Nadine Schur PhD
- Dr. Arjun Bhadhuri PhD
- Dr. Paola Salari PhD
- Dr. Sandro Stoffel PhD

Co-Supervision of PhD / MMD Projects

- Niklaus Meier PhD Student
- Chiara Jeiziner PhD Student
- Daniela Fazzotta MMD Student

European Center of Pharmaceutical Medicine.
Institute of Pharmaceutical Medicine.

Director

Thomas D. Szucs, MD MBA MPH LL.M JSD is Professor of Pharmaceutical Medicine and Director of The Institute of Pharmaceutical Medicine/European Center of Pharmaceutical Medicine at the University of Basel.

He is also a Professor and part-time lecturer for Medical Economics at the University of Zurich and an honorary professor at the University of Peking Health Science Center. Previously he was Chief Medical Officer of Hirslanden Holding, the largest private hospital chain in Switzerland.

From 1998 to 2001 he was head of the Department of Medical Economics, a joint venture of the University Hospital in Zurich and the Institute of Social and Preventive Medicine of the University of Zurich. Professor Szucs' former appointments include head of research and founder of the Center of Pharmacoeconomics of the University of Milan, head of the working group for Clinical Economics at the University of Munich, senior consultant at Arthur D. Little Inc. and head of the Department of Health Economics at F. Hoffmann-La Roche Ltd. in Basel.

He holds a medical degree from the University of Basel, a Master in Business Administration from the University of St Gallen, Switzerland, a Master of Public Health degree from Harvard University, a LL.M in International Business Law from the University of Zurich and a Doctorate in Law from the Private University of Liechtenstein. Thomas is board certified in Pharmaceutical Medicine as well as in Prevention and Public Health.

He is also member of the editorial board of several scientific journals and has published more than 300 articles, book chapters and monographs. He has worked extensively in the field of pharmaceutical economics and epidemiology. From 2004–2014 he was the president of the Swiss Association of Health Economics. In 2016 Professor Szucs was rated among the 20 most influential economists in Switzerland. In 2020 he was recognized as Global Fellow in Medicines Development by the International Federation of Associations of Pharmaceutical Physicians and Pharmaceutical Medicine. Since 2013 he started to work as a clinician in genomic medicine.

Education & Training.
Personnel.

The European Center of Pharmaceutical Medicine (ECPM), founded in 1991, has established a reputation as one of the premier European training centers in Pharmaceutical Medicine. The ECPM training platform offers undergraduate / graduate training for medical and life sciences students and postgraduate training on three different levels in the field of Pharmaceutical Medicine / Drug Development Sciences.

The first postgraduate level represents the ECPM Certificate/Diploma of Advanced Studies course, (CAS 20 ECTS / DAS 30 ECTS), which can then be complemented on a second level with Continuing Professional Development (CPD) short courses and a thesis to achieve the Master of Advanced Studies in Medicines Development (MAS, 60 ECTS). The third level offers a variety of short courses for Continuing Professional Development.

We collaborate locally with the Clinical Trial Unit (CTU) of the Department of Clinical Research at the University Hospital in Basel, as well as Europe wide with universities in the PharmaTrain network, such as the Semmelweis University in Budapest, and internationally with the Peking University Clinical Research Institute and the University of San Francisco.

Head of Education & Training, Managing Director

Annette Mollet, PhD, dipl. Pharm. Med. SwAPP, MBA is Managing Director and Head of Education & Training of the ECPM at the University of Basel since 1997.

Annette holds a Master in Pharmacy from the University of Basel and a PhD in Neurobiology from the Swiss Federal Institute of Technology in Zurichand an MBA in International Health from the Swiss Tropical and Public Health Institute (Swiss TPH). She teaches drug development both at the Universities of Basel and Zurich. In 1997 Annette joined the clinical R&D department at F. Hoffmann-La Roche in Basel. She was responsible for the conduct of Phase II and Phase III trials and later worked as a Medical and Product Manager for oncology products at Roche Pharma Schweiz.

She is chairing the Federal Expert Committee for the Evaluation of Radioactive Drugs, a joint committee of the Swiss Agency for Therapeutic Products (Swissmedic) and the Swiss Federal Office of Public Health (BAG) since 2007, being a member since 1994. She was a founding member and Member of the Board of the Swiss Association of Pharmaceutical Professionals (SwAPP) and was active in SwAPP's commission for specialty training and Continuing Professional Education (CPD) from 1999 until 2018.

She was also involved as a Program Manager in the creation of a European specialist title in Pharmaceutical Medicine and of a Master title in Medicines Development within the Innovative Medicines Initiative (IMI) from 2009 until 2014. She chairs the PharmaTrain Federation (successor project after termination of the PharmaTrain project in 2014) working group of course providers in Pharmaceutical Medicine.

From 2016–2021 Annette was member of Board of the Association of Graduate Regulatory Educators (AGRE global) based in the USA. She is the co-author of the Dictionary of Pharmaceutical Medicine by Springer (fourth edition, 2017) and was a member of the working party on the "PharmaTrain Syllabus for Pharmaceutical Medicine" lead by the Royal College of Physicians in London. Since April 2017 Annette forms part of the Committee of Continuing Education of the University of Basel. In July 2018 she was elected as an External Examiner at the Trinity College of the University of Dublin for the curriculum in Pharmaceutical Medicine.

In 2020 she was recognized as Global Fellow in Medicines Development by the International Federation of Associations of Pharmaceutical Physicians and Pharmaceutical Medicine. In June 2021, Annette was elected Board Member of IFAPP

(International Federation of Association of Pharmaceutical Physicians and Pharmaceutical Medicine) where she chairs the "Young Professionals" working group. Its objective is to raise awareness in young people at the beginning of their career of the discipline, training possibilities and job offerings in the field of Pharmaceutical Medicine.

Course Director

Stefanie Zechner is the Course Director Education and Training since March 2021. She received her MSc in Psychology and a PhD in Psychology/Neuroscience from the University of Basel. Stefanie joined the pharmaceutical industry as a Clinical Scientist and was responsible for a phase III trial in Alzheimer's disease as Clinical Trial Head at Novartis. She became passionate e about enabling them to perform well. After the launch of Once Exelon Patch, she decided (or made the decision) to transition from R&D to HR. Since this move in 2008, Stefanie has supported a broad number of clients in their career transitions and led national, European, and global talent acquisition projects for pharma and biotech companies in the Oncology, Immuno-Oncology, Rare Disease, CNS, Cardiovascular, and Metabolism space. Stefanie graduated in 2005–2007 successfully from the ECPM course. In 2020, she trained as a Coach with the NeuroLeadership Institute, which provides a solid framework and methodology to help leaders and organizations facilitate positive change and lead more effectively.

Administrator and Course Organizer

Beatrice Schmid is responsible for the course organization and administration at the European Center of Pharmaceutical Medicine since 2013.

Since 1996 Beatrice was responsible for the management of different administrative secretariats. She started her career as a manager in a facility management company where she was responsible for the human resource matters of more than 300 employees.

In 2000 she joined Novartis where she held different positions such as Head of the IT secretar iat of Switzerland and management of the division secretariat and later as Human Resource Assistant of the technical operations department.

From 2002 until 2013 she worked for Helvetia, a Swiss insurance company. At that time, she was Head of the IT secretariat of the divisional secretariat for the whole of Switzerland and later Head of the Sales Management secretariat, a member of the Management Board of Switzerland. In March 2013 she joined the ECPM where she manages the course organization and the administration of the secretariat of the institute. She also works as an assistant to Professor Thomas D. Szucs, Director of the ECPM.

ECPM Course Module 1 at the Biozentrum of the University of Basel

Research.
Personnel.

The ECPM's research activities focus on the health economic characteristics, cost-benefit implications and efficient use (e.g. guided by predictive testing or risk stratification models) of pharmaceuticals and other healthcare interventions in Switzerland and internationally. They have a close relationship with modern Health Technology Assessment and imply the use and integration of health economic and pharmacoeconomic evaluation methodology (cost effectiveness, cost utility, application of advanced modeling techniques), outcomes and clinical research (i.e., randomized clinical trial and observational study) methodology, and biostatistics. Complementary activities occur in related fields such as health systems research, health services research including work with large real-world datasets, clinical epidemiology and pharmacoepidemiology.

Health economic evaluation studies, which are a mainstay of ECPM's research activities, integrate clinical evidence with medical resource use and cost data to analyze the value for money provided by new or long-used drugs and other health care interventions. The overarching question is how scarce health care resources can be optimally used to maximize patient benefit and support the sustainability of healthcare systems. The results of this type of research are an important prerequisite of informed and transparent health policy decision making

Clinical fields addressed by ECPM studies include, amongst others, oncology and hematology, cardiovascular disease and heart failure, geriatrics, postoperative pain management, neurology, ophthalmology, infectious diseases, and vaccinations.

Head of Research

Matthias Schwenkglenks, PhD, MPH has been ECPM's Head of Research since 2003. In 2021, he was appointed Research Group Leader at the Department of Public Health of the Medical Faculty. Since 2010, he also leads the Medical Economics Unit at the Epidemiology, Biostatistics and Prevention Institute of the University of Zurich. Among other commitments, he acts as a health economics expert for the Cancer Screening Committee set up within the framework of the Swiss National Strategy against Cancer, and as an advisor for the Swiss Healthcare Atlas project led by the OBSAN.

Matthias obtained a Master of Arts in Sociology and Political Sciences from the University of Tübingen, a Master of Public Health from the Universities of Basel, Bern and Zurich, and a PhD in Epidemiology from the University of Basel. In 2009, he received the Venia Legendi in Health Economics and Public Health from the Medical Faculty of the University of Zurich, and was subsequently appointed Professor (Titularprofessor) in 2016.

He previously headed the Department of Medical Economics at the Hirslanden Private Hospital Group, Zurich, and worked as a Research Fellow at the Department of Medical Economics of the University of Zurich. He also has extensive professional experience in internal intensive care nursing.

His current research interests and teaching activities are in the fields of health economics, health economic evaluation and modeling, Health Technology Assessment, health services research with large real-world datasets, epidemiology, observational study and trial design, and biostatistics.

Senior Research Scientist

Michaela Barbier, PhD is a Senior Research Scientist and lecturer at the ECPM since 2018.

She holds a Master in Mathematics and Economics ("Wirtschaftsmathematik") and a PhD in Biostatistics, both from the University of Ulm. Alongside her PhD, she already worked on industry-funded projects in biostatistics but was also involved in teaching activities.

She is an experienced biostatistician with more than 13 years' expertise in healthcare across academia, the pharmaceutical industry and consulting, with her work spanning health economics and outcomes research, Health Technology Assessments, biostatistics and real world evidence.

Michaela has a vast experience of drug development and clinical trials after working for many years as a (senior) statistician at Novartis. As a later consultant, she expanded her knowledge in health economics with projects ranging from Health Technology Assessments, health economic evaluations and modeling, real world database analyses and also market access. She acquired knowledge of a wide range of indications including among others oncology, cardiovascular, respiratory and ophthalmology.

Her current research interests remain in health economic decision modeling, biostatistical modeling, health service research and value-based health care.

Senior Research Scientist

Judith Lupatsch, PhD is a Senior Research Scientist and lecturer at the ECPM since 2017.

She has a degree in social sciences from the University of Mannheim, where she focused on judgment and decision models as well as behavioral psychology. After working in several projects, she continued with a master's degree in economics at the University of Bern, where she became interested in econometrics and health economics. Her thesis was on developing and modeling preference-based utility measures for health economic evaluations.

She undertook a PhD in epidemiology and biostatistics at the Institute of Social and Preventive Medicine (ISPM) in Bern where she had the chance to deepen her modeling and data analysis skills, especially in cancer epidemiology. After the PhD she continued with a post-doctoral fellowship at the institute national de la santé et de la recherche médicale (INSERM) in Paris, France. At the ECPM, she is mainly responsible for health economic and health service research projects in cooperation with the Swiss Group for Clinical Cancer Research (SAKK).

Her current research interests focus on health economics, HTA, epidemiology and health service research, especially modelling aspects.

Senior Research Scientist

Nadine Schur, PhD is a Senior Research Scientist at the ECPM since 2015.

She studied Biomathematics at the University of Applied Science Zittau / Goerlitz, Germany, before obtaining a Master of Science in Epidemiology at the University of Basel in 2008. Afterwards, she worked on her PhD thesis "Geostatistical modelling of schistosomiasis transmission in Africa" at the Department of Epidemiology and Public Health, Swiss Tropical and Public Health Institute (Swiss TPH), Basel, that she published in 2011.

She continued her work at the Swiss TPH on the spatial distribution of neglected tropical diseases in Africa for another year where she was also involved in teaching.

Then, she started a new position as Research Associate at the Department of Infectious Disease Epidemiology, Imperial College London, analyzing demographic and behavior-related factors as well as temporal trends associated with the HIV epidemic in Zimbabwe. She also gained knowledge on the conception and implementation of epidemiological field studies in the framework of the Manicaland Project. During her years of research, she has had the opportunity to develop various techniques in health research methodology from systematic reviews to disease modeling.

Her current research interests are in the field of epidemiology, health economic evaluations and biostatistics focused on multi-variable regression analysis, epidemiological and decision-analytic modeling, and real-world database analyses.

Senior Research Scientist

Katya Galactionova, PhD is a Senior Research Scientist at the ECPM since 2020.

She holds an MA in Applied Economics from the University of North Carolina at Greensboro, USA. After finishing her studies, she moved to Emory University, USA where she supported, designed and implemented statistical analyses to inform questions about the impact of US health policies on health outcomes, uptake of health interventions, drivers of growth in health care expenditure, and addressed other questions within the health services research.

In 2012, she joined the Swiss Tropical and Public Health Institute (Swiss TPH), Switzerland where she applied her skills and developed an expertise in economics of infectious diseases, epidemiology, economic evaluation, and gained experience in simulation and modelling. While at Swiss TPH, she contributed operational and health systems insights to modelling of malaria interventions, conducted costing studies of interventions against infectious diseases, and led methodological development toward operationalizing cost-effectiveness for optimal resource allocation of funding by malaria programs. Her work on health economic modelling of the new malaria vaccine supported policy decision-making by global (WHO, BMGF, GAVI) and regional stakeholders and formed the bulk of her thesis that led to a PhD in epidemiology with a concentration in health economics.

Her current research interests are in health economic evaluation and modelling, impact evaluation including quasi-experimental methods, epidemiology and health services research in both developed and developing country settings.

Senior Research Scientist

Arjun Bhadhuri, PhD is a Senior Research Scientist, Health Economist and lecturer at the ECPM since 2018.

He completed his PhD at the University of Birmingham in Health Economics in 2017. Subsequently he worked as a Postdoctoral Researcher in Health Economics at the University of Sheffield for nine months. He then moved to the ECPM, where is he working as a Postdoctoral Researcher.

He also undertakes teaching in elementary health economics for postgraduate students at the University of Basel. His current research interests are in systematic reviews, economic evaluations, psychometrics research, medical writing and informal care.

Senior Research Scientist

Paola Salari, PhD is a Senior Research Scientist and lecturer at the ECPM since 2018.

She is an economist with research experience in health systems of high and low income countries. She pursued both a BSc and a MSc degree in Economics and Social Sciences at Bocconi University, in Milan. In March 2015 she obtained a PhD in Economics with a specialization in Health Economics and Policy at the Università della Svizzera italiana (University of Lugano). She focused her doctoral studies on inequalities and inequities aspects of the Swiss health care system.

After her PhD, she joined the Swiss Tropical and Public Health (Swiss TPH) Institute in Basel, as Postdoctoral Scientific Collaborator where she conducted research in the field of global health. She carried out socioeconomic anal yses of the health care systems of Ghana and Tanzania and she collaborated in costing studies of schistosomiasis' elimination in Zanzibar and Côte d'Ivoire.

Her areas of expertise include health inequalities, health financing, access to health care, economic evaluations, multi-variable regression analysis and program evaluation. At the ECPM she has been working on cost-effectiveness analyses alongside cluster randomized clinical trials, statistical analyses of health insurance claims data and of other epidemiological data to inform health economic models.

Senior Research Scientist

Sandro Stoffel, PhD is a Senior Research Scientist at the ECPM since 2019.

He holds a Master in Business Administration from the University of Fribourg, a Master in Development Economics from the University of Rome Tor Vergata and a Master in Economic Theory from Paris-Sorbonne University. After completion of his PhD in Economic Theory at the University of Rome Tor Vergata, he worked as a Behavioural Researcher at the Joint Research Centre of the European Commission on projects applying insights from behavioral economics to preventive health behaviors. He then moved to UCL and later to the University of Aberdeen, before joining the ECPM.

His current research interests are in behavioral health economics, medical decision making and survey methodology.

Co-Supervision of PhD/MMD projects. PhD/MMD Candidates.

PhD Candidate

Niklaus Meier, MSc, BSc, studied economics and applied economic analysis at the University of Bern with a specialization in applied empirical methods in the fields of health and public policy. Through his subsequent work as a research associate for health economics at the Bern University of Applied Sciences, he became familiar with health technology assessment and cost-effectiveness analysis. This experience enabled him to start his PhD at the ECPM, under the principal supervision of Matthias Schwenkglenks, in 2021. His PhD focuses on cost-effectiveness analyses of medical interventions for haemophilia with a particular emphasis on treating haemophilia via gene therapies. For this, he is developing a microsimulation model to compare potential gene therapies with the current standard of care. Niklaus further plans to conduct a systematic literature review for cost-effectiveness analyses of haemophilia interventions with a focus on reviewing the clinical effectiveness evidence that was used to inform the models. For his final project, he plans to draw on the insights from the previous research to develop or refine methods for cost-effectiveness analyses and specific techniques for quantifying uncertainty and the expected value of information.

PhD Candidate

Chiara Jeiziner, MSc, BSc pharm, studied at the University of Fribourg and Basel in Switzerland. In 2017, she graduated and received the federal diploma as a pharmacist in Basel. After working one year in a community pharmacy, she joined the Pharmaceutical Care Research Group (PCRG) at the University of Basel in August 2018. Her PhD thesis is focusing on the "implementation of pharmacogenotyping in pharmaceutical care". In collaboration with Katja Suter, a former staff member of the ECPM, she analyzes pharmacogenetic relevant information and instructions about pharmacogenetic management in all summaries of product characteristics of drugs registered in Switzerland.

MMD Candidate

Daniela Fazzotta, MBA, BSc earned an Executive MBA from the University of Lausanne and the SDA Bocconi University of Milan and is a trained economist. As a Senior Executive, Daniela's professional experience spans the healthcare and finance sectors. Before rejoining healthcare, she specialized in Corporate Strategy & Corporate Finance. Within drug development, she has led projects on Precision Medicine, Women's Health, Physicians' & Medical Staff Training, Communication, and Public Relations. Daniela decided to embark on the MMD post-graduation to gain cutting-edge knowledge and deepen her skills in the management of drug development (from discovery, regulatory, and manufacturing to patient access and pharmacovigilance). Her passion for advanced technologies drove her to choose Cell and Gene Therapies (CGTs) as her thesis topic. In mid-2020, she conducted research on "The Future of CAR-T Cell Therapy" focusing on allogeneic technologies. She then changed her subject to "Value Creation in Cell and Gene Therapies from the Perspective of Health Economics" to maximize outcomes. Daniela is undertaking comprehensive investigations on the impact of CGTs on costs and health outcomes compared to conventional care by examining 17 interventions on three rare diseases in three healthcare systems (the USA, Australia, and the top-5 European countries).

Education & Training.
Current Status.

The European Center of Pharmaceutical Medicine (ECPM) has established a reputation as one of the premier European training centers in Pharmaceutical Medicine. Training is offered at undergraduate, graduate and postgraduate levels. On a postgraduate and Continuing Professional Development (CPD) level, courses provide expert knowledge in drug development, pharmaceutical medicine, clinical research, and regulatory sciences.

The ECPM Diploma Course represents the core of the postgraduate training platform. It covers the training need of specialists working in one or the other phase in drug development and provides a holistic view of the process and comprehensive instructions for integrating cutting-edge concepts and best practices in medical product development and regulatory sciences.

The focus of the ECPM training platform is to teach integrated medicines development with empha- sis on requirements for rational and rapid development of a new product for the global market. The course programs cover all aspects of pharmaceutical medicine and drug development and regulatory sciences as defined by the IMI PharmaTrain syllabus.

Undergraduate / Graduate Teaching

The ECPM employees teach a variety of graduate-targeted courses in pharmaceutical medicine, health economics and health policy. Courses are offered within the Medical Faculty / Department of Public Health and the Pharmacenter of the University of Basel, as well as at the Medical Faculty and Science Faculty of the University of Zurich. Lectures are held in English and German. For details, please refer to the listing of teaching and training activities.

Postgraduate Training

The largest training offer remains the ECPM Diploma Course with 105 participants running over two years. The current course cycle started in September 2019 and will be finished in August 2021. The course has been offered successfully for 29 years. The Diploma of Advanced Studies in Pharmaceutical Medicine can be extended with Continuing Professional Education (CPD) short courses and a Master Thesis to achieve a Master of Advanced Studies in Medicines Development. Currently, six candidates are enrolled.

In 2012 and 2018 the ECPM received the “Centre of Excellence” accreditation by the Innovative Medicines Initiative (IMI) PharmaTrain. This certifies that the ECPM adheres to the IMI Education & Training Quality Standards as well as to the PharmaTrain Syllabus, Learning Outcomes and Curriculum for Training in Pharmaceutical Medicine. Re-accreditation is planned for 2022.

The following postgraduate courses were offered in 2021:

Diploma Course (DAS) in Pharmaceutical Medicine
The 15th cycle started in September 2019 and ends with the examination in August 2021.

Scientific Medical Writing
In collaboration with Mediwrite
This course provides an introduction to the field of strategic scientific and medical writing and offers hands on training in writing and analyzing scientific texts.

CAS Klinisch-genomische Medizin & Einführung in das Genetic Counseling
In collaboration with the private University of Lichtenstein, three modules in 2020
The basics of genomic medicine and the application of pharmacogenomics and tumorgenetics are presented. One module is hosted by Roche onsite plus Zoom.

Ethical and Legal Aspects of Clinical Trials
The implementation of clinical research projects requires conscientious review of research projects not only in terms of their scientific quality but also in regard to their ethical adequacy and appropriateness. How can we balance the risk-benefit of our projects? Given the importance of ethics for the conduct of drug development and research, it should come as no surprise that many different professional associations, government agencies, and universities have adopted specific codes, rules, and policies relating to research ethics.

The ECPM Team during the online Module 2. From left to right Annette Mollet, Beatrice Schmidt and Thomas Szucs

Education & Training.
Objectives for the coming years.

The objectives of the ECPM are to maintain the high quality of the study program, to implement the latest trends and to retain the leading role in the training of Medicines Development.

The ECPM Course is recognized by the Swiss Association of Pharmaceutical Medicine (www.sgpm.ch), by the Swiss Medical Association (www.fmh.ch) and the Swiss Association of Pharmaceutical Professionals (www.swapp.ch) to cover the theoretical training and the examination for specialization and board certification. In addition, the courses are accredited by the Swiss Association of Pharmacists (FPH, www.pharmasuisse.org) for continuing education. We continue to assess further accreditations that substantiate the high quality of the study program.

Collaboration with professional associations and our customers from the pharmaceutical industry, academia and regulatory authorities are key. Therefore our focus remains on strengthening and developing the PharmaTrain collaboration, to offer the Master of Advanced Studies course participants the opportunity to join CPD short courses and acquire credit points, tailored to their needs.

Through the Bologna system it is possible to acquire credit points at other universities. The rule is that at least 50% of the training and the master thesis must be completed at the university where the candidate is enrolled.

The first Master candidate finished in 2015, further three candidates in 2018, two candidates in 2019 and one candidate in 2020. Several students are in the process of attending master module courses and writing their master thesis.

Besides the collaboration with the partner universities in Europe, the ECPM collaborates internationally with partners that offer courses based on the on the same training syllabus.

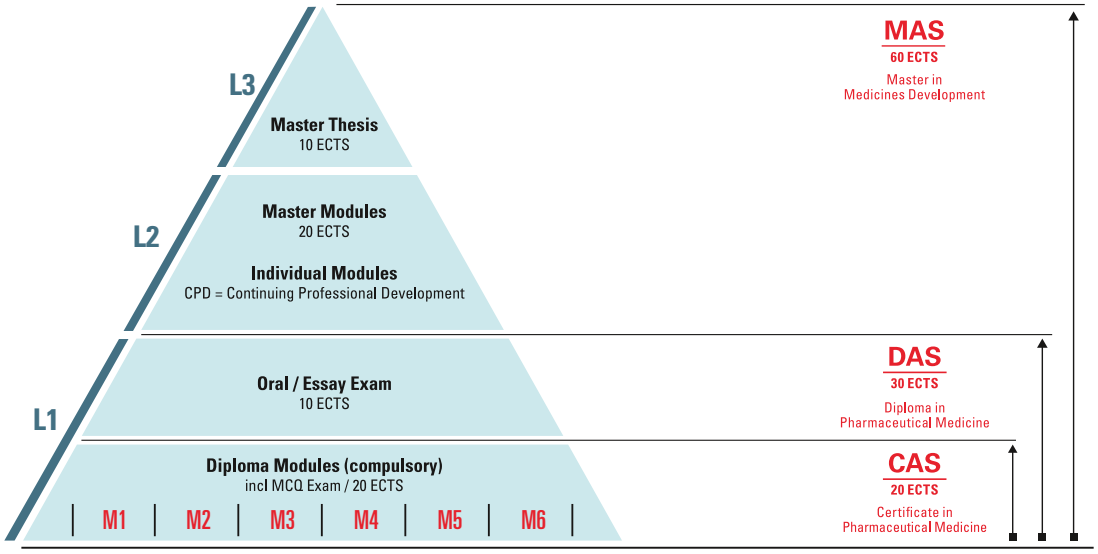
Namely the Peking University Clinical Research Institute (PUCRI) at the University of Beijing and the University of California San Francisco to exchange knowledge and enhance training competencies and standards. A number of faculty members teach on all three courses and several students have already switched between the programs due to their changing employment in the global industry.

A study trip to Estonia and China, together with the Swiss Association for Health Economics and Health Sciences, to learn how they organize their health system was planned for 2020 and 2021, respectively but had to be postponed due to the pandemic.

Welcome Aperitif with the ECPM students of the 16th cycle

Education & Training.

ECPM Training Platform



The ECPM training platform is conceived to provide profound training for scientists, regulators and healthcare industry managers in different areas and phases of drug development. The focus of the platform is to teach integrated medicines development with an emphasis on requirements for rational and rapid development of a new product for the global market. The course programs cover all aspects of pharmaceutical medicine, drug development and regulatory sciences as defined by the Innovative Medicines Initiative (IMI) PharmaTrain Syllabus.

As such, its primary targets are to provide uptodate knowledge on current trends in drug development and to train the leaders in drug development for their next career step. Additionally, it offers a platform not only to learn but also to share knowledge with colleagues and to discuss with experts face-to-face.

The ECPM training platform offers undergraduate/graduate training for students in medicine, human biology, epidemiology, public health and pharmacy as well as postgraduate training on three different levels in the field of Pharmaceutical Medicine/Drug Development Sciences. The first level [L1] represents the Certificate/Diploma of Advanced Studies in Pharmacutcial Medicine including 6 mandatory basic modules (CAS 20 ECTS / DAS 30 ECTS). The diploma can be supplemented on a second level [L2] with CPD short courses and a thesis to achieve a Master of Advanced Studies [L3] (60 ECTS).

The third level includes all diploma and master modules, many elective modules and short courses, which are accredited by the University of Basel and several professional associations for Continuing Professional Development (CPD). The ECPM collaborates with a science-driven and highly experienced international faculty including a network of experts in academia, the pharmaceutical industry and regulatory agencies and bodies of the healthcare system. Within this network, the ECPM was the coordinating entity of the European Innovative Medicines Initiative (IMI) PharmaTrain project (2009–2014), which aimed at fostering the overall understanding and competence for successful execution of integrated drug development and lifecycle management of medicines by identifying training gaps and by harmonizing the teaching programs. This initiative is maintained through the PharmaTrain Federation.

ECPM Diploma Course (DAS) in Pharmaceutical Medicine

The ECPM course is a well-established postgraduate education and training program targeted at representatives from the pharmaceutical industry, service industry, academic and government decision- and policy-makers who already have a good understanding of the basics and will benefit from a more in-depth, comprehensive and systematic immersion into modern medical product development, regulation and market introduction.

Course participants are involved in lectures, panel discussions, team-oriented case studies and interactive learning. Participation in the course provides the opportunity to integrate work and education, to discuss with experts face-to-face or online, to gain in-depth knowledge while building an international network, and to put this into perspective with each participant's own career plan.

A faculty network of experts from academia, pharmaceutical and biotechnology companies and regulatory authorities (including the European Medicines Agency, the Food and Drug Administration, Japanese and Emerging Markets regulatory agencies) carry the teaching responsibility. A successful completion of the course and the final examination provides the title Diploma of Advanced Studies (DAS) in Pharmaceutical Medicine and includes 30 ECTS credits.

Master Course (MAS) in Medicines Development

The Master Course in Medicines Development (MMD) is a postgraduate Master of Advanced Studies course. This program extends the Diploma course in Pharmaceutical Medicine. CPD short courses that count towards the Master, can be chosen according to the needs of the candidates who need to be able to cope with the challenges of drug development. Training and skills provide the basis to critically assess and improve challenges in the drug development process.

The program is designed as an executive course that can be completed in addition to working full- or part-time.

Through the IMI PharmaTrain network, we offer the Master of Advanced Studies course participants the opportunity to join courses and acquire credit points, tailored to their needs. Through the Bologna system it is possible to acquire credit points at other universities. The rule is that at least 50 % of the training and the master thesis must be completed at the university where the candidate is enrolled.

Frontiers in Drug Development Seminars

Integrated into the modules of the Diploma course, the ECPM offers one-day "Frontiers in Drug Development" seminars on current trends and hot topics. These seminars are open to the public and are accredited for continuing education by different professional organizations, such as the Swiss Medical Association (FMH). The complete list can be viewed on: http://www.ecpm.ch/frontiers-in-drug-development.

Examination

The examination was offered onsite at the University of Basel on August 24 and September 14, 2021. Due to the difficult travelling situation both the multiple choice and the oral/essay examination were held twice. Those students who were not able to travel will take the examination in summer 2021.

Multiple choice examination (MCQ):

In August, 60 out of 68 candidates passed (i.e. failure rate of 11.8 %) and in September, 4 out of 7 candidates passed the examination. The questionnaire existed of 120 MC questions which included two types of questions. 70 questions were of the "single best answer" type (one out of five possible answers is correct) and 50 questions of the "multiple true false" type (each of the four possible answers has to be rated correct or false).

Three questions had to be eliminated due to ambiguity which makes a total of 117 possible points.

Oral/Essay examination:

The oral/essay examination was offered in the afternoon of August 24, after the MCQ and on September 14, the whole, day. This part of the examination is mandatory to achieve the diploma title (DAS). The oral examination is a discussion based on a scientific paper and the essay examination comprises three one page summaries on topics covering clinical development, regulatory affairs or safety/pharmacovigilance. Both the MCQ and the Essay examination were performed on an iPad. One candidate failed the oral/essay in August and none failed in September.

We were able to award 21 CAS, 42 DAS and 1 MAS titles in 2021.

E-learning

To cope with the limited time resources and reduced budgets of specialists working in the health care environment, the ECPM has produced three e-learning programs. E-learning modules can be used for different teaching purposes. Firstly they can be used as a self-learning tool for prepa- ration or repetition of the course material, sec-ondly they can replace selected face-to-face mod-ules required to achieve the Master in Medicines Development, and thirdly they enable students to collect credits for Continuing Professional Development (CPD):

- Basics in Health Economics (launched 2013)
- Drug Safety and Pharmacovigilance (launched 2014)
- Personalized Healthcare (launched 2015)

Due to the Covid-19 pandemic we saw a strong increase of bookings for our e-learnings. A Certificate of Attendance from the University of Basel will be awarded after successful completion of each e-learning program (1 ECTS).

In 2021 we produced an e-learning program introducing the basics of drug development, called the "Path of Drug Development". It includes three chapters of 90 minutes each, comprising short lectures with animated slides and quizzes to check the learning outcomes. ECPM will soon be able to offer the program free of charge on its website.

Projects in 2021

- Going back to face to face teaching
- Launch of the new ECPM/Novartis e-learning
- Introducing a new electronic training platform containing course documents, videos, books, self-assessments and e-learnings hosted by Cometas
- Four master thesis in medicine's development supervised and one completed and published
- Scientific program of the joint online annual meeting 2020 of the Swiss Association of Pharmaceutical Professionals and Physicians (SwAPP and SGPM)

Planned Projects for 2022

The ECPM is working on several new training and teaching programs:

- New edition of the course "Project Management in the Life Science Industry"
- Scientific Medical Writing
- Fundamentals in Health Economics
- Communicating more powerfully and persuasively
- Frontiers in Drug Development seminar
- Scientific program of the joint annual meeting 2022 of the Swiss Association of Pharmaceutical Professionals and Physicians (SwAPP and SGPM)
- The 30th anniversary celebration was originally planned for June 2021. Due to the ongoing Coronavirus pandemic, the ECPM will commemorate its 30th anniversary on June 20th, 2022 with a celebration event in Basel.

Expertise for Approval of Radioactive Diagnostics and Therapeutics

Annette Mollet chairs the Federal Expert Committee for radioactive drugs consulting Swissmedic and the Federal Office of Public Health regarding the approval of new diagnostic and therapeutic drugs and tools for nuclear medicine.

External Examiner

Annette Mollet is external examiner for the MSc in Pharmaceutical Medicine and the Postgraduate Diploma in Pharmaceutical Medicine of the Trinity College in Dublin.

Undergraduate Teaching at the University of Basel Medical School

1. Szucs TD, Mollet A. Tutorate im Wissenschaftsmonat (WiMo) für Medizinstudenten, 4./5. Studienjahr Medizin Master.
2. Szucs TD, Mollet A,. Interprofessionelles Modul Medikamentenentwicklung. Major Clinical Medicine, 2. Studienjahr Medizin Bachelor.
3. Szucs TD. Interprofessionelles Modul Pharmakogenomik und personalisierte / individualisierte Medizin. Major Clinical Medicine, 2. Studienjahr Medizin Bachelor.
4. Szucs TD. Ökonomie und Gesundheit (Vorlesung). Major Clinical Medicine, 1. Studienjahr Medizin Bachelor.
5. Szucs TD. Gesundheitsökonomie (Vorlesung), 2. Studienjahr Medizin Master.
6. Schwenkglenks M, Lupatsch JE. Interprofessionelles Modul Medizinische Ökonomie. Major Clinical Medicine, 3. Studienjahr Medizin Bachelor.
7. Schwenkglenks M. Interprofessionelles Modul Gesundheitspolitik. Major Clinical Medicine, 3. Studienjahr Medizin Bachelor.
8. Szucs TD. Grundlagen und Übersicht. Einführung in die Medikamentenentwicklung. Major Clinical Medicine, 3. Studienjahr Medizin Bachelor.
9. Szucs TD. Phasen 2 und 3 Prüfungen. Einführung in die Medikamentenentwicklung. Major Clinical Medicine, 3. Studienjahr Medizin Bachelor.
10. Schwenkglenks M, Lupatsch JE. Kleingruppenseminare im Themenblock Körper, Subjekt, Umwelt, 1. Studienjahr Medizin Bachelor.

Undergraduate Teaching at the University of Basel, Faculty of Science

1. Mollet A, Schwenkglenks M. Lectures forming part of 12527-02 – Epidemiologische Konzepte in der Arzneimittelforschung
2. Schwenkglenks M. Lectures forming part of 20458-01 – Essentials in Drug Development & Clinical Trials.

Undergraduate Teaching at the University of Zurich

1. Szucs TD, Mollet A. Mantelstudium Arzneimittelentwicklung. 2.–4. Studienjahr Medizin Bachelor, Universität Zürich.
2. Schwenkglenks M, Szucs TD, Mollet A. BME310 – Research methodology for studies on human health and disease. 3. Studienjahr Biomedicine Master.
3. Schwenkglenks M, Szucs TD. BME318 – Clinical Epidemiology and Quantitative Research in Health Care. 3. Studienjahr Biomedicine Master.
4. Szucs TD, Schwenkglenks M, Mollet A. BME329 – Developing New Medicines: An Introduction. 3. Studienjahr Biomedicine Master (responsible PD Dr. Patricia Blank).

Undergraduate Teaching at the University of Bern

1. Schwenkglenks M. Lectures on Health economic evaluation and Health Technology Assessment in Switzerland and Europe. Master Biomedical Engineering.

Postgraduate Teaching at the University of Basel

1. Mollet A, Szucs TD, Schwenkglenks M. Lectures forming part of the ECPM Course in Pharmaceutical Medicine.
2. Schwenkglenks M, Mattli M. Gesundheitsökonomische Modellierung – Hands-on. Course forming part of the Postgraduate Master Program in Public Health.
3. Lupatsch, JE. Bhadhuri. A. Salari P. Stoffel ST. Barbier M. 41127 Advanced Research Methods – Health Economics, Master and PhD students, Semester course at the Institute of Nursing Sciences.
4. Bhadhuri A. Essentials in Health Research Methodology, Topic 3 – Basics of Health Economics. PhD students, PhD Program Health Sciences (PPHS).

Postgraduate Teaching at the University of Zurich

1. Schwenkglenks M. Gesundheitsökonomie. Course forming part of the Postgraduate Master Program in Public Health, Universities Basel, Bern, Zürich.
2. Schwenkglenks M, Szucs TD. Gesundheitsökonomische Evaluation. Course forming part of the Postgraduate Master Program in Public Health, Universities Basel, Bern, Zürich.
3. Szucs TD. Gesundheitsrecht. Course forming part of Postgraduate Master Program in Public Health, Universities Basel, Bern, Zürich.

Research.
Current Status.

ECPM's research activities started in 2003. Initially, a majority of studies were run with industrial partners, as there was (and is) only limited public funding for pharmaceutical-related health economic evaluation and Health Technology Assessment in Switzerland. In recent years, funding has been achieved in a balanced way from industry, health insurance providers, governmental and semi-governmental organizations and medical collaborative study groups. In 2021, our group has been one of the most active health economic groups in Switzerland in terms of publication activity, and project scope and scale. Based on six fulltime equivalents of scientific staff, we pursued a broad range of research activities, including participation in EU-funded international projects.

In a European Union HORIZON 2020-funded project addressing pharmacotherapy optimization in elderly patients, ECPM is responsible for the health economics work package. We also take responsibility, since 2007, for the outcomes research and health economic evaluation activities of the Swiss Group for Clinical Cancer Research (SAKK), the leading Swiss collaborative study group in the field of oncology and hematology. Alongside changes to the national approach to Health Technology Assessment (HTA), we are engaged in discussion and are pursuing cooperation with relevant academic and non-academic players in the field, including health insurance companies. In cooperation with a partner institution at the University of Zurich, we perform HTAs for the Swiss Medical Board (SMB), a non-profit institution funded by e.g. the Swiss cantons and the Swiss Academy of Medical Sciences (SAMW), and for the Swiss Federal Office of Public Health.

Projects with industrial partners continue to play a relevant role, which gives us opportunities to work with raw data from large, multinational randomized controlled trials and to be involved in HTA activities abroad, e.g. in the UK. In cooperation with the Basel Pharmacoepidemiology Unit (BPU; Prof. Christoph Meier) and the Helsana Group, we have, for the eighth time, published a report on medication utilization in Switzerland, based on healthinsurance claims data covering about 15 % of the Swiss population (Helsana Arzneimittelreport). Projects and resulting publications are listed in section Overview of Activities, below.

The strategic development of our research activities profits from fruitful exchange within the Department of Public Health of the Medical Faculty. We pursue and intensify our cooperation with other units at the University of Basel pursuing related research activities, e.g. the Chair of Health Economics at the Faculty of Business and Economics (DHE), Swiss Tropical and Public Health Institute, Institute of Nursing Sciences, Basel Pharmacoepidemiology Unit, and Basel Institute for Clinical Epidemiology & Biostatistics. The aforementioned units and ECPM have joined forces several years ago to establish an interdisciplinary network of excellence for comparative effectiveness and health economic research, S-CORE. S-CORE has achieved formal recognition as a Research Network of the University of Basel. Currently, a new format for intensified cooperation in the field of health economics is being developed across faculties. Research staff is also involved in university teaching at different levels.

Key Areas of Expertise

- Pharmacoeconomics and health economics
- Behavioral economics
- Decision-analytic modelling
- Epidemiology
- Outcomes research
- Clinical and observational study designs
- Biostatistics
- Analysis of real-world data

Main Areas of Activity

- Variation in healthcare utilization
- Medication utilization in Switzerland
- Approaches to health technology assessment
- Efficiency and value of health care services
- Oncology and hematology
- Cardiovascular disease and heart failure
- Neurology
- Influenza and other infectious diseases
- Geriatrics, specifically pharmacotherapy optimization in the elderly

Research.
Objectives for the coming years.

The situation and achievements of the ECPM in 2021 reflect the continued, successful development of a small research unit. In the coming years, we will seek to maintain a sensible balance of competitively (EU, potentially SNSF), publicly and privately funded research projects. As third-party funding of Health Technology Assessment-related and health economic evaluation-related research remains structurally uncertain, we also need to gain substantially more long-term university funding for our research group to ensure sustainability.

Towards this end, we aim to further strengthen and formalize collaboration with local partners from the Department of Public Health of the Medical Faculty, Faculty of Science and Faculty of Business and Economics.

Additional scientific aims are to expand research using administrative datasets provided by health insurance companies, and research on methodological topics in health economic evaluation, including causal inference methods. Regulatory science and behavioral health economics are additional areas of activity.

ECPM newly training at the Biozentrum of the University of Basel

Research.
Overview of activities.

Sources of project funding in 2021

University	9%
Health insurance companies	7%
SAKK	18%
Swiss Federal Office of Public Health and semi public sources	12%
EU (HORIZON 2020)	9%
Health Promotion Switzerland	5%
Industry and health care providers	40%

Note: numbers are appproximate

Local academic collaborations

- Prof. Stefan Felder, Health Economics, Faculty of Business and Economics, University of Basel
- Prof. Kaspar Wyss, Swiss Centre for International Health (SCIH), and Prof. Günther Fink, Household Economics and Health Systems Research, Swiss Tropical and Public Health Institute Basel
- Prof. Heiner Bucher and Prof. Matthias Briel, Basel Institute for Clinical Epidemiology and Biostatistics (ceb), University Hospital Basel
- Prof. Christoph Meier, Pharmacoepidemiology Unit, University of Basel, and Hospital Pharmacy Basel, University Hospital Basel
- Prof. Kurt Hersberger, Pharmaceutical Care Research Group, Faculty of Science, University of Basel
- Institute of Nursing Sciences, University of Basel
- Clinical units at the University Hospital Basel

Collaborations with national and international academic and public entities

- Epidemiology, Biostatistics and Prevention Institute, University of Zurich
- University Hospital Zurich
- Institute of Social and Preventive Medicine, University of Bern
- Swiss Group for Clinical Cancer Research (SAKK)
- Swiss Federal Office of Public Health (BAG)

Collaborations with private entities

- Helsana Group Dübendorf
- Germany Breast Group, Neu-Isenburg, Germany
- Pharmaceutical companies

Research.
New Projects.

New	
Title:	Cost-effectiveness of Low-dose CT screening for lung cancer
Project lead & contributors:	AB
Hypothesis / Objectives:	Update to systematic review of clinical and economic studies
Start date:	06/2021
Partner(s):	Basel Institute for Clinical Epidemiology and Biostatistics
Output:	Pending
Source of funding:	Krebsliga Schweiz

New	
Title:	Value-based Health Care Data analysis on lung cancer costs and patient-reported outcomes
Project lead & contributors:	MB, KG, MS
Hypothesis / Objectives:	Develop an algorithm to merge administrative datasets from the University of Basel Hospital covering services and billings with PROMs/CROMs for lung cancer patients treated at the Hospital; analyze the linked datasets to identify treatment patterns and relate these to patient outcomes and costs toward optimal care pathways
Start date:	10/2021
Partner(s):	University of Basel Hospital, Industry
Output:	Pending
Source of funding:	Industry

New	
Title:	Survey to identify drivers and barriers towards pneumococcal vaccination
Project lead & contributors:	STS, MS
Hypothesis / Objectives:	To identify drivers and barriers towards pneumococcal vaccination in adult risk groups in Switzerland
Start date:	01/2021
Partner(s):	Industry
Output:	Pending
Source of funding:	Industry

New	
Title:	The indirect costs of oesophageal cancer in Switzerland
Project lead & contributors:	STS, PS, MS
Hypothesis / Objectives:	To identify the indirect costs (i.e. productivity loss, informal care) of oesophageal cancer in Switzerland
Start date:	10/2021
Partner(s):	Industry
Output:	Pending
Source of funding:	Industry

Research.
Ongoing projects.

Ongoing

Title:	Health economic aspects of atrial fibrillation: analysis based on the Swiss-AF cohort study
Project lead & contributors:	MS
Hypothesis / Objectives:	Study of health economic implications of atrial fibrillation and health economic properties of related treatments
Start date:	04/2019
Partner(s):	Prof. Stefan Osswald, Kardiologie, Universitätsspital Basel; Epidemiology, Biostatistics and Prevention Institute, University of Zürich
Output:	Abstracts, peer-reviewed publications
Source of funding:	Swiss National Science Foundation

Ongoing

Title:	Pre- versus sub-pectoral implant-based breast reconstruction after nipple-sparing mastectomy (OPBC-02 PREPEC): A pragmatic, multicenter, randomized, superiority trial
Project lead & contributors:	JL, MS
Hypothesis / Objectives:	ECPM: establish health economic properties of the compared surgical techniques
Start date:	07/2019
Partner(s):	Prof. Walter Paul Weber, Klinik für Allgemeinchirurgie, Universitätsspital Basel
Output:	Pending
Source of funding:	Swiss National Science Foundation

Ongoing

Title:	Estimation of influenza hospitalisations from Medical Statistics of Hospitals
Project lead & contributors:	NSch, KG, MS
Hypothesis / Objectives:	Assess if Hospital Statistics can validly identify influenza hospitalisations
Start date:	03/2020
Partner(s):	Epidemiology, Biostatistics and Prevention Institute, University of Zürich
Output:	Pending
Source of funding:	Swiss Federal Office of Public Health

Ongoing

Title:	Health economic analysis orphan drug epilepsy
Project lead & contributors:	MS
Hypothesis / Objectives:	Development of a cost-effectiveness analysis framework for a novel drug used in severe forms of childhood epilepsy, analysis for the United Kingdom.
Start date:	07/2019
Partner(s):	Industry
Output:	Abstracts
Source of funding:	Industry

Ongoing

Title:	Cost-effectiveness and budget impact of a new treatment of Alzheimer's disease
Project lead & contributors:	AB, MS
Hypothesis / Objectives:	Cost-effectiveness and budget impact of a new treatment of Alzheimer's disease in Switzerland
Start date:	11/2020
Partner(s):	Industry
Output:	Pending
Source of funding:	Industry

Ongoing

Title:	Impact and economics of PCSK9 inhibitor treatment in Switzerland
Project lead & contributors:	PS, KG, MS
Hypothesis / Objectives:	Burden of disease, budget impact and cost-effectiveness modelling for a small molecule PCSK9 inhibitor, for Switzerland
Start date:	09/2020
Partner(s):	Industry
Output:	Pending
Source of funding:	Industry

Ongoing

Title:	Evaluation project alongside a prevention project on somatoform disorders
Project lead & contributors:	NSch, MS
Hypothesis / Objectives:	Formative, outcome and impact evaluation of project: «Prävention psychosozialer Belastungsfolgen in der Somatik: ein Modellprojekt zur kollaborativen Versorgung (SomPsyNet)»
Start date:	03/2019
Partner(s):	Swiss Tropical and Public Health Institute
Output:	Internal reports https://doi.org/10.1186/s12888-021-03353-5
Source of funding:	Health Promotion Switzerland

Ongoing

Title:	Evaluation project alongside a project on falls prevention
Project lead & contributors:	NSch, MS
Hypothesis / Objectives:	Formative, outcome and impact evaluation of project: «Sturzprävention in der Gesundheitsversorgung – Überführung in die Regelversorgung (StoppSturz)»
Start date:	03/2019
Partner(s):	Swiss Tropical and Public Health Institute
Output:	Internal reports
Source of funding:	Health Promotion Switzerland

Ongoing

Title:	ENDOSCAPE, a clinically applicable non-viral gene delivery technology
Project lead & contributors:	STS, KG, NM, MS
Hypothesis / Objectives:	Gene therapy is one of the most promising treatment options for future advanced therapies in a broad range of diseases. Successful gene delivery requires the recognition of target cells as well as cytosolic and nucleosolic uptake of the gene. Currently, non-viral based gene delivery such as transfection reagents are only suitable for in vitro applications and clinical gene therapeutics delivery is accomplished via viral vectors, which still has major safety concerns and complex and costly manufacturing procedures, preventing future implementation for the treatment of diseases with large patients groups. In the last 15 years, a class of secondary plant metabolites has been discovered that selectively mediates endosomal escape and cytoplasmic delivery of macromolecules only at low endosomal pH, thereby inducing a 40-fold enhanced gene delivery efficacy, in vivo. The currently employed methods of applying endosomal escape enhancers and gene therapeutic product, however, do not ensure that both compounds are at the same time at the site of interaction. The ENDOSCAPE technology platform will develop and collect proof of concept for a non-viral gene delivery technology with increased synchronization (in time and place) of both compounds. Proof of concept of the ENDOSCAPE technology has a major impact on the therapeutic opportunities for current and future macromolecule drugs for a broad range of diseases. All this induces new biotech-based businesses; new research projects and creates new technology platforms for development of new macromolecule therapeutics for a broad range of disease indications. The non-viral bases ENDOSCAPE technology will enhance therapeutic efficacy with lower therapeutic dose thereby reducing costs of healthcare, improving the health of patients worldwide, and strengthening the competitive landscape of the EU in the worldwide quest for such an advanced technology.
Start date:	01/2019
Partner(s):	ENDOSCAPE Consortium: Sapreme Technologies BV, Holland, Max-Planck-Gesellschaft zur Förderung der Wissenschaften EV, Germany, VIB Belgien, Freie Universität Berlin, Germany, Universidad de Santiago de Compostela, Spain, Universita degli Studi di Roma Tor Vergata, Italy, Extrasynthese SAS, France, Universita degli Studi di Ferrara, Italy, Universität Schweiz, Switzerland, TP21 GmbH, Germany.
Output:	Internal reports
Source of funding:	EU (HORIZON 2020, grant agreement 825730)

Ongoing

Title:	Cost-effectiveness of novel ophthalmology drugs
Project lead & contributors:	MB, PS, MS, AB
Hypothesis / Objectives:	Assessment of health economic characteristics and cost-effectiveness of novel ophthalmology drugs in Switzerland
Start date:	12/2018
Partner(s):	Industry
Output:	Internal reports; peer-reviewed publication pending
Source of funding:	Industry

Ongoing

Title:	Drug utilization reports based on Swiss health insurance claims data
Project lead & contributors:	NSch, MS, PS, KG, STS
Hypothesis / Objectives:	Analysis of drug use in Switzerland and related medical and economic aspects, based on Swiss health insurance data
Start date:	09/2013
Partner(s):	Basel Pharmacoepidemiology Unit and Hospital Pharmacy, University Hospital Basel
Output:	https://reports.helsana.ch/arzneimittel2021/); https://doi.org/10.4414/smw.2021.w30018
Source of funding:	Health insurance provider

Ongoing

Title:	Cost-effectiveness analysis of treatments for newly diagnosed prostate cancer
Project lead & contributors:	MB, MS
Hypothesis / Objectives:	Survival modelling and cost-effectiveness analysis
Start date:	03/2020
Partner(s):	Epidemiology, Biostatistics and Prevention Institute, University of Zürich
Output:	https://www.swissmedicalboard.ch/fileadmin/public/news/2020/HealthEconomicAnalysis-Plan_smb_prostate_cancer_drugs_2020.pdf)
Source of funding:	Swiss Medical Board

Ongoing

Title:	Co-operative projects with the SAKK in the field of health economics and outcomes research in oncology
Project lead & contributors:	JL, STS, MB, MS
Hypothesis / Objectives:	Outcomes research, health services research and health economic evaluation projects in cooperation with Swiss Group for Clinical Cancer Research (SAKK) and hospitals
Start date:	11/2007
Partner(s):	SAKK, University Hospital Basel, other hospitals
Output:	Abstracts, peer-reviewed publications. https://doi.org/10.4414/smw.2021.20464
Source of funding:	SAKK

Ongoing

Title:	Health economic analysis of PENELOPE trial
Project lead & contributors:	KG, PS, MS
Hypothesis / Objectives:	Health economic evaluation alongside the randomised controlled PENELOPE trial. PENELO-PE is a phase III trial of palbociclib (PD-0332991) in patients with hormon receptor positive, HER2 negative patients with primary breast cancer and a high risk of recurrence after neoadjuvant chemotherapy.
Start date:	09/2013
Partner(s):	GBG Forschungs GmbH, Neu-Isenburg, Germany
Output:	Peer-reviewed publication pending
Source of funding:	Private entity, non-industry

Ongoing

Title:	Health economic analysis alongside SAKK clinical oncology trials
Project lead & contributors:	JL, STS, MS
Hypothesis / Objectives:	The treatment of patients with cancer with new drugs may not only increase overall survival but may also increase or decrease overall treatment costs. Therefore, a comparison of incurred costs with achieved benefit in the form of increased overall survival by way of a cost-effectiveness analysis is undertaken. Prospective health economic data collection is still ongoing in two randomised clinical trials. For two other clinical trials data collection was finalised by the end of 2014 and analysis started 2015. Three new studies including health economic evaluations were initialised in 2014, one more in 2015
Start date:	11/2007
Partner(s):	Swiss Group for Clinical Cancer Research (SAKK)
Output:	Abstracts, peer-reviewed publications
Source of funding:	Industry

Research.
Completed projects.

Completed

Title:	Budget impact of multiple sclerosis treatment
Project lead & contributors:	STS, MS
Hypothesis / Objectives:	Budget impact analysis for a new multiple sclerosis treatment, for Switzerland
Start date:	08/2020
Partner(s):	Industry
Output:	Internal report
Source of funding:	Industry

Completed

Title:	Antidepressants and cognitive behavioural therapy interventions for depression
Project lead & contributors:	AB, MS
Hypothesis / Objectives:	Performance of health economic parts of HTAs for the Swiss Medical Board
Start date:	06/2014
Partner(s):	Epidemiology, Biostatistics and Prevention Institute, University of Zürich
Output:	https://www.swissmedicalboard.ch/fileadmin/public/news/2022/SMB_Assessment_Rep_Antidepressiva_2022.pdf
Source of funding:	Swiss Medical Board

Completed

Title:	Cost-effectiveness of siponimod for multiple sclerosis
Project lead & contributors:	NSch, AB, MS
Hypothesis / Objectives:	Assessment of health economic characteristics and cost-effectiveness of siponimod in Switzerland
Start date:	12/2018
Partner(s):	Industry
Output:	Internal report; https://doi.org/10.1007/s40273-021-01023-8
Source of funding:	Industry

Completed

Title:	OPERAM: Optimising PharmacothERApy in the Multimorbid elderly
Project lead & contributors:	MS, PS, AB
Hypothesis / Objectives:	Background: Inappropriate polypharmacy has been linked with adverse outcomes in older, multimorbid adults. OPERAM is a European cluster-randomized trial aimed at testing the effect of a structured pharmacotherapy optimization intervention on preventable drug-related hospital admissions in multimorbid adults with polypharmacy aged 70 years or older. Clinical results of the trial showed a pattern of reduced drug-related hospital admissions, but without statistical significance. In this study we assessed the cost-effectiveness of the pharmacotherapy optimisation intervention. Methods: We performed a pre-planned within-trial cost-effectiveness analysis (CEA) of the OPERAM intervention, from a healthcare system perspective. All data were collected within the trial apart from unit costs. QALYs were computed by applying the crosswalk German valuation algorithm to EQ-5D-5L-based quality of life data. Considering the clustered structure of the data and between-country heterogeneity, we applied Generalized Structural Equation Models (GSEMs) on a multiple imputed sample to estimate costs and QALYs. We also performed analyses by country and subgroup analyses by patient and morbidity characteristics. Results: Trial-wide, the intervention was numerically dominant, with a potential cost-saving of CHF 3'588 (95% confidence interval (CI): -7'716; 540) and gain of 0.025 QALYs (CI: -0.002; 0.052) per patient. Robustness analyses confirmed the validity of the GSEM model. Subgroup analyses suggested stronger effects in people at higher risk. Conclusion: We observed a pattern towards dominance, potentially resulting from an accumulation of multiple small positive intervention effects. Our methodological approaches may inform other CEAs of multi-country, cluster-randomized trials facing presence of missing values and heterogeneity between centres/countries.
Start date:	05/2015
Partner(s):	OPERAM Consortium: Universität Bern, University Catholique de Louvain, Universiteit Utrecht, University College Cork, Panepistimio Ioanninon, Università degli Studi Gabriele d' Annunzio di Chieti-Pescara, TP21 GmbH
Output:	Peer-reviewed publication; https://doi.org/10.1371/journal.pone.0265507
Source of funding:	EU (HORIZON 2020, grant agreement 634238) and Swiss State Secretariat for Education, Research and Innovation (SERI; contract number 15.0137

Completed

Title:	Budget impact of GCSF biosimilars
Project lead & contributors:	STS, MS
Hypothesis / Objectives:	Assess budget impact of GCSF biosimilars in Switzerland, for different pricing strategies/ assumptions
Start date:	01/2020
Partner(s):	Industry
Output:	Internal report
Source of funding:	Industry

Completed

Title:	Cost-effectiveness of chronic lymphocytic leukaemia treatment
Project lead & contributors:	MB, MS
Hypothesis / Objectives:	Cost and effectiveness of second-line treatments of chronic lymphocytic leukaemia in Switzerland
Start date:	02/2020
Partner(s):	Industry
Output:	https://doi.org/10.1007/s10198-021-01398-7
Source of funding:	Industry

Activities of the ECPM collaborators in 2021. Publications, Scientific Presentations, Evaluation of Research Projects and Thesis Supervision.

Publications

1. Twerenbold S, **Schur N**, Zappalà T, Gut S, **Stoffel S**, **Salari P**, **Galactionova K**, **Schwenkglenks M**, Meier C. Helsana-Arzneimittelreport für die Schweiz 2021. https://reports.helsana.ch/en/drugs2021/

2. **Galactionova K**, Smith TA, Penny MA. Insights from modelling malaria vaccines for policy decisions: the focus on RTS,S. Malar J. 2021 Nov 18;20(1):439. doi: 10.1186/s12936-021-03973-y. PMID: 34794430; PMCID: PMC8600337.

3. **Galactionova K**, Sahu M, Gideon SP, Puthupalayam Kaliappan S, Morozoff C, Ajjampur SSR, Walson J, Rubin Means A, Tediosi F. Costing interventions in the field: preliminary cost estimates and lessons learned from an evaluation of community-wide mass drug administration for elimination of soil-transmitted helminths in the DeWorm3 trial. BMJ Open. 2021 Jul 5;11(7):e049734. doi: 10.1136/bmjopen-2021-049734. PMID: 34226233; PMCID: PMC8258667.

4. **Lupatsch JE**, Kreis C, Konstantinoudis G, Ansari M, Kuehni CE, Spycher BD. Birth characteristics and childhood leukemia in Switzerland: a register-based case-control study. Cancer Causes Control. 2021 Jul;32(7):713-723. doi: 10.1007/s10552-021-01423-3. Epub 2021 Apr 20. PMID: 33877514; PMCID: PMC8184536.

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44. **Szucs TD,** (Book chapter). Die Präzisionsmedizin – massgeschneiderte Medizin statt Massenware. In: Hansjakob Müller / Hans-Beat Hadorn (Hg.) Humangenetik und Anthropologie heute. Schwabe Verlag 2022

45. **Salari P**, O'Mahony C, Henrard S, Welsing P, **Bhadhuri A**, **Schur N**, Roumet M, Beglinger S, Beck T, Jungo KT, Byrne S, Hossmann S, Knol W, O'Mahony D, Spinewine A, Rodondi N, **Schwenkglenks M**. Cost-effectiveness of a structured medication review approach for multimorbid older adults: Within-trial analysis of the OPERAM study. PLoS One. 2022 Apr 11;17(4):e0265507. doi: 10.1371/journal.pone.0265507. PMID: 35404990; PMCID: PMC9000111.

Scientific Presentations to External Audiences

Presenter (name, function)	Presentation title	Event (title, location, date)
Szucs TD, Director	Kosten in der (Radio-) Onkologie aus Sicht der Krankenkassen	Vortrag, Interne Fortbildung Inselspital, Departement für Radio-onkologie, 02.06.21
Szucs TD, Director	Einführung in die Genomische Medizin	Apothekerkammer, virtuell, 04.06.21
Szucs TD, Director	Ökonomische Evaluation im Gesundheitswesen	MPH Kurs Gesundheitsökonomie Vortrag, online,14.06.21
Szucs TD, Director	Decision for full development	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, 18.06.21
Szucs TD, Director	Ipo's and Corporate mergers	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, 21.06.21
Szucs TD, Director	Health economics	ECPM Course, 22.06.21
Szucs TD, Director	Les réseaux de soins du point de vue de l'assureur	Healthcare Conference 2021 Präsentation, online, 24.06.21
Szucs TD, Director	Legal aspects of genetic testing	SAKK Course on genetic Testing, St. Gallen, Vortrag, 25.06.21
Szucs TD, Director	Health economics	Clinical Trials Unit, USB Basel Vorlesung, 01.07.21
Szucs TD, Director	Healthcare systems in transition	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, online, 08.09.2021
Szucs TD, Director	How to write an asbtract?	Vorlesung, BME 310, UZH, 22.09.21
Szucs TD, Director	Einführung Mantelstudium Medikamente	Vorlesung, UZH, 28.09.21
Szucs TD, Director	Epidemiological study designs	Vorlesung, BME 310, 30.09.21
Szucs TD, Director	Einführung in das Recht	Vorlesung Mantelstudium Medizin und Recht, UZH, 19.10.21
Szucs TD, Director	Phase 2 Studien	Vorlesung CPM Uni Basel, DATUM?
Szucs TD, Director	Bedeutung der Genetik/Genomik aus medizinisch-klinischer Sicht	Vortrag, Triesen (CAS/DAS/MSc), 21.10.21
Szucs TD, Director	Herzgene – was muss man wissen?	Vortrag, 31. Jahrestagung für Kardiologisches Assistenz- und Pflegepersonal, Bad Ischl, 22.10.21
Szucs TD, Director	Arzneimittel Phase 1	Mantelstudium Einführung in die Medikamentenentwicklung, UZH, 26.10.21

Szucs TD, Director	Genetik/Pharmakogenetik	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, 11.11.21
Szucs TD, Director	Recht und Datenschutz	Vorlesung Mantelstudium Medizin und Recht,UZH, 09.11.21
Szucs TD, Director	Post-Marketing Surveillance and Pharmacovigilance	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, 11.11.21
Szucs TD, Director	Pharmacoeconomics	Chinese Course on Drug Development and Regulatory Sciences Peking University Clinical Research Institute, 12.11.21
Szucs TD, Director	Personalisierte Medizin	Referat, My Health Kongress, Horgen, 13.11.21
Szucs TD, Director	Genetik / Was gibt es neues?	Referat, Zentrum für Angst- und Depressionsbehandlung, 16.11.21
Szucs TD, Director	Öffentliches Gesundheitsrecht	Referat, UZH, 23.11.21
Szucs TD, Director	Charing a Health Insurance Board	Vortrag, IMD – HPB High Performance Boards, IMD, Lausanne, 30.11.21
Szucs TD, Director	Gefässmedizin und Gene Chancen u. Möglichkeiten	Referat Unionstagung der Schweizerischen Gesellschaft für Gefässkrankheiten, Kongresscenter Interlaken, 01.12.21
Schwenkglenks M, Head of Research	Sinnvolle Medizin aus gesellschaftlich-ökonomischer Sicht	Vortrag, 3. Vierwaldstättersee-Symposium für Spital-Kaderärzte. Brunnen, 02.07.21

Evaluation of Research Projects and Publications (peer review)

Thomas D. Szucs is a reviewer for a number of clinical and health economic journals including Annals of Oncology, Pharmacoeconomics, Lancet and Swiss Medical Weekly.

Annette Mollet is a reviewer for the journal Frontiers in Pharmacology.

Matthias Schwenkglenks is a reviewer for a number of clinical and health economic journals, recently including Advances In Therapy, Current Medical Research & Opinion, European Journal of Health Economics, Health Economics Review, JNCI Cancer Spectrum, Medical Decision Making, Osteoporosis International, Pharmacoeconomics, PLOS Medicine, PLOS One, Swiss Medical Weekly

Paola Salari is a reviewer for several health economic journals including Health Policy, PLOS ONE, International Journal of Public Health, Swiss Journal of Economics and Statistics, BMC Health Services Research, Swiss Medical Weekly, Swiss Journal of Economics and Statistics, International Journal of Health Policy and Management.

Theses Supervised by the ECPM Collaborators in 2021

PhD Theses

Helena Aebersold, Health economic aspects of atrial fibrillation: analyses based on the Swiss AF cohort study (working title; PhD thesis at University of Zürich)
Started in 2021; supervised by Matthias Schwenkglenks

Jennifer Auxier, The Exploration of the role of Patient Engagement in Woman and Family Centered Care Approaches Within Maternity and Neonatal Care (working title; PhD thesis at University of Turku, Finland)
Ongoing in 2021; co-supervised by Matthias Schwenkglenks

Flurina Meier, Predictors of health care utilization and costs as well as influence of the COVID-19 lockdown on loneliness and social isolation in community-dwelling elderly persons (PhD thesis in cooperation with ZHAW)
Ongoing in 2021; supervised by Nicole Probst (primary advisor) and Matthias Schwenkglenks (secondary advisor).

Alexandra Griessbach, Making clinical trials more affordable – trial costs, budget planning, and platform trials (PhD thesis) Ongoing in 2021; supervised by Matthias Briel (primary advisor), Thomas Szucs (secondary advisor) and Matthias Schwenkglenks (tertiary advisor)

Niklaus Meier, Cost-effectiveness analyses of medical interventions including gene therapies for haemophilia (PhD thesis in cooperation with Berner Fachhochschule)
Started in 2021; primary supervisor is Matthias Schwenkglenks.

Chiara Jeiziner, Analysis of Pharmacogenetic Information in Summaries of Product Characteristics by Natural Language Processing (PhD thesis)
Ongoing in 2021; co-supervised by Kurt Hersberger, Henriette von Schwabedissen and Thomas Szucs

Master Theses: MBA, MMD and MPH

Alessandro Crimi, Novel approaches in antiretroviral therapies retention and demand estimation for AIDS patients in Zimbabwe – Master in Business Administration (MBA) International Health Management (IHM) thesis with Swiss TPH. External expert for an MSc defence.

Daniela Fazzotta, Value Creation in Cell and Gene Therapies from the Perspective of Health Economics, MMD Thesis, ECPM Basel Ongoing in 2021; supervised by Thomas Szucs, Annette Mollet and Emanuele Ostuni.

Cristiana Sessa, Patients involvement and EUPATI Switzerland, MMD thesis, ECPM Basel Defended in 2020; supervised by Thomas Szucs, Annette Mollet and David Härri

Olivier Schorr, Microelimination of chronic hepatitis C in Switzerland: modeling for the canton of Bern (MPH thesis)
Completed in 2021; supervised by Matthias Schwenkglenks

MD Thesis

Armin Zgraggen, Colorectal cancer surveillance by colonoscopy in a prospective, population-based long-term Swiss screening study – outcomes, adherence, and costs
Ongoing in 2021; informal supervision by Sandro Stoffel, Michaela Barbier

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