UZH Research Synthesis Half-Day

12th December 2025

Location: Room RAI-J-031 at Rämistrasse 74 / 76, 8001 Zurich

12:30 – 13:00	**Arrival**		
13:00 – 13:15	**Welcome**		Rachel Heyard (CRS)
13:15 – 14:15	**Session I**	**Services and Case Studies**	Chair: Tilmann Altwicker (Legal Data Science)
		UB/ZB Systematic Review Service	Andreas Ledl (University Library)
		Cochrane Complementary Medicine Switzerland: Embracing the Evidence Synthesis Ecosystem	Jesús López-Alcalde (Complementary and Integrative Medicine)
		Lessons learned from a large systematic review in the field of pediatrics	Ulrike Held (Department Biostatistics, EBPI)
		Integrating diverse evidence to reconstruct pre-colonial Igbo legal systems and their colonial encounter	Godstime Nyeche (Law Faculty)
		CRS Primers for research synthesis	Gorka Fraga González (CRS)
14:15 – 14:45	**Brainstorming I on Services, tools and training**		
14:45 – 15:15	**Coffee break**		
15:15 – 16:15	**Session II**	**Methods for Research Synthesis (RS)**	Chair: Carolin Strobl (Department of Psychology)
		Federated Statistical Inference	Peter Degen (CRS)
		Assessing and Adjusting for Risk of Bias in Meta-analysis	Cora Burgwinkel (CRS and Department Biostatistics, EBPI)
		Prediction in Random-Effects Meta-Analysis	David Kronthaler (Department of Psychology)
		Can we trust the model? Transparency, reporting quality, and bias in transplant prediction models	Simon Schwab (CRS and Swisstransplant)
		Research synthesis in methodological research: Concepts, controversies, and unresolved challenges	Carolin Strobl (Department of Psychology) and Mark Robinson (Department of Molecular Life Sciences)
16:15 – 17:00	**Brainstorming II on Collaborations & RS community**		
17:00 – 17:15	Wrap-up and next steps		Rachel Heyard and Leonhard Held (CRS)
17:15 –	Join us for a Glühwein at the Christmas Market		

Abstracts

UB/ZB Systematic Review Service by Andreas Ledl (University Library) – As part of their joint strategy implementation for 2024-2027, the University Library and Central Library Zurich have launched a core initiative to develop a Systematic Literature Search Service. A mixed, interdisciplinary team of information specialists has been assembled to provide advice on systematic literature searches and support the implementation of evidence syntheses. From a free initial consultation to the complete conduct of the search strategy, including documentation and reporting, the service can be tailored to individual needs. The existing services offered by the University Library in medicine, psychology, and the natural sciences were combined and supplemented by the Central Library with additional services in the social sciences. The talk will serve to introduce the University Library/Central Library service, explore synergies with the Center for Reproducible Science and Research Synthesis, and promote awareness of the service at UZH.

Cochrane Complementary Medicine Switzerland: Embracing the Evidence Synthesis Ecosystem by Jesús López-Alcalde, Claudia M. Witt, Diana Buitrago-García (Chair for Complementary and Integrative Medicine) – At the Institute for Complementary and Integrative Medicine (USZ, UZH) we host a Cochrane Complementary Medicine Satellite. We adopt a forward-looking focus on healthcare; therefore, we leverage artificial intelligence (AI) to advance evidence synthesis and are committed to improving methods for generating and integrating evidence, with a particular focus on digital health and other non-pharmacological interventions in complementary and integrative medicine. We take a participatory approach, engaging researchers, clinicians, patients in shaping evidence. We prioritize dissemination strategies that adapt to the needs of different groups. Our completed projects include an Evidence and Gap Map of complementary therapies for multiple sclerosis [1] and a core outcome set for trials in this field [2]. We have identified methodological challenges in SRs of mHealth interventions [3], conducted Cochrane reviews of prognostic factors [4], and developed the Sex and Gender Appraisal Tool for SRs [5]. Moreover, we have applied GRADE in clinical guidelines [6], developed reporting guidelines [7, 8], and translated Cochrane Blogshots on complementary therapies into German to support dissemination [9]. Our SNSF project aims to apply AI to accelerate the consideration of sex/gender in evidence synthesis [10]. We also collaborate internationally as part of PERSyst Group [11], RoB-Prev [12], the PRISMA extension for prevalence SRs, and the Evidence Synthesis Taxonomy Initiative.

1. Digital Health Space. Evidence and gap map of complementary therapies for people with multiple sclerosis (developed by the Institute for Complementary and Integrative Medicine, University Hospital Zurich), 2025.
2. López-Alcalde J, et al. Development of a Core Outcome Set for trials of complementary therapies in people with multiple sclerosis: study protocol, 2024.
3. Lopez-Alcalde J, et al. Methodological challenges in systematic reviews of mHealth interventions: Survey and consensus-based recommendations. Int J Med Inform 2024; 184: 105345. 2024/02/04.
4. Jimenez Tejero E, et al. Sex as a prognostic factor for mortality in adults with acute symptomatic pulmonary embolism. Cochrane Database Syst Rev 2025; 3: Cd013835. 20250320.
5. Antequera A, et al. Sex and Gender Appraisal Tool-Systematic Reviews-2 and Participation-To-Prevalence Ratio assessed to whom the evidence applies in sepsis reviews. J Clin Epidemiol 2022; 142: 119-132. 2021/11/12.
6. Hilton Boon M, et al. Challenges in applying the GRADE approach in public health guidelines and systematic reviews: a concept article from the GRADE Public Health Group. J Clin Epidemiol 2021; 135: 42-53. 20210118.
7. Lopez-Alcalde J, et al. The RIPI-f (Reporting Integrity of Psychological Interventions delivered face-to-face) checklist was developed to guide reporting of treatment integrity in face-to-face psychological interventions. J Clin Epidemiol 2022; 151: 65-74. 20220801.
8. Clark J, et al. Generative artificial intelligence use in evidence synthesis: A systematic review. Research Synthesis Methods 2025: 1-19. 2025/04/24.
9. Institute for Complementary and Integrative Medicine. German translations of Cochrane blogshots, 2025.
10. Swiss National Science Foundation (SNSF). Artificial Intelligence (AI) to Expedite Sex/Gender Analysis in Evidence Synthesis: a use case of Digital Health Interventions for Cancer Patients, 2025. Available from https://data.snf.ch/grants/grant/227036 (accessed 29 September 2025).
11. PERSyst (Prevalence Estimates Reviews – Systematic Review Methodology Group), 2025.
12. Tonia T, Buitrago-Garcia D, Peter NL, et al. Tool to assess risk of bias in studies estimating the prevalence of mental health disorders (RoB-PrevMH). BMJ Ment Health 2023; 26.

Lessons learned from a large systematic review in the field of pediatrics by Ulrike Held (EBPI, Department Biostatistics) – This talk will focus on best practice in the process of designing, conducting and presenting findings in a systematic review (SR). The SR I will use in my talk was focused on a research question in the field of pediatrics; however, the challenges are presented for a broader audience, and independent of the clinical application. Our SR adhered to highest reporting standards and it was registered on PROSPERO (CRD42023455401), and the protocol was published [1]. The following data bases were searched: Cochrane, Medline, CINAHL, EMBASE, PsycINFO and the search strings were documented in a searchRxiv, e.g. Medline [2]. After deduplication, we imported the references into the Covidence systematic review software, a platform designed for the management of systematic literature reviews [3]. 2,670 studies were originally identified, of which 42 studies were eventually included in the SR. In the included studies, we had to deal with large heterogeneity in interventions, study design, follow-up time, outcome distributions and directionality, effect measures, and low reporting quality. This talk will present solutions for the challenges described, including the

use of sensitivity analyses.

1. Engel V, Mauron-Papadimitriou V, Bührer L, et al. Transition to home after very preterm birth: improving outcomes of children and their families—a systematic review protocol. BMJ Open 2024;14:e090155. doi: 10.1136/bmjopen-2024-090155
2. Mauron-Papadimitriou, V, Engel, V, Ebner, L, searchRxiv.2024.00440, doi:10.1079/searchRxiv.2024.00440, CABI, Swiss-Austrian VEry Preterm Infant Transition Systematic Review (SAVE-T): Transition to home: improving outcomes of children and families - a systematic literature review (Medline, EBSCO)., (2024)
3. Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia. Available from: www.covidence.org

Integrating diverse evidence to reconstruct pre-colonial Igbo legal systems and their colonial encounter by Godstime Nyeche (Law Faculty) – This study employs research synthesis to investigate the complex interplay between precolonial Igbo legal systems and British colonial law in 19th to mid-20th century Nigeria, addressing how a decentralized, spiritually grounded jurisprudence was disrupted yet persisted through hybrid forms. To tackle this multifaceted question, I integrate diverse evidence sources archaeological findings (e.g., Afikpo's Stone Age artifacts), oral traditions (e.g., Nri's Erimyth), colonial archives (e.g., CO 520/583 records, Ralph Moor's 1901–1902 correspondence), and ethnographic accounts (e.g., Isichei, Uchendu) using systematic qualitative synthesis. Historical analysis reconstructs pre-colonial legal structures like Nri's ritual sanctions and Arochukwu's oracle-based adjudication, while anthropological lenses reveal their spiritual-communal foundations. Postcolonial theory critiques colonial narratives of "primitivism", and legal pluralism examines hybridization under indirect rule. Thematic coding and narrative synthesis triangulate these sources to map continuities and ruptures, addressing gaps in prior scholarship that underemphasize spiritual-economic interplay. This synthesis not only reconstructs a nuanced Igbo jurisprudence but also illuminates resilience against colonial impositions, offering methodological insights for synthesizing heterogeneous data in legal anthropology. By blending archival rigor with oral and material evidence, this approach exemplifies how research synthesis at UZH resolves complex historical questions, informing decolonized legal histories and contemporary policy on customary law integration.

1. Data Integration: I will detail the process of triangulating three distinct evidence streams: (1) Archaeological data (e.g., findings from Afikpo) to establish material culture and settlement patterns, (2) Colonial archival records (e.g., court documents, officer correspondence) which provide the institutional perspective but require critical deconstruction, (3) Indigenous sources (e.g., oral histories, ethnographies, ritual texts) which preserve internal worldviews but are often fragmented.
2. Analytical Integration: I will demonstrate how I employ a scaffolded analytical model, where: (1) Historical analysis establishes chronology and context from the archives, (2) Legal anthropological analysis decodes the logic and function of Igbo institutions like oracles and oath-taking, (3) Post-colonial critical analysis provides the theoretical lens to identify and critique colonial narratives of "primitivism".

CRS Primers for research synthesis by Gorka Fraga González (Center for Reproducible Science and Research Synthesis) – Projects that gather and analyse data from different studies are fundamental to research synthesis. However, carrying them out is a complex and resource-intensive process that requires meticulous planning and advanced data management skills. The CRS primer on 'Conducting an Individual Participant Data Meta-Analysis (IPDMA)' collects relevant resources and practical advice, and outlines the steps for planning and conducting an IPDMA. This practical guide is complemented with a CRS primer on Sharing Clinical Trial Data that describes the process of how to prepare and deposit trial data for sharing. We introduce these primers and underscore the essential role of data stewardship in putting them into practice.

Federated Statistical Inference by Peter Degen (Center for Reproducible Science and Research Synthesis) – In collaborative studies, regulatory constraints may prevent the sharing of individual-level data across institutions. Federated statistical inference aims to address this problem by performing pooled parameter estimation and inference using only aggregated summary statistics from local centers, without transferring raw data. In this talk, I will provide an overview of existing federated inference methods and their limitations. I will then introduce a new approach based on Bayesian conjugate analysis, which allows for analytically tractable inference in a federated setting.

Assessing and Adjusting for Risk of Bias in Meta-analysis by Cora Burgwinkel (Department Biostatistics, Center for Reproducible Science and Research Synthesis) – Systematic reviews aim to identify and include all relevant studies in meta-analyses. This goal can be compromised when study reporting or publication depends on the statistical significance, magnitude, or direction of results, leading to biased meta-analytic estimates when available evidence systematically differs from missing data. To evaluate meta-analyses at risk

of bias due to missing evidence, the ROB-ME (Risk of Bias due to Missing Evidence) tool will be presented. It provides a structured approach for assessing and summarizing the risk of bias arising from missing studies or selectively reported results. Recognizing and appropriately addressing risk of bias from missing evidence is essential to ensure the validity of meta-analyses. Applying structured approaches such as ROB-ME can enhance the transparency and consistency of evidence synthesis by helping reviewers identify and evaluate the impact of missing studies and selectively reported results.

Prediction in Random-Effects Meta-Analysis by David Kronthaler (Department of Psychology) – Under a random-effects meta-analysis framework, which accounts for systematic differences between studies, quantification of effect heterogeneity across studies is a central task. Classical measures have been criticized for their limited interpretability and dependence on study sample sizes. Instead, predictive distributions have been emphasized for quantifying heterogeneity since they are interpretable on the effect scale and provide clinically relevant information about future events. In particular, prediction intervals frequently suggest strong variability in responses to interventions or treatments, which is not captured when making inferences solely about the average effect. In this talk, we discuss some of the limitations of classical heterogeneity measures and show how predictive distributions address these. We further demonstrate how predictive distributions complement inference and we review methods for constructing predictive distributions, present results from a simulation study, and provide recommendations for practical application.

Can we trust the model? Transparency, reporting quality, and bias in transplant prediction models by Simon Schwab (Center for Reproducible Science and Research Synthesis and Swisstransplant) – Previous research has criticized clinical prediction models for poor reporting and high risk of bias. How this applies to models used in organ donation and transplantation remains unclear. In this talk, I will show results from our ongoing scoping review that examines the quality of published clinical prediction models currently used at Swiss transplant centers. Using a survey of transplant clinicians, we identified prediction models and evaluated them according to the TRIPOD+AI reporting guideline and the PROBAST risk of bias tool. Two medical statisticians independently assessed each publication and resolved disagreements in a joint meeting with expert clinicians who apply these models in practice. The study had a registered study protocol [1]. Models were identified for kidney transplantation, liver transplantation, and intensive care. All showed poor transparency and reporting quality and an overall high risk of bias, mainly in the analysis domain. Key issues included unclear definitions of the primary outcome, “graft failure,” unjustified dichotomization of predictors, lack of model calibration, and inconsistencies between published models and corresponding online calculators. This study provides important context for clinicians using such tools in practice, and also led to a letter to the editors [2]. Informed use of prediction models requires a clear understanding of their quality, transparency, and bias.

1. Schwab S, Deforth M, Camenisch S, Magini G, Müller T, Held U. REPORT—Reporting and evaluation of prediction models in organ transplantation: a scoping review protocol. Published online April 6, 2024. doi:10.17605/OSF.IO/FTXK8
2. Schwab S, Banz V, Held U, Hoessly L, Magini G. Does the UK DCD risk score have statistical flaws? J Hepatol. 2025;83(2):e84-e85. doi:10.1016/j.jhep.2025.04.030

Research synthesis in methodological research: Concepts, controversies, and unresolved challenges by Carolin Strobl (Department of Psychology) and Mark Robinson (Department of Molecular Life Sciences) – Methodological researchers develop and evaluate statistical and machine learning methods for data analysis, with the ultimate goal of providing substantive researchers with reliable recommendations on when and how to use each method. Knowledge in this field is typically built through mathematical proofs, simulations, and benchmark studies. Benchmarking is an established process of designing, running and disseminating rigorous performance evaluations of methods, usually on a battery of test datasets that aim to be representative of real-world scenarios. Research synthesis in methodological research concerns the question of whether and how evidence on method performance from different simulation or benchmark studies can be meaningfully aggregated. Challenges to informative and valid syntheses include many of the issues faced in empirical research, but also problems specific to simulation and benchmarking studies. For example, not many published benchmarks manage to achieve a good standard of reliability and extensibility. The presentation will first provide an overview of the current discussion in methodological communities, highlighting key challenges and promising new directions. The second part will introduce Omnibenchmark, a new benchmarking system that brings several novel conceptual and computational features to the forefront. It offers a flexible, future-proof framework to run solo or community benchmarks at a high standard of reproducibility and extensibility, and gives a real possibility of more-continuous benchmarking.