

Clinical Prediction Models for Surgical Outcomes Symposium 2026

Date: Thursday, 24 November 2026

Time: 11:00-18:00 CET (4h30 of talks + 2h15 of breaks/networking)

Location: In-person at Research Café (UMC Utrecht)

Costs: Free-of-charge, including lunch, but registration is required:



[Link to registration form](#)

[Symposium website](#)

Organizers: Thomas Stojanov (Universitätsspital Basel, UMC Utrecht), Ewout Steyerberg (UMC Utrecht), Maarten van Smeden (UMC Utrecht), Ruud Selles (Erasmus MC), Maaïke Gademan (Leiden UMC).

Target audience: Data Scientists, Epidemiologists, Statisticians, Researchers and Clinicians with an interest in outcome research for surgery, data infrastructure, clinical prediction models and/or decision-support systems.

Abstract: The European Commission suggested the use of algorithms to predict health outcomes, as one of the plausible strategies to improve the overall efficiency and effectiveness of European healthcare systems. Predictive analytic tools support the establishment of an evidence-based and shared decision-making process, by predicting individual's risks of adverse events or poor outcomes. This is particularly relevant for commonly performed surgical procedures for which up to one in ten patients may not be satisfied with postoperative functional outcomes, such as total knee arthroplasty, total hip arthroplasty, shoulder surgery or hand surgery. However, to generate value, clinical prediction models require the achievement of several steps, such as a proper data infrastructure, careful model conception, development, validation and navigation through regulatory landscape. Indeed, since 2021, the European Union (EU) in its artificial intelligence (AI) act, classified decision-support system tools involving outcome prediction models in healthcare, as high-risk AI-based systems. This implies that developers need to comply with high safety, quality and transparency standards. This research symposium will invite leading experts in that field to learn from each other, with the subsequent objective to establish potential collaborations and move forward research and tools in the field of clinical prediction models for surgical outcomes. Developed knowledge will be essential to bring computer scientists, data scientists, epidemiologists and clinicians closer, for a better quality of care. As a societal challenge, surgical procedures are common and will increase in numbers with the ageing of European populations. Moreover, surgical procedures present specific significant challenges, such as the use and report of functional outcomes and patient-reported outcome measures (PROMs). The symposium will put the emphasis on the technology and systems required for large-scale clinical prediction models to generate value. The symposium will therefore cover key steps from model conceptualization to model implementation, deployment (and certification). By describing the necessary data infrastructure and analyzing how clinical prediction models, whether they are developed by more classical regression or modern AI approaches, comply as high-risk systems under the EU AI Act, the symposium will directly support the work of applied researchers.

Time	Contributor	Topic
10:45-11:15	Walk-in	
11:15-11:45	Welcome (30 min)	
10 min	Thomas Stojanov Universitätsspital Basel, <i>Surgical Outcome Research Center</i> UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Symposium introduction
20 min	Rob Nelissen Leiden UMC, <i>Department of Orthopaedics</i>	Clinicians set the scene: Definition of the clinical needs for prediction models
11:45-12:45	Moderator: Ewout Steyerberg UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Session 1 – Data infrastructure allowing use cases for surgical outcomes (60 min)
20 min	Harm Slijper Erasmus MC, <i>Afdeling plastische en reconstructieve chirurgie</i>	From Data to Impact: Learnings from (Re)building the Xpert Clinics Health Data Infrastructure
20 min	Olga Endrich Inselspital Bern, <i>Health Information Management & Medizincontrolling</i>	Leveraging hospital data infrastructure for prediction of infections after surgical interventions
20 min	Maaïke Gademan Leiden UMC, <i>Department of Orthopaedics, Department of Clinical Epidemiology</i>	Perspectives on using registry and cohort data
12:45-13:30	Lunch break	
13:30-14:30	Moderator: Maarten van Smeden UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Session 2 – Methods for model conception, development and validation (60 min)
20 min	<i>[Open discussion]</i>	Why and when to develop prediction models? Critical questions to address before building models
20 min	Nan van Geloven Leiden UMC, <i>Department of Biomedical Data Sciences, Section of Medical Statistics</i>	Prediction under intervention / intersection causal inference & prediction
20 min	Thomas Stojanov Universitätsspital Basel, <i>Surgical Outcome Research Center</i> UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Prediction of ordinal outcomes after surgical interventions
14:30-14:50	Break	
14:50-15:50	Moderator: Maaïke Gademan Leiden UMC, <i>Department of Orthopaedics, Department of Clinical Epidemiology</i>	Session 3 – Implementation and impact studies for prediction models for surgical outcomes and clinical decision-support systems (CDSS) (60 min)
20 min	Andriy Melnyk UMC Utrecht, <i>Julius Center</i>	Insights from the literature: implementation modalities and results of impact studies of prediction models used for surgery
20 min	Ruud Selles Erasmus MC, <i>Afdeling plastische en reconstructieve chirurgie</i>	Lessons learned from implementation and evaluation of CDSS
20 min	TBA	TBA
15:50-16:10	Break	
16:10-16:50	Moderator: Ruud Selles Erasmus MC, <i>Afdeling plastische en reconstructieve chirurgie</i>	Session 4 – Understanding and navigating through European regulations for prediction models and clinical-decision support systems (40 min)
20 min	Richard Bartels UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	MDR compliant in-house development of CDSSs: an anesthesiology case study
20 min	Tom Hueting Evidencio	Challenges in navigating EU regulations for clinical prediction models: From theory to application
16:50-17:15	Closing remarks (25 min)	
10 min	Thomas Stojanov Universitätsspital Basel, <i>Surgical Outcome Research Center</i> UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Dissemination of a short survey & feedback
15 min	Ewout Steyerberg UMC Utrecht, <i>Julius Center, Team Datascience & Biostatistics</i>	Closing remarks
17:15-18:00	Networking & Drinks	

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- UMC Utrecht, Julius Center, Team Datascience & Biostatistics