STRATOS Topic Group 2
Selection of variables and functional forms in multivariable analysis

Georg Heinze, Aris Perperoglou, Willi Sauerbrei

TG2 – Members and guests as of 2024/09

- **Co-chairs**:
Georg Heinze (A), Aris Perperoglou (UK), Willi Sauerbrei (D)

- **Members**:
Michal Abrahamowicz (CAN), Harald Binder (D), Daniela Dunkler (A),
Frank Harrell (USA), Marc Henrion (MW), Michael Kammer (A), Matthias Schmid (D)

- **Early career adjunct members**:
Gregor Buch (D), Edwin Kipruto (D), Theresa Ullmann (A)

- **Guests**:
Linard David Hoessly (CH), Mariana Nold (D),
Thomas Prince (D), Doug Thompson (UK)

- **Clinical affiliate** (from 07/24):
Carl-Stephan Leonhardt (A)

- **Regular meetings every 8 weeks**

TG2 – Selected activities at conferences

- IBC 2024 Atlanta: Statistics in Practice ‚Variable selection' (GH & TU)

- AS 2024 Koper, SLO: Multivariable Model Building (WS)

- CEN 2023 Basel: Presentation TG2 overview Georg Heinze (see Link)

- ISCB 2023 Milan: Presentation TG2 overview Georg Heinze (see Link)

- ISCB 2022 Newcastle: Presentation Aris Perperoglou (see Link)

- IBC 2022 Riga: Presentation Georg Heinze (see Link)

- DagSTAT 2022 Hamburg: Presentation TG2 overview Georg Heinze (see Link)

- ROeS 2021 Salzburg: Short course on Variable selection GH & CW (see Link)

- IBS-IR 2021 Milan: TG2 overview Willi Sauerbrei (see Link)

TG2 – Current projects

- Established internal Github Repo to keep track of current projects

Project	Topic	Project	
P1	General activities for Level-1 audience	P7	TG2-TG3 collaboration on IDA for regression models (**Finished**)
P2	Splines vs. FPs (multivariable)	P8	Splines, comparative study • „PreSplines" • Simulation study
P3	TG2-TG4 collaboration on Measurement error in spline models	P9	Tetris plot for visualising model instability
P4	Literature review	P10	White paper on prediction modelling
P5	Literature review on model building strategies in Covid-19 prediction models	P11	Simulation study on variable selection methods
P6	Contrasting Bayesian with frequentist model building		

Milestones

- State-of-the-art paper: Sauerbrei et al, 2020

- Splines review paper: Perperoglou et al, 2019

- Review of statistical series in medical journals:
  2 TG2 papers published (Bach et al 2021; Wallisch, et al 2022) and new general project launched

- Variable selection:
  Protocol paper of simulation study published (Ullmann et al, 2024) study running StatPract session at IBC Atlanta 2024

- TG2-TG3 (IDA): Paper ‚Regression without regrets' published (Heinze et al, 2024)

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Projects in advanced stage

- [Review of model building strategies in Covid-19 prediction models](#) (OSF): Reviewing finished (Sep 2024); Data analysis ongoing

- PreSplines: Performance measures systematically described, see the poster of Theresa Ullmann

- TG2-TG4 (Measurement error): Ongoing (see the talk of Laurence Freedman in Key Theme 3 workshop)