

# Kelly Van Lancker

Krijgslaan 281-S9  
9000 Ghent, Belgium  
☎ +32 476 39 75 66  
✉ [kelly.vanlancker@ugent.be](mailto:kelly.vanlancker@ugent.be)

## Education and Training

- 2022–present **Postdoctoral training**, *Department of Applied Mathematics, Computer Science and Statistics*, Ghent University, Ghent, Belgium.  
Advisor: Prof. Stijn Vansteelandt
- 2021–2022 **Postdoctoral training**, *Department of Biostatistics*, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA.  
Advisor: Prof. Michael Rosenblum
- 2017–2021 **PhD candidate in Statistical Data Analysis**, *Department of Applied Mathematics, Computer Science and Statistics*, Ghent University, Ghent, Belgium.  
Advisors: Prof. Stijn Vansteelandt and Dr. An Vandebosch  
Dissertation: Faster and more efficient decision-making in randomized experiments via prediction of the treatment effect based on patient characteristics, biomarkers and interim read-outs.
- 2015–2017 **Master of Science in Mathematics**, *Ghent University*, Ghent, Belgium.  
Advisor: Dr. An Vandebosch (Janssen)  
Thesis: Evaluating futility of the clinical endpoint using early read-outs: methods and application to a case study
- 2012–2015 **Bachelor of Science in Mathematics**, *Ghent University*, Ghent, Belgium.

## Experience

- February–March 2023 **Research visit to Prof. Michael Rosenblum**, *Johns Hopkins University*, Baltimore, U.S.A..  
Extending our work to combine covariate adjustment with group sequential designs for one hypothesis to multiple hypotheses.
- 2017–2021 **Researcher in Statistical Modeling and Methodology Group**, *Janssen*, Beerse, Belgium.  
During my PhD I was spending 40% of my time at Janssen under the supervision of An Vandebosch.
- June 2019 **Research visit to Prof. Werner Brannath**, *University of Bremen*, Bremen, Germany.  
Fruitful discussions on the use of baseline covariates and early read-outs in adaptive designs, which have lead to impactful improvements to one of our papers. Talk for the statistics department.
- 2016 **Internship in Statistical Modeling and Methodology Group**, *Janssen*, Beerse, Belgium.  
Running simulations in R to test the performance of a new method to incorporate an early read-out of a binary endpoint in an interim analysis. Developing software in the form of an R package for this method.
- 2015–2016 **Teaching assistant (as job student)**, *Ghent University*, Ghent, Belgium.  
Providing support for the course “Statistics and Pharmaceutical Data Analysis” in the second year of the Bachelor’s degree in Pharmaceutical Sciences.

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## Awards and Prizes

- 2022 **Junior Researcher Travel Grant to attend the American Causal Inference Conference, Berkeley, USA.**
- 2021 **Quetelet Prize from the International Biometric Society for outstanding PhD thesis in the field of Biometrics, Belgium.**
- 2020 **Finalist PhD Innovation Café, Ghent University, Belgium.**
- 2019 **Runner-up for best presentation by a young researcher at the European causal inference meeting, Bremen, Germany.**
- 2018 **Abstract selected for special presentation with invited discussant at the 26th Annual Meeting of the Royal Statistical Society of Belgium, Ovafit, Belgium.**

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## Peer-Reviewed Publications

Silvia Calderazzo, Sergey Tarima, Carissa Reid, Nancy Flournoy, Tim Friede, Nancy Geller, James Rosenberger, Nigel Stallard, Moreno Ursino, Marc Vandemeulebroecke, **Kelly Van Lancker** & Sarah Zohar “Clinical trials impacted by COVID-19: Coping with Information Loss and the Use of Auxiliary Sources of Data”. *Statistics in Biopharmaceutical Research*, 2023. DOI: 10.1080/19466315.2023.2211023.

**Kelly Van Lancker**, Oliver Dukes & Stijn Vansteelandt. “Ensuring valid inference for conditional causal hazard ratios after variable selection”. *Biometrics*, 2023. DOI: 10.1111/biom.13889.

**Kelly Van Lancker**, Sergey Tarima, Jonathan Bartlett, Madeline Bauer, Bharani Bharani-Dharan, Frank Bretz, Nancy Flournoy, Hege Michiels, Camila Olarte Parra, James L Rosenberger & Suzie Cro. “Rejoinder: Estimands and their Estimators for Clinical Trials Impacted by the COVID-19 Pandemic: A Report from the NISS Ingram Olkin Forum Series on Unplanned Clinical Trial Disruptions”. *Statistics in Biopharmaceutical Research*, 2023. DOI: 10.1080/19466315.2022.2162958.

**Kelly Van Lancker**, Tat-Thang Vo & Mouna Akacha. “Estimands in health technology assessment: a causal inference perspective”. *Statistics in Medicine*, 2022. <https://doi.org/10.1002/sim.9539>.

Stijn Vansteelandt, Oliver Dukes, **Kelly Van Lancker** & Torben Martinussen. “Assumption-lean Cox regression”. *Journal of the American Statistical Association*, 2022. DOI: 10.1080/01621459.2022.2126362.

**Kelly Van Lancker**, Sergey Tarima, Jonathan Bartlett, Madeline Bauer, Bharani Bharani-Dharan, Frank Bretz, Nancy Flournoy, Hege Michiels, Camila Olarte Parra, James L Rosenberger & Suzie Cro. “Estimands and their Estimators for Clinical Trials Impacted by the COVID-19 Pandemic: A Report from the NISS Ingram Olkin Forum Series on Unplanned Clinical Trial Disruptions”. *Statistics in Biopharmaceutical Research*, 2022. DOI: 10.1080/19466315.2022.2094459.

**Kelly Van Lancker**, An Vandebosch & Stijn Vansteelandt. “Efficient, Doubly Robust Estimation of the Effect of Dose Switching for Switchers in a Randomised Clinical Trial”. *Biometrical Journal*, 2021. <https://doi.org/10.1002/bimj.202000269>.

**Kelly Van Lancker**, Oliver Dukes & Stijn Vansteelandt. “Principled Selection of Baseline Covariates to Account for Censoring in Randomized Trials with a Survival Endpoint”. *Statistics in Medicine*, 2021. <https://doi.org/10.1002/sim.9017>.

Oliver Dukes, **Kelly Van Lancker**, Kaspar Rufibach, Björn Bornkamp, Dominik Heinzmann & Marcel Wolbers. “Identification of the Principal Stratum Effect in Patients Who Would Comply If Treated”. *Statistics in Biopharmaceutical Research*, 2021. doi: 10.1080/19466315.2021.1872697.

Cornelia Ursula Kunz, Silke Jörgens, Frank Bretz, Nigel Stallard, **Kelly Van Lancker**, Dong Xi, Sarah Zohar, Christoph Gerlinger & Tim Friede. “Clinical Trials Impacted by the COVID-19 Pandemic: Adaptive Designs to the Rescue?”. *Statistics in Biopharmaceutical Research*, 2020, 12: 461-477. doi:10.1080/19466315.2020.1799857.

**Kelly Van Lancker**, An Vandebosch & Stijn Vansteelandt. “Improving interim decisions in randomized trials by exploiting information on short-term endpoints and prognostic baseline covariates”. *Pharmaceutical Statistics*, 2020, 19: 583– 601. doi:10.1002/pst.2014.

**Kelly Van Lancker**, An Vandebosch, Stijn Vansteelandt & Filip De Ridder. “Evaluating futility of a binary clinical endpoint using early read-outs”. *Statistics in Medicine*, 2019, 38: 5361– 5375. doi:10.1002/sim.8366.

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## Under Review

**Kelly Van Lancker**, Frank Bretz & Oliver Dukes. “Covariate Adjustment in Randomized Controlled Trials: Some Practical Considerations”.

**Kelly Van Lancker**, Joshua Betz & Michael Rosenblum. “Combining Covariate Adjustment with Group Sequential, Information Adaptive Designs to Improve Randomized Trial Efficiency”.

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## Invited Talks

- September 2023 **Covariate Adjustment in Randomized Controlled Trials**, *CEN 2023 Conference*, Basel, Switzerland.
- March 2023 **Covariate Adjustment in Group Sequential Trials with Multiple Hypotheses**, *ENAR*, Nashville, U.S.A..
- November 2022 **The hypothetical estimand and its potential estimators in clinical trials impacted by COVID-19**, *DIA Innovative Trial Design Conference*, Virginia, U.S.A., Joined online.
- August 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Joint Statistical Meeting*, Washington D.C., U.S.A., (replaced my co-author Michael Rosenblum).
- August 2022 **The hypothetical estimand and its potential estimators in clinical trials impacted by COVID-19**, *Joint Statistical Meeting*, Washington D.C., U.S.A..
- May 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Annual Meeting of the Society for Clinical Trials*, San Diego, U.S.A..
- October 2021 **The hypothetical estimand and its potential estimators in clinical trials impacted by COVID-19**, *Design and Analysis of Experiments Conference Series in North America*, took place online.

- September 2021 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *XXIInd Conference of the Austro-Swiss Region (ROeS) of the International Biometric Society*, Salzburg, hybrid.
- August 2021 **Clinical trials impacted by the COVID-19 pandemic: Adaptive designs to the rescue?**, *Joint Statistical Meeting*, Seattle, U.S.A, took place online.
- June 2021 **Improving efficiency in both interim and final analyses**, *Webinar on Targeted Learning*, Ghent, Belgium, took place online.
- May 2021 **Ensuring valid inference for conditional causal hazard ratios after variable selection**, *Lifetime Data Science conference*, North Carolina, U.S.A, cancelled due to COVID-19.
- March 2021 **Clinical trials impacted by the COVID-19 pandemic: Adaptive designs to the rescue?**, *ENAR*, Baltimore, U.S.A, took place online.
- March 2021 **Efficient, doubly robust estimation of the effect of dose switching for switchers in a randomised clinical trial**, *German Biometric Colloquium*, Münster, Germany, took palce online.
- August 2020 **Honest Inference for Conditional Causal Hazard Ratios After Selection of High-Dimensional Confounders**, *Joint Statistical Meeting*, Philadelphia, U.S.A, took place online.

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## Invited Seminars

- May 2023 **Valid Inference for Conditional Causal Hazard Ratios After Variable Selection**, *Probability and Statistics Seminar at University of Luxembourg*, Esch-sur-Alzette, Luxembourg.
- February 2023 **Covariate Adjustment in Randomized Controlled Trials**, *Winter School Design and Analysis of Clinical Trials organized by Ghent University*, Ghent, Belgium.
- February 2023 **Improving the Efficiency of of Interim Analyses by Incorporating Short-Term Outcomes and Baseline Covariates**, *Winter School Design and Analysis of Clinical Trials organized by Ghent University*, Ghent, Belgium.
- December 2022 **Discussion on hypothetical strategies: a causal inference perspective**, *BBS/EFSPi*, virtual workshop “Addressing intercurrent events: Treatment policy and hypothetical strategies”.
- November 2022 **Covariate Adjustment in Randomized Controlled Trials**, *Novartis*, Basel, Switzerland.
- June 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Google Statistics journal Club*, California, U.S.A., took place online.
- June 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *National Institute of Allergy and Infectious Diseases*, Rockville, U.S.A., took place online.
- June 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *National Cancer Institute*, Rockville, U.S.A., took place online.

- April 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *University of Pennsylvania*, Philadelphia, U.S.A., took place online.
- March 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Novartis*, Basel, Switzerland, took place online.
- January 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Emory University*, Atlanta, U.S.A., took place online.
- November 2021 **Clinical trials impacted by the COVID-19 pandemic: Adaptive designs to the rescue?**, *WebENAR: Estimands, Estimators, and Estimates*, took place online.
- June 2021 **Covariate Adjustment in Randomized Trials**, *Oncology estimand working group*, took place online.
- June 2021 **The hypothetical estimand and its potential estimators in clinical trials impacted by COVID-19**, *Basel Biometrics Section webinar*, took place online.
- February 2021 **Methodological Challenges of Clinical Trials Impacted by the COVID-19 Pandemic**, *Free University of Berlin*, Berlin, Germany, took place online.
- October 2020 **Honest Inference for Conditional Causal Hazard Ratios After Selection of High-Dimensional Confounders**, *Johns Hopkins Bloomberg School of Public Health*, Baltimore, U.S.A, took place online.
- Sept. 2020 **Efficient, doubly robust estimation of the effect of dose switching for switchers in a randomised clinical trial**, *Basel Biometrics Section webinar*, took place online.
- August 2020 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *Novartis*, Basel, Switzerland, took place online.
- June 2019 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *University of Bremen*, Bremen, Germany.

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## Other Presentations at Conferences and Workshops

- April 2023 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *Adaptive Designs and Multiple Testing Procedures Workshop*, Basel, Switzerland.
- May 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *American Causal Inference Conference*, Berkeley, U.S.A..
- March 2022 **Combining Covariate Adjustment with Group Sequential and Information Adaptive Designs to Improve Randomized Trial Efficiency**, *ENAR*, Houston, U.S.A., hybrid.
- April 2020 **Ensuring valid inference for the effect of a treatment on a time-to-event endpoint in Cox models with variable selection**, *European Causal Inference Meeting*, Oslo, Norway, took place online.

- October 2019 **Efficient, doubly robust estimation of the effect of dose switching for switchers in a randomised clinical trial**, *27th Annual Meeting of the Royal Statistical Society of Belgium*, Sint-Truiden, Belgium.
- August 2019 **Efficient, doubly robust estimation of the effect of dose switching for switchers in a randomised clinical trial**, *The 6th International Symposium on Biopharmaceutical Statistics*, Kyoto, Japan.
- August 2019 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *40th Annual Conference of the International Society for Clinical Biostatistics*, Leuven, Belgium.
- March 2019 **Efficient, doubly robust estimation of the effect of dose switching for switchers in a randomised clinical trial**, *European Causal Inference Meeting*, Bremen, Germany.
- October 2018 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *Annual Workshop of the joint working group on "Adaptive Designs and Multiple Testing Procedures"*, Bremen, Germany.
- October 2018 **Improving interim decisions in randomized trials by exploiting information on short-term outcomes and prognostic baseline covariates**, *26th Annual Meeting of the Royal Statistical Society of Belgium*, Ovifat, Belgium.

## Professional Activities

- March 2023 **Short-course lecturer at ENAR "Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables"**, Baltimore, U.S.A.  
Co-lecturers: Josh Betz and Michael Rosenblum.
- September 2023 **Short-course lecturer at the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop "Implementing the estimand framework in RCTs: application of causal inference approaches"**, Rockville, U.S.A.  
Co-lecturers: Mouna Akacha, Tianmeng Lyu, Jiarui Lu and Kaspar Rufibach
- September 2023 **Invited session organizer at the CEN2023 conference "A causal inference perspective on estimands in clinical trials."**, Basel, Switzerland.  
Speakers: Vanessa Didelez, Hege Michiels, Mouna Akacha and Oliver Dukes.
- September 2023 **Short-course organizer and lecturer at the CEN2023 conference "Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables"**, Basel, Switzerland.  
Co-lecturers: Josh Betz and Michael Rosenblum.
- June 2023 **Short-course organizer and lecturer at the annual PSI conference "Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables"**, Londong, U.K..  
Co-lecturers: Josh Betz and Michael Rosenblum.
- March 2023 **Short-course organizer and lecturer at ENAR "Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables"**, Nashville, U.S.A.  
Co-lecturers: Josh Betz and Michael Rosenblum.

- September 2022 **Short-course organizer at the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop “Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables”**, Rockville, U.S.A.  
Lecturers: Josh Betz and Michael Rosenblum. Unfortunately, I was not able to attend myself.
- September 2022 **Invited session organizer at the ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop “When and how to use covariate adjustment to improve precision in randomized trials.”**, Rockville, U.S.A.  
Speakers: Daniel Rubin, Michael Rosenblum and Frank Bretz.
- August 2022 **Topic-contributed session organizer at the Joint Statistical Meeting “The use of baseline covariates and early read-outs in adaptive and group sequential designs: worth the effort?”**, Washington D.C., U.S.A.  
Speakers: Michael Rosenblum (replaced by myself), Nigel Stallard, Tim Friede, Kaspar Rufibach and Abigail Burdon.
- May 2022 **Short-course organizer and lecturer at the Annual Meeting of Society for Clinical Trials “Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables”**, San Diego, U.S.A.  
Co-lecturers: Josh Betz and Michael Rosenblum.
- May 2022 **Invited session organizer at the Annual Meeting of Society for Clinical Trials “When and how to use covariate adjustment to improve precision in randomized trials.”**, San Diego, U.S.A.  
Speakers: Mark van der Laan, Min Zhang and Kelly Van Lancker.
- June 2021 **Organizer of Webinar “A gentle introduction to targeted learning in RCTs: what, why and how?”**, Ghent University, Ghent, Belgium.  
To celebrate the end of my PhD, I organized a webinar on targeted learning. Speakers: Rhian Daniel, Oliver Dukes, Alex Luedtke and Stijn Vansteelandt. Discussants: Björn Bornkamp, Susan Gruber, Hana Lee, Frank Petavy and Jose Pinheiro.
- 2020-present **Leading the NISS (National Institute of Statistical Sciences) working group on estimands for trials impacted by COVID-19.**  
The aim of such a group -with pioneering statisticians in pharma and academia- is to put together a paper outlining the questions raised at the NISS event on estimands for trials impacted by COVID-19 and to articulate avenues of research which could be pursued to address them.

## Editorial Activities

Reviewer at *Biometrics*, *Biostatistics*, *Clinical Trials*, *Epidemiology*, *Journal of Causal Inference*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society: Series A*, *Journal of the Royal Statistical Society: Series B*, *Lifetime Data Analysis*, *Statistics in Biopharmaceutical Research*, *Statistics in Medicine*, *Statistical Methods in Medical Research*, and *Trials*.

2023- Associate editor at *Statistics in Biopharmaceutical Research*.

## Teaching

- 2022- Co-lecturer for **Statistics and Pharmaceutical Data Analysis**, Bachelor in Pharmaceutical Sciences, Ghent University.
- 2018-2019 Teaching assistant for **Survival Analysis**, M.Sc. Statistical Data Analysis and M.Sc. Mathematics, Ghent University.

2015-2021 Teaching assistant for **Statistics and Pharmaceutical Data Analysis**, Bachelor in Pharmaceutical Sciences, Ghent University.

## Funding and Research grants

2023 Grant for a one month research visit to Johns Hopkins University (U.S.A.) from Research Foundation Flanders (FWO)

2021 Postdoctoral fellowship (three years) from Bijzonder Onderzoeksfonds (BOF)

2021 Fulbright U.S. Research Grant , Belgium-United States.

2021 Belgian American Educational Foundation Post-Doctoral Research Fellowship, Belgium-United States.

2017 Flanders Innovation and Entrepreneurship (VLAIO) Baekeland PhD grant, Belgium.

## Languages

Dutch Native

English Fluent

French Intermediate

German Basic

## Programming skills

R, SAS, SPSS, Latex, Java

## Soft skills

Eager to learn, hard working, analytical thinking, enthusiastic, social, leadership

## Interests

Pottery, hiking, plants, running, photography