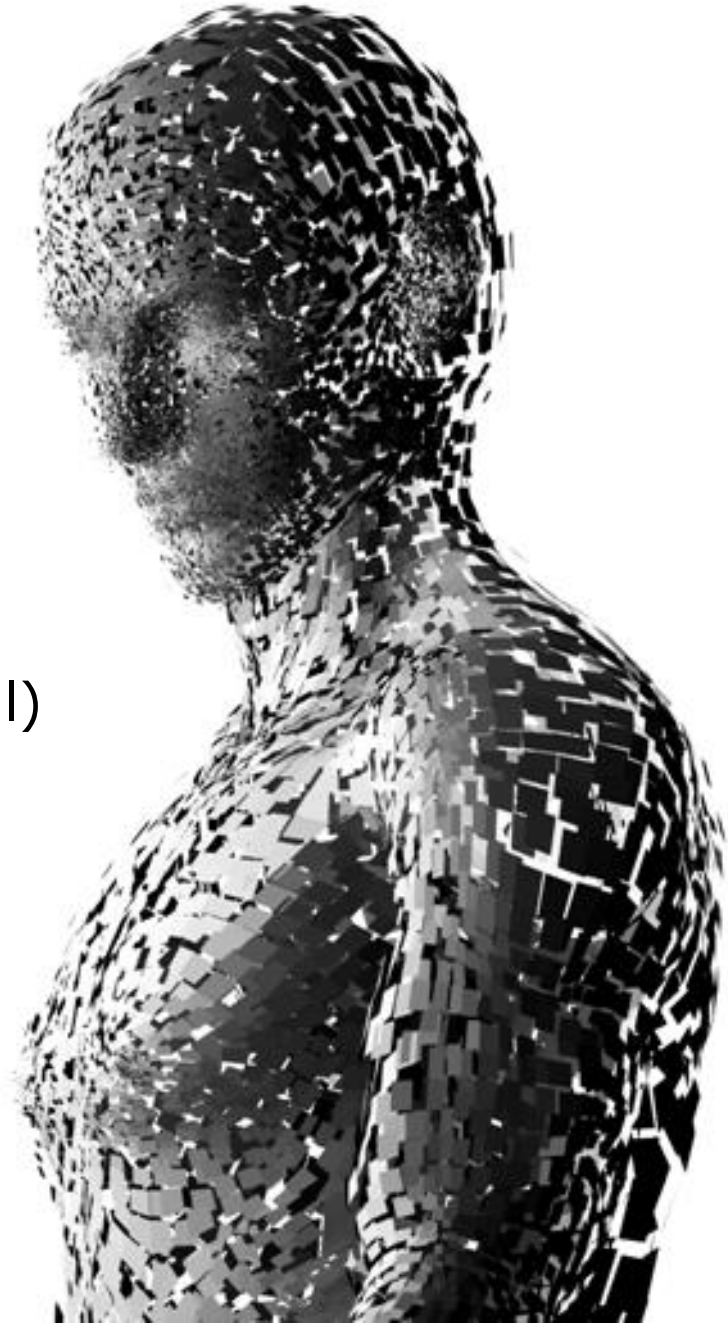


Economic Evaluations in mental health: the Netherlands

Dr. Joran Lokkerbol (jlokkerbol@trimbos.nl)



Netherlands Institute of
Mental Health and Addiction



Introduction

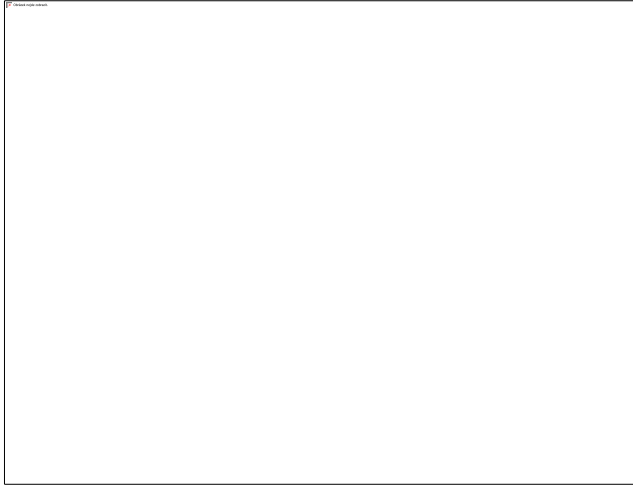
- Econometrics / Health Economics / Data Science
- Trimbos institute – Director Centre of Economic Evaluation & Machine Learning
- Data Science lead at Arkin



Activities Centre

1. Economic evaluations (trial-based and model-based)
 - Which intervention generates health effects at the best price?
2. Societal Cost Benefit Analyses
 - How does (national) policy financially affect relevant stakeholders?
3. Predictive analytics (machine learning)
 - How to improve cost-effectiveness through pro-active treatment?

Activities Centre



Netherlands Organisation for Health
Research and Development

Example 1: preventing psychosis



[Schizophr Bull.](#) 2017 Mar; 43(2): 365–374.

PMCID: PMC5605258

Published online 2016 Jun 15. doi: [10.1093/schbul/sbw084](https://doi.org/10.1093/schbul/sbw084)

PMID: [27306315](https://pubmed.ncbi.nlm.nih.gov/27306315/)

Four-Year Cost-effectiveness of Cognitive Behavior Therapy for Preventing First-episode Psychosis: The Dutch Early Detection Intervention Evaluation (EDIE-NL) Trial

[Helga K. Ising](#),¹ [Joran Lokkerbol](#),^{2,3} [Judith Rietdijk](#),^{1,2} [Sara Dragt](#),⁴ [Rianne M. C. Klaassen](#),⁵ [Tamar Kraan](#),⁴ [Nynke Boonstra](#),⁶ [Dorien H. Nieman](#),⁴ [David P. G. van den Berg](#),¹ [Don H. Linszen](#),⁴ [Lex Wunderink](#),⁶ [Wim Veling](#),⁷ [Filip Smit](#),^{2,8,9} and [Mark van der Gaag](#)^{✉* 1,2}

Trial-based Economic Evaluation



Design

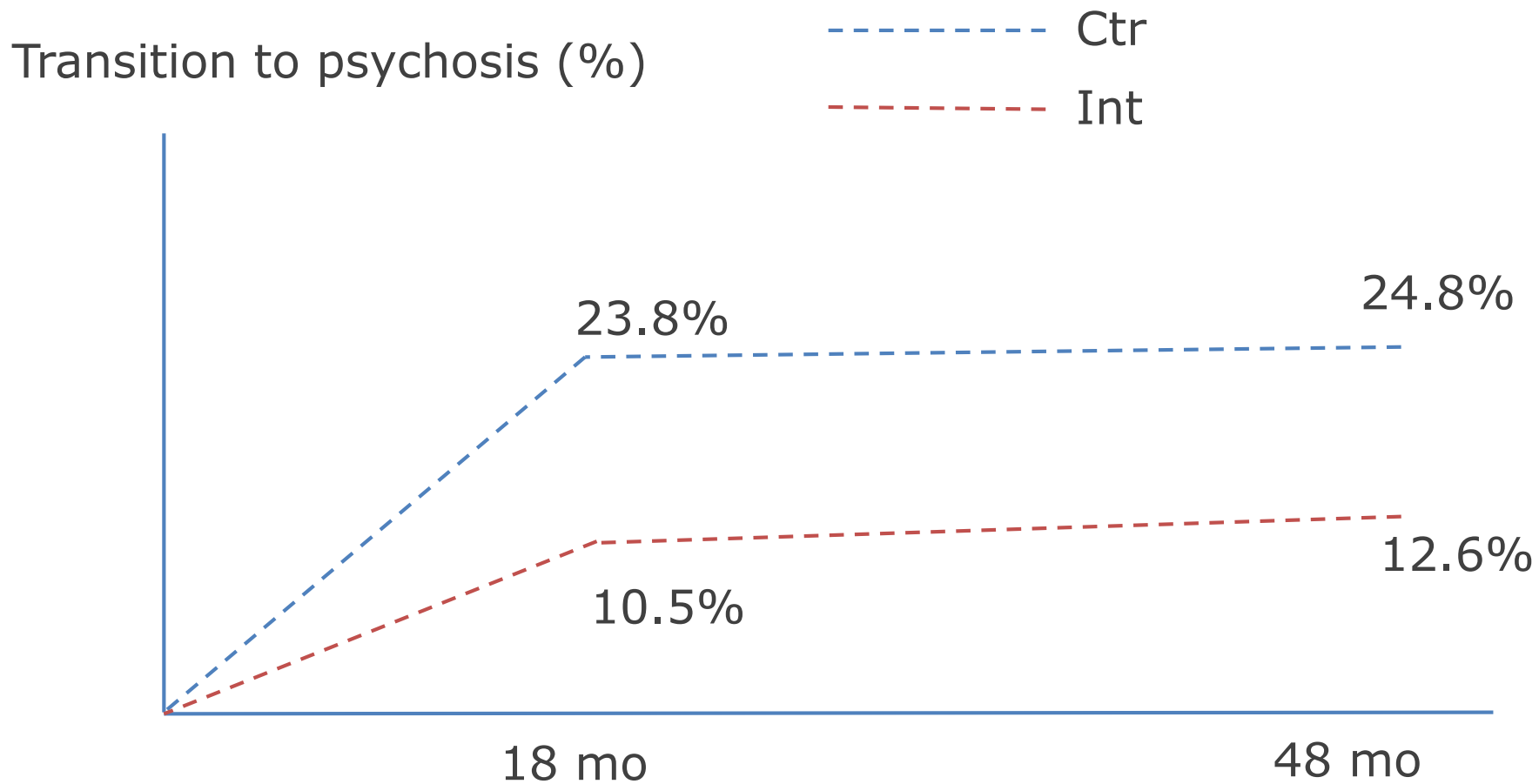
Population: people in the Netherlands at Ultra High Risk (UHR) of developing first episode of psychosis

Conditions: Care As Usual (CAU) (n=101) vs CAU + 10 sessions of CBTuhr (n=95)

Outcome measures: onset of psychosis, quality of life, healthcare costs

Time horizon: 4 years

Effectiveness



Effectiveness

	Cumulative (0-48 months) costs	
	Add-on cognitive behavior therapy for ultra-high risk	Routine care
Add-on intervention, US\$ (SD)	2,266.10 (1,744.26)	N/A
Service use, US\$ (SD)	16,506.54 (24,362.36)	24,452.73 (40,552.75)
Antipsychotic medication, US\$ (SD)	35.86 (96.21)	48.28 (111.91)
Travel costs, US\$ (SD)	312.85 (265.89)	397.46 (411.31)
Total costs, US\$ (SD)	19,121.35 (24,507.61)	24,898.47 (40,936.54)

- Cost saving: on average €4,146 per person taking into account additional screening costs
- Not taking into account productivity gains

Cost-Effectiveness



Impact

The Health Insurance Act normally does not fund prevention

Lobbying by mental healthcare institutions together with health insurance companies resulted in the Dutch Healthcare Authority to allow for the financing of such prevention

Currently standard practice in some of the larger mental healthcare institutions to screen a large part of the incoming patient population

Example 2: predicting tx success



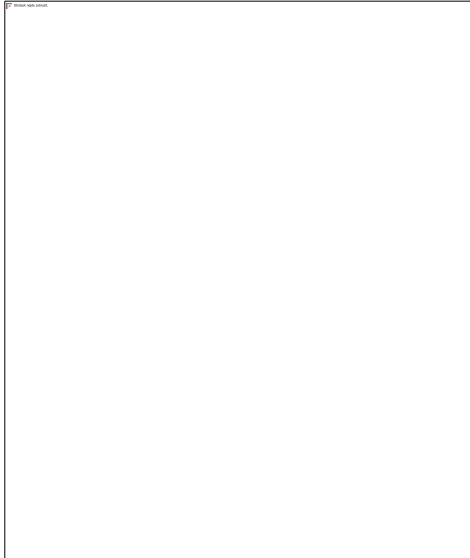
Background: machine learning

Type of analytics concerned with prediction or classification, using example data

Works better on observational data than experimental data, and therefore opens up the possibility for healthcare institutions, insurance companies etc to leverage their data

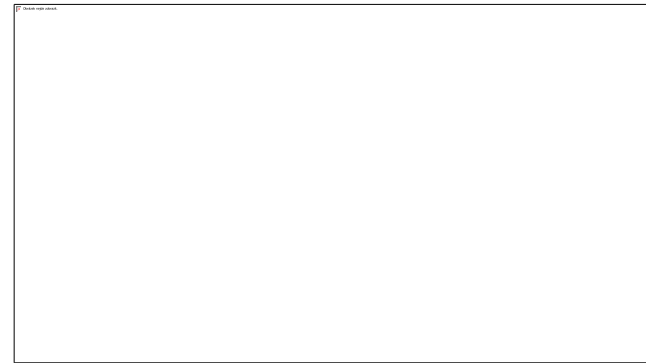
Prediction versus Effect

Prediction



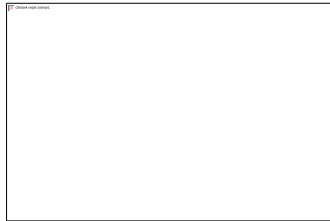
Knowing how the world will **present** itself such that we can have an adequate **response** to it

Effect



Knowing how to optimally **change** the course of the world

Prediction versus Effect



Machine Learning

Can we see trouble coming?

+

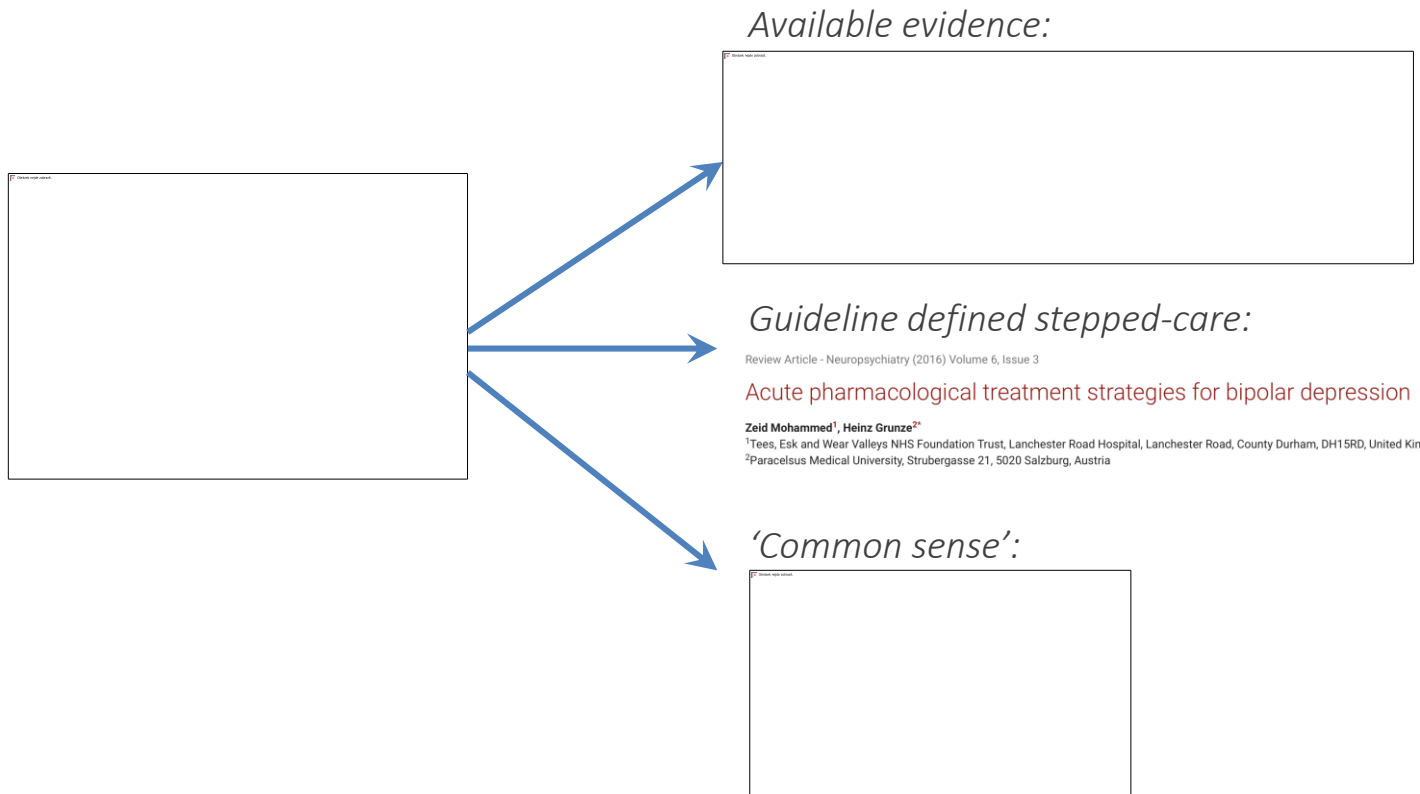


Effectiveness research

And what can we do about it?

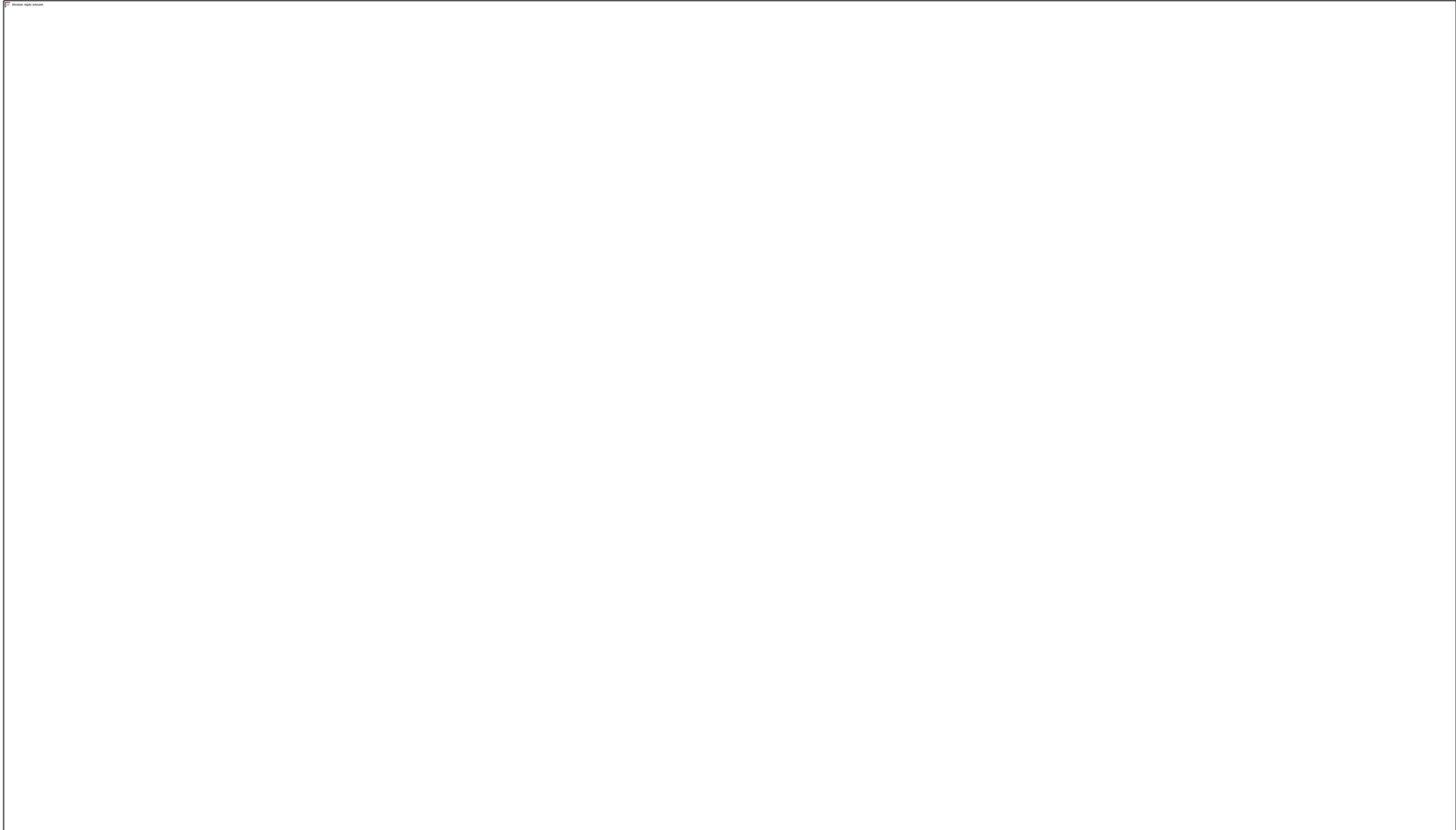
Joran Lokkerbol

Machine learning as the missing link



Joran Lokkerbol

Federated learning



Example 1: preventing psychosis

Example 2: predicting tx success

Questions?

Economic Evaluations in mental health: the Netherlands

Dr. Joran Lokkerbol (jlokkerbol@trimbos.nl)



Netherlands Institute of
Mental Health and Addiction

