



\*QUALITY & STATISTICS!



## \* QuoData Service About Us

QuoData has been providing statistical consulting services, assisting with all aspects of experimental design, evaluation, and interpretation of clinical research and epidemiological studies. We can look back on over 20 years of experience in quality and statistics. As the heart of QuoData is advanced statistical methods, we go above and beyond the usual industry standards. This enables us to not only lay emphasis on validating the data and methods but also to provide accurate, data-driven conclusions with high reliability.

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## \* QuoData Service Meta-Analyses Enable evidence-based value development

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Accurate, Reliable, Independent:

# Systematic reviews and meta-analyses as a service

For more information visit us at [www.quodata.de/en](http://www.quodata.de/en)

## Meta-analyses and systematic reviews

We conduct systematic reviews that summarize the results and findings of independent scientific studies on a specific topic and critically evaluate the validity of the study results. These comprehensive literature reviews aim to provide a solid overview of the current state of knowledge.

For a meta-analysis, in addition to the above, we conduct statistical analysis, encompassing qualitative and quantitative evaluation of the results from the various studies. The individual study outcomes are combined to an overall outcome, thus increasing the evidence in connection to the scientific study. This makes it possible to determine, for example, the presence and size of a particular effect in a statistically sound manner.

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Are you a pharmaceutical, diagnostic or medical device company, a health authority or a medical research institute looking to commission an independent systematic review or meta-analysis?

We provide comprehensive services for systematic reviews and meta-analysis.

In the biomedical field our work is carried out in accordance with the requirements and guidelines put forward in the Cochrane handbook for systematic reviews of Interventions<sup>1</sup>, PRISMA<sup>2</sup> or QUADAS<sup>3</sup> and STARD<sup>4</sup>.

In addition, we ensure that systematic reviews and meta-analyses are registered in due time (i.e. before data extraction begins) in the relevant databases (e.g. PROSPERO)<sup>5</sup>.

### Our services include

- Search strategies for identifying thematically relevant publications (primary studies)
- Definition of eligibility criteria for studies
- Selection of relevant studies based on inclusion criteria
- Evaluation of study and data quality
- Data extraction
- Statistical evaluation of results, interpretation and conclusions
- Computation of an overall outcome
- Analysis of bias
- Analysis of between-study heterogeneity
- Subgroup analysis
- Covariate analysis (meta-regression)

- Final report
- Support with peer-reviewed publication

Apart from this, we collaborate with our partners to perform calculations that meet special requirements and create graphics according to specified criteria.

Forest plots for sensitivity and specificity for a meta-analysis performed to assess the value of the tumor marker CEA for therapy response prediction in NSCLC patients. (Holdenrieder et al. 2017).

### Application examples

- In the medical field, for example, meta-analysis can be a tool for performance evaluation of biomarkers for diagnosis, therapy response prediction, therapy monitoring or prognosis.
- Meta-analysis can also be used to assess the usefulness of medicinal products (e.g. diagnostic dyes for detection of ureteral injury following abdominal surgery) or evaluation of clinical significance of existing therapies (e.g. comparison of drug-eluting stents with bare-metal stents for percutaneous coronary intervention).

### Selected publications

- Stefan Holdenrieder, Birgit Wehnl, Karina Hettwer, Kirsten Simon, Steffen Uhlig and Farshid Dayyani. Carcinoembryonic antigen and cytokeratin-19 fragments for assessment of therapy response in non-small cell lung cancer: a systematic review and meta-analysis. *Br J Cancer*. 2017 Apr 11;116(8):1037-1045.
- Farshid Dayyani, Steffen Uhlig, Bertrand Colson, Kirsten Simon, Vincent Rolny, David Morgenstern and Matthew Schlumbrecht. Diagnostic Performance of Risk of Ovarian Malignancy Algorithm Against CA125 and HE4 in Connection With Ovarian Cancer: A Meta-analysis. *Int J Gynecol Cancer*. 2016 Nov; 26(9):1586-1593.

<sup>1</sup> Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions* version 6.0 (updated July 2019). Cochrane, 2019. Available from [www.training.cochrane.org/handbook](http://www.training.cochrane.org/handbook).

<sup>2</sup> International Journal of Surgery Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Int J Surg* 2010; doi:10.1016/j.ijsu.2010.02.007

<sup>3</sup> Whiting P, Rutjes A, Dinnes J, Reitsma J, Bossuyt P. Development and validation of methods for assessing the quality of diagnostic accuracy studies. *Health Technol Assess* 2004;8(25)

<sup>4</sup> Patrick M. Bossuyt; Johannes B. Reitsma; David E. Bruns; Constantine A. Gatsonis; Paul P. Glasziou; Les M. Irwig; David Moher; Drummond Rennie; Henrica C.W. de Vet; Jeroen G. Lijmer. The STARD Statement for Reporting Studies of Diagnostic Accuracy: Explanation and Elaboration. *Ann Intern Med*. 2003 Jan 7; 138(1):W1-12

<sup>5</sup> <https://www.crd.york.ac.uk/PROSPERO/>

