

Workshop

"Bayesian methods in the development and assessment of new therapies"

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Ralf Bender (IQWiG, Köln)

Applications of Bayesian methods in health technology assessment

Although Bayesian methods have a long history in medical statistics, the presented results in publications of randomized controlled trials and systematic reviews are still mainly based upon traditional frequentist methods. The first versions of the IQWiG methods paper contained only a short note that Bayesian methodology represents a basic alternative to statistical significance testing, which can be used according to requirements (IQWiG, 2006). The new version 5.0 of the IQWiG methods paper includes just a little bit more details, namely that Bayesian methods may play a role in indirect comparisons and meta-analyses with very few studies (IQWiG, 2017).

In the past, IQWiG has applied Bayesian methodology extensively, for example, in the health economic evaluation of venlafaxine, duloxetine, bupropion, and mirtazapine compared to further prescribable pharmaceutical treatments, because Bayesian random-effects network meta-analyses were calculated by means of the OpenBUGS software (IQWiG, 2013). However, the main advantage of Bayesian methods, namely the possibility to make explicit quantitative use of external evidence in the analysis of data in health technology assessment reports, has not been utilized yet due to difficulties in decisions regarding valid prior distributions. In this talk, an overview of main application areas of Bayesian methodology in health technology assessment is given. Problematic issues such as the determination of adequate prior distributions are discussed.

References

IQWiG (2006): Methoden, Version 2.0 vom 19.12.2006. Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (IQWiG), Köln.

IQWiG (2013): Kosten-Nutzen-Bewertung von Venlafaxin, Duloxetin, Bupropion und Mirtazapin im Vergleich zu weiteren verordnungsfähigen medikamentösen Behandlungen, Auftrag G09-01, Version 1.0 vom 03.09.2013. Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (IQWiG), Köln.

IQWiG (2017): Allgemeine Methoden, Version 5.0 vom 10.07.2017. Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (IQWiG), Köln.