Marburger Bund
Federal Association

Position paper
Test criteria for independent continuing medical education - Independence through competence and transparency

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Preamble

Lifelong vocational training ("continuing medical education") for licensed doctors plays a crucial role in maintaining and adapting the quality of medical decisions in an ever faster changing environment in which evidence-based medicine needs to be reconciled with the preferences of the patient and the conditions of the structure of the health system in Germany.

Independent medical decisions are **the** crucial prerequisite for our medical identity and credibility and therefore have always been an integral part of the regulations that the medical profession has given itself (1, 2), and are more recently also due to various initiatives in the field of scientific associations and other organisations (e.g. 3, 4, 5, 6).

However, they largely leave open the question of when medical decisions over-moulded by economic interest are available and how they should be avoided based on evidence.

The Marburger Bund has always spoken out against the dominance of economic determinants in medical decision-making processes, and this expressly includes continuing medical education (7).

If continuing medical education primarily describes a doctor-doctor interaction and thus expert training (8, 9) and therefore the development of this relationship will be the focus of consideration, this document will lay out the demands of the Marburger Bund for independent continuing medical education in addition to a comprehensive description of the status quo with regard to commercial influences on vocational training.

Suggestions for concrete behavioural measures by active and passive participants in continuing medical education should help to support the measures taken by the German Medical Association and other medical associations in recent years. The order for this stems from a decision of the 127th General Assembly of the Marburger Bund (10), in which the development of test criteria for independent continuing medical education was initiated by the association.

The initial situation

The “freedom from economic interests” demanded by the medical profession in principle refers to all persons or institutions that might have an interest in influencing the healthcare system and in particular medical decision-making behaviour. Quantitatively, the focus is on relationships between doctors and the pharmaceutical and / or medical technology industry, which exist on many levels (e.g. research, health care, etc.) either intentionally or inevitably.

At the same time, a substantial part of continuing medical education takes place under conditions that aim to be (or must be) economical in carrying out the continuing medical education measure, such as specialist congresses, continuing medical education in specialist magazines, or on the Internet.
It is not uncommon for industry to be the guarantor of profitability through sponsorship. Under these framework conditions too, care must be taken to ensure that the primacy of "freedom of continuing medical education content from economic interests" is ensured.

The Marburger Bund has set itself the overall goal of providing the training participant with clear and practicable criteria that can be used to determine whether it is independent continuing medical education, both when the training is announced and when it is carried out. However, the paper will also show the limits that are currently set for such an undertaking and state the resulting political demands.

In the following, we will take a position on the following topics under the overarching aspect of "freedom from economic interests":

- Methodological and professional competence
- Data acquisition and use
- Independent sources of information
- Independence of medical intermediaries from continuing medical education
- The language of medical education
- Implementation of independent continuing medical education measures
- Independence of medical participants in continuing medical education

1. Independence through methodical and professional competence

The ability to critically assess the methodology, with the help of which knowledge relevant for medical decision-making is obtained, is one of the basic requirements for the adequate handling of evidence in medical decision-making. However, the acquisition of methodological and clinical skills is not regularly coordinated with one another within the scope of medical studies. For example, the Science Council recently demanded that "the scientific orientation of medical studies will (should) be laid down in the medical licence for doctors (ÄApprO) by defining the teaching of the scientific methodical basis of medicine as an equal educational objective of the course." (11)

In view of this situation, the Marburger Bund calls for the consistent and comprehensive integration of methodologically oriented courses into medical studies. This should be done as early and longitudinally as possible so that clinical practice can be used to deepen it during the course (12).

The Marburger Bund also supports the view of the Science Council that "Teaching scientific competences is of functional importance for quality of care, because prospective doctors are more than ever dependent on the ability to think and act scientifically and in an evidence-based way in view of the rapid scientific and technological advances in medicine." (11)

Currently it must be assumed that the majority of participants in continuing medical education do not have the necessary methodological tools to assess evidence.

In this context, the Marburger Bund defines test criterion as:

> *Speakers / authors actively integrating the relevant methodological aspects into their presentation.*

2. Independent data acquisition and use

Clinical research, especially in the field of new pharmaceuticals, is currently dominated by industry-funded studies: In addition to industry-funded regulatory research, around 80% of all patients treated in clinical trials to compare medicines directly are included in industry-funded studies (13). Doctors play only a minor role in the decision on study design and implementation as well as data storage and use (14).

Findings collected as part of the "early benefit assessment" according to the Pharmaceuticals Market Reorganisation Act (AMNOG) also show that only about 30% - 50% of the data generated in the course of studies (for the medication to be assessed) is made available to the public (15).This problem is further aggravated by the finding that only about 50% of all completed clinical studies are published and the publication rate of studies carried out exclusively by doctors or academic institutions is also not higher (16, 17).

It should also be kept in mind that in the case of industry-sponsored studies, companies may reserve the decision to publish them, but independent continuing medical education nevertheless requires the full availability of the evidence available on a topic, and all subsequent analyses (e.g. systematic reviews, meta-analyses, continuing medical education, etc.) from independent institutions (such as the Cochrane Collaboration) have the proviso in their statements that previously unpublished data could potentially significantly change the picture. Complete recording of undesirable effects of drugs and pharmaceuticals is due to the fact that, in contrast to drug approval, there is no equivalent set of rules that prescribes the necessary documentation of clinical data.

The Marburger Bund regards the complete transparency of all data collected on a clinical problem with scientific methodology as a crucial prerequisite for maintaining the trust of the medical profession in one of the most important pillars for the development and maintenance of competence.

In this context, the Marburger Bund demands:

1. Doctors and / or academic institutions should have the final power to decide on the aim and implementation of the data collection, as well as its storage and further use, in all projects in which (potentially) care-relevant data is collected, especially in studies on people. In doing this, the greatest possible independence of the medical actors must be guaranteed. The Marburger Bund is well aware that the high hopes placed on the analysis of "big data" represent another obstacle to implementing this requirement.

2. For the Marburger Bund, the publication of the results of clinical trials on people is covered by the duty to conscientiously practice the profession as laid down in the medical professional code. It therefore urges all colleagues involved in such studies to fulfil their professional duties appropriately and for the benefit of our patients and to make all the results of their research publicly available in a timely manner. In this context, the Marburger Bund considers the minimum standard to be a presentation of the clinical data in the databases of the regulatory authorities shortly after the completion of the study (18).

3. Processing the number of clinical studies, which has grown exponentially in recent years, and the methodological evaluation of their evidence strength, have become increasingly complex. Both exceed the time resources and skills of the individual doctors, as well as that of clinic departments. At the same time, using the study data is indispensable for participatory decision-making in the treatment of our patients. The Marburger Bund therefore calls on the federal government to create the necessary conditions for all citizens to have free access to the Cochrane Library (19).

4. The Marburger Bund continues to urge the federal government to take appropriate measures to strengthen patient protection against adverse drug reactions (ADR), for example by introducing reporting requirements. Treatment decisions are always based on a risk-benefit assessment. While a proven benefit is generally the basis for the approval of pharmaceuticals, the full extent of ADR only becomes apparent when the pharmaceutical is used under long-term conditions and / or in patient groups not covered by the approval studies. In contrast to drug approval, there is no equivalent set of rules for ADR that prescribes the necessary documentation of clinical data. The pharmaceutical industry must therefore be strongly encouraged to meet its obligations to publish clinical data from completed studies in a timely manner in the European Medicines Agency (EMA) database.

The Marburger Bund also supports the goals of EU Regulation 2017/745, which is intended to improve the long-term safety of medical technology products. The Marburger Bund emphasises that for all medical colleagues there is an obligation under the medical professional code to report adverse drug effects (20).

In this context, the Marburger Bund defines further test criteria:

1. *In their presentations, speakers / authors point out the role doctors played in data collection and use.*
2. *Speakers / authors regularly and actively integrate the results of additional analyses by independent providers (e.g. meta-analyses, systematic reviews such as the Cochrane Collaboration) into their presentations.*

3. Independent sources of information

In the area of certified continuing medical education measures, the available data suggests that only a minority of the events is now sponsored (21).
Nevertheless, important opinion-forming event types (e.g. congresses) and thus their organisers continue to be highly supported by the industry. The same applies to the dependency of a lot of print and digital media on their advertising clients and the income from ordering special prints.

Independent (in the sense of not sponsored) offers exist for face-to-face events as well as print and digital media, but may only have a limited scope (e.g. continuing medical education events by the medical associations).In addition, other independent sources of information such as the Cochrane Collaboration, (which is subsidised by the state in Germany), the Institute for Quality and Efficiency in Health Care (IQWiG), and the Drug Commission of the German medical profession (AkdÄ), amongst others, provide indispensable contributions to medical decision making. Critical to the success of such independent providers, however, is the decision of the medical profession to regularly use the corresponding offers.

In this context, the Marburger Bund demands:

1. The German Medical Association should immediately define the scope and content of the disclosure of conflicts of interest by "organisers" required by the continuing medical education regulations (22).

2. The Federal Government should create the necessary conditions so that the medical profession not only has free access to the Cochrane Library (see above), but also that the EMA provides the results of its activities promptly, clearly, technically easy to use, and in clinically relevant diction for continuing medical education. This also applies to institutions such as the IQWiG, the Cochrane Collaboration, and the AkdÄ (23).

The Marburger Bund therefore defines further test criteria:

1. *Providers of continuing medical education disclose their financing structure to the participants as part of a declaration of interest by organisations.*
2. *The information from independent providers is regularly and actively integrated into presentations by speakers / authors (see above).*

4. Independence of medical intermediaries from continuing medical education

Since continuing medical education is ideally a doctor-doctor interaction (8, 9), the medical speaker / author has a special role. Not only must they provide the necessary transfer of information, but at the same time they must also make suggestions for the critical evaluation of the available evidence and for recommendations for action derived from it. The latter can include external recommendations (e.g. guidelines), but can also be based on subjective expertise ("expert opinions"). In doing so, they are subject not only to the ethical obligation but also the professional and legal one to "conscientiously" pursue their profession and bear undivided responsibility for this (1).

At times when, for example,

- the large majority of treatment studies are financed by industry (13) and the economisation of medicine forces doctors more and more into economic discussions (24), contact between doctors to industry and thus also sponsors of continuing medical education is often and to a large extent unavoidable;
- almost all areas of social life are subject to the concept of competition and this does not exclude research, non-financial interests (e.g. a professional career) also gain in importance.

Since there are often conflicts of interest that cannot be resolved, continuing medical education planners are often faced with the situation that independent (in the sense of complete freedom of interests) speakers / authors with the relevant medical expertise are not available. In this context, creating the highest level of transparency is the most important measure to provide the training participant with the accompanying information that he or she absolutely needs for their overall assessment.

On the other hand, there is still considerable scope for organisers of continuing medical education to implement recommendations to minimise the interests of third parties in forming medical opinions (25, e.g. 26).

The opinion of medical experts is becoming increasingly important in the context of medicine, in particular

- in patient care,
- as part of continuing medical education and
- for decisions made by the German Joint Committee (G-BA).

For the majority of everyday problems in health care, there are often no recommendations for action from randomised studies, but only those at the methodological level of so-called expert opinions. In recent years, guideline authors have increasingly made recommendations on clinical issues that are not covered by evidence (27, 28) in order to increase the clinical relevance of the guideline. These recommendations are usually given as so-called expert opinions and are often come with strong recommendations. "Expert opinions" therefore also play a major role in the context of continuing medical education. However, there is currently no agreed definition of a “medical expert”. Therefore, at least for decisions made by the G-BA, there has recently been a critical stance on dealing with "expert knowledge" (29, 30).

The Marburger Bund therefore demands:

1. It is important to define the binding formal and content requirements of a "medical expert". For this purpose, a procedure must be defined between doctors on how to make these requirements transparent. Institutions that include expert opinions in their decisions are asked to make the underlying selection criteria and the scope of the content-related consideration public.

2. Continuing medical education financially supported by third parties is subject to several non-coordinated legal systems: Professional, competition, social, tax, labour, and collective bargaining law. In the application of the provisions applicable to the respective partners, attempts are increasingly made to act at the expense of the freedom of medical information. The complete availability of all relevant data for a decision in diagnostics and treatment geared to the well-being of the individual patient is just as indispensable as their critical weighting in collegial dialogue. The Marburger Bund therefore condemns all endeavours and measures which (could) lead to restrictions (due to primarily economically motivated reasons).This includes

   - the reticence of studies with a neutral or negative outcome by the sponsors,
   - the influence of hospital providers on continuing medical education behaviour,
   - information organised by manufacturers of selected groups of doctors,
   - the influence of sponsors on the selection of speakers / authors and the content of continuing medical education, etc.

3. Furthermore, the Marburger Bund calls on everyone involved to develop a concept under the leadership of the German Medical Association which, based on the medical primacy of independent information and an unimpeded medical information exchange, describes in detail the possibilities and limits of financial support for continuing medical education measures by third parties (31, 32).

In this context, the Marburger Bund defines further test criteria:

1. *Speakers / authors disclose their financial as well as non-financial interests to the participants comprehensively, in good time, and for the long-term (this can currently best be achieved through a consensual publication on the Internet).*
2. *The organisers of continuing medical education measures have a defined, publicly accessible set of rules for dealing with issues (conflicts).*

5. The language of medical education

Language is the decisive instrument for conveying medical facts and their interpretation and thus also the essential means for manipulating opinions and decisions.

To date, the language of the various groups active in this area (e.g. professional societies, methodologists, legislators) has developed in an uncoordinated manner (e.g. 33, 34, 35) and currently does not allow a uniform transfer of the levels of evidence in recommendations for action, which is particularly true for clinical decision-making processes with moderate to weak levels of evidence. This often leads to very differently perceived requests for action by the recipients of continuing medical education and thus includes considerable manipulation potential (36, 37) in the selection of patients for diagnostic and / or treatment measures.

A uniform language regulation also stands in the way of the fact that for the majority of the questions to be answered in everyday medical practice, only data of poor quality or even no data from clinical studies are available without resulting in a reduction in the pressure to make decisions in the clinical situation. Clinical decision pressure and the general human need for causality (38) promote a language that suggests the same level of security for the clinical decision-making process for weak or non-existent evidence as for clear findings from randomised studies. Examples include expert opinions with high recommendations and the frequently encountered statement that findings from subgroup analyses "showed" something.

In this context, the Marburger Bund defines the following test criteria:

Speakers / authors of independent continuing medical education

1. *use language that clearly and unambiguously separates causal findings from other data;*
2. *separate the description of the level of evidence from the submission of a recommendation for action;*
3. *clarify which factors (beyond the pure level of evidence) they have taken into account in the development of recommendations for action and whether they are hierarchically structured (e.g. improved prognoses takes precedence over lowering morbidity etc.) (see also "Summary" below).*

6. Implementation of independent continuing medical education measures

In principle, the Marburger Bund regards continuing medical education as part of the work performed and derives from this the demand that continuing medical education must then also take place during working hours. Nevertheless, many continuing medical education courses take place outside of working hours and not at the workplace. It is therefore important to ensure, even under these conditions, that continuing medical education measures are seen as independent, purely professionally motivated activities. In this regard, the Marburger Bund refers to the judgment given by the European Court of Justice, according to which the external presentation of a "product" must make a clear impression possible at first glance (39), and would like to see this principle fully transferred to continuing medical education.

The Marburger Bund therefore demands:

1. Continuing medical education is an integral part of the medical profession. It is an element of the quality assurance of medical activity.

2. The opportunity for continuing medical education is to be opened to all doctors to the same extent and irrespective of their level of training, function, or professional position.

3. Continuing medical education is part of their medical work. It should primarily take place during working hours. Doctors should be able to receive continuing medical education at the workplace (e.g. via the Internet).

4. The costs of continuing medical education are borne by the employer.

5. The Marburger Bund fully supports the freedom of the individual doctor, as propagated by the medical profession, to choose the form, content, and timing of continuing medical education. It sees this as the best way to react flexibly and in a problem-oriented way to questions arising from health care.

The Marburger Bund is therefore very critical of the increasing number of external continuing medical education obligations (e.g. within the scope of the disease management programme) which is now threatening the freedom of continuing medical education.

6. Medical information is increasingly being offered digitally and is accessible at the workplace, and is therefore becoming increasingly important for acute decisions in direct patient care. Concepts as to whether and how this type of electronically-based education ("micro-e-learning") could be integrated into individual continuing medical education concepts and into the current certification system of the medical associations must be developed.

7. The independence of content and evaluations in continuing medical education (especially commercial interests) must be defined and designed in accordance with the medical professional code from within the medical profession itself. Relevant recommendations in this regard are available (40).Legal requirements (such as the "Physicians Payment Sunshine Act" in the USA) can support these efforts, but they cannot replace them. The Marburger Bund therefore currently sees no need for additional legal regulations in this area for Germany with its functioning medical self-administration. All medical institutions must develop the criteria for the independence of continuing medical education even more consistently (41).

In this context, the Marburger Bund defines additional test criterion as:

In planning, announcement, implementation and follow-up, medical and non-medical organisers, speakers, authors, chairpersons, course leaders and moderators avoid any appearance that continuing medical education measures could not be completely independent and exclusively professionally motivated.

7. Independence of medical participants in continuing medical education

Even if the current discussion barely addresses it, there is no need for any further explanation that each participant also brings their own interests into continuing medical education. This should for example explain, at least in part, the high inter-subjective variability demonstrated in studies on the perception of guideline recommendations (32).

Since there are currently no technical instruments available to capture the interests of participants in continuing medical education in a feasible manner, there is also no knowledge of the extent to which the reception of continuing medical education or the strength of recommendations for action are influenced by the interests of the participants.

The Marburger Bund therefore defines another test criterion:

> *If doctors participating in continuing medical education do not remain anonymous (e.g. in the form of contributing to the discussion), they submit to the same principles that apply to speakers and authors. At face-to-face events, the declaration of interest is made verbally, in the case of continuing medical education in digital or print media in writing (e.g. when a reader's letter is published).*

Summary and practical conclusions

As doctors, we owe it to our patients to select the most reliable diagnosis and treatment for them. The chain is subject to powerful and often economically oriented interests, from data generation to evaluation of results and recommendations for action in an increasingly competitive environment. To the extent that their influence lies outside the regulatory area accessible to the medical profession, the Marburger Bund addressed the decision-makers with regard to the relevant political demands.

For the generation and evaluation of evidence as a basis for medical decisions, an increasingly sophisticated and globally accepted set of instruments has been developed in the methodological area in recent decades, the translation of which into a language with clear calls for action is still pending. Compared to other conceivable factors (such as the influence of various "medical schools") the linguistic mediation of medical knowledge currently contains probably the highest manipulation potential for the assertion of economic and other interests. On the other hand, the analysis of the language regulations proposed so far for the transfer of different levels of evidence in recommendations for action with regard to their applicability in typical medical decision-making situations shows that it is probably unrealistic to find a solution based solely on language in the form of catchy formulations that are uniformly seen as transparent.

Without prejudice to further efforts for clearer language, additional structural components must be added to support the course of continuing medical education measures. In particular, they aim to provide the continuing medical education participants with a neutral overview of all of the evidence in view of a flood of data that has grown exponentially in recent decades, and to enable them to come to a balanced judgment themselves.

This results in the following suggestions for the practice of continuing medical education:

1. Full representation of the interests of all persons and institutions directly and indirectly involved in continuing medical education measures.

2. Systematic presentation of the structure of evidence for the respective clinical problem in appropriate language.

This can only be achieved through regular integration of aggregated information (e.g. systematic reviews, meta-analyses) from independent sources.

Since, based on methodological considerations, in principle only results from **randomised studies** can be used for a decision based on the **causality** of medical action, the structure of the existing evidence should always be hierarchically presented from a methodological point of view during the course of continuing medical education measures and be started with the results from randomised studies. However, since the randomised study does not guarantee a correspondingly high quality of evidence per se, instruments for evaluating the evidence quality of randomised studies have been developed, of which the GRADE group is currently the methodologically most mature, one of the most widespread and transparent due to its transparent approach that preserves medical decision-making autonomy.
GRADE's assessment approach also provides the participant with tools with which they can check, at least occasionally during continuing medical education, whether the speaker is trying to adequately assess the quality of the evidence.

GRADE divides the quality of the evidence from **randomised studies** into *high, medium, low,* and *very low quality*
(= trustworthiness), a language regulation that can be adopted directly into continuing medical education.

Given that there are already four linguistic alternatives for describing the quality of the evidence from randomised studies, an attempt to achieve a clear **linguistic** differentiation within the inhomogeneous *group of non-randomised examinations*, which then also clearly differs from the assessment of randomised studies, does not appear to make realisable sense.
A procedural component must therefore always be added to the linguistic component in order for the participant to clearly work out the difference in the trustworthiness of the evidence. In the presentation of results, it should therefore always be actively pointed out that the level of safety is incomparably lower than in randomised studies.*In particular, expert opinions should be connoted in such a way that they do not stand for any safety of medical action towards the patient, but only offer a certain protection under liability law with a significantly increased need for justification of

decisions based on expert opinions. They can therefore not include strong recommendations for action. **

Using the subjunctive in language is useful for dealing with the results of non-randomised studies.

1. Disclosure of the decision-making criteria of the speakers / authors for making recommendations for action (i.e. evaluation of the quality of the evidence in the context of patient care), especially in situations with insufficiently secured evidence

The significance of the results of clinical studies for the decision-making behaviour of the individual doctor in the individual doctor-patient relationship naturally depends primarily on evidence-based medicine

- the extent of the effect of treatment
  (or the net benefit considering undesirable side effects) and
- its trustworthiness
  (i.e.the certainty with which it can be expected in the individual patient).

In some cases, however, additional factors such as the availability or cost of the treatment can become important. Discussions about the clinical relevance of evidence are subject to subjectively coloured influences and therefore place the highest demands on the transparency of possible influencing factors on the clinical decision. In addition to the basic requirement for transparency, the comprehensive disclosure of financial and non-financial interests, all those actively involved in advanced training (speakers / authors as well as discussants) should therefore openly incorporate their decision-making criteria into the discussion process.

2. Submission of a recommendation for action, which should be comprehensible taking 2 and 3 into account.

In recent years, it has become increasingly common to subsequently provide levels of evidence with recommendations for action, which is often used, for example, in short summaries of guidelines. To this end, the GRADE group has formulated recommendations for the results of *randomised studies*, which range from strongly positive to weakly positive or weakly negative to strongly negative. These recommendations are primarily based on the quality of the evidence and the direction of the effect (net benefit vs. net damage), but also include other factors such as resource consumption.

Strongly positive means that there is regularly a high net benefit for the patient.

Strongly negative means that a desired positive effect could definitely not be demonstrated, or even a net loss for the patient must be regularly expected.

Weakly positive means that a positive effect cannot be regularly expected.
Weakly negative means that a positive effect cannot be expected and damage cannot be ruled out regularly.
Taking into account the results of non-randomised studies, we would like to suggest the following **recommendations for action**:

Recommendation level I: Strongly positive recommendation (according to GRADE)
Recommendation level II: Strongly negative recommendation (according to GRADE)
Recommendation level III: Weakly positive or weakly negative recommendation (according to GRADE)
Recommendation level IV: Results from non-randomised studies, including expert opinions

Measures with recommendation level I should generally be carried out; measures with recommendation level II should generally be avoided.
Interventions with recommendation levels III and IV are subject to the extent of the individual decision of the treating doctor that recommendations from third parties can only play a subordinate role.

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* Exceptions can be: Observational studies with a) very large effects or b) indications of a dose-response relationship, or c) if all plausible disturbance variables would reduce the extent of an apparent treatment effect.

** Nonetheless, data from non-randomised studies can also be a reason for action if for a clinical question
- there is no available data from randomised studies or
- results of randomised studies cannot be assessed as sufficiently trustworthy due to serious deficiencies in methodology and / or implementation.

The latter situation is particularly true when
- blindness in the recruitment and / or treatment of the patients is not observed
- too often, no more data is (can be) collected from patients in the follow-up phase ("loss to follow up")
- the results are not shown for all endpoints mentioned in the design of the study ("selective outcome reporting")

This consideration applies both to the presentation of positive ("benefit") and negative ("risk") effects (and not only for randomised studies, but also for observational ones).
For your own decision-making, other factors can also be important, which should therefore be explicitly addressed in continuing medical education:
- Clinical trials typically exclude patients with specific clinical characteristics defined in the design of the study.
  This applies regularly to patients older than 75 years at the time of inclusion in the study, but also to children (and thus almost to the entire field of paediatrics), which means that the results of such a study do not simply refer to this patient group (common in everyday clinical practice patient group) (a situation referred to as "indirect").
  Constellations in which the results of different studies (of the same methodological quality) are inconsistent or even contradictory (classified by the GRADE group as "imprecision") can be classified as barely resilient. As a rule of thumb, when evaluating their own decision-making behaviour, the importance of a single result for their own positive decision is all the less if (meta-analytically) considering the 95% confidence interval, your own decision would be different, depending on whether the true strength of the effect is assumed to be at the lower or upper end of the confidence interval.
  The situation is usually not solvable for the individual if the results of clinical studies published on a specific question do not reflect the complete study situation, since not all completed studies on the topic have been published (“reporting bias”).The suspicion that such a situation could exist can be clarified further by presenting what is called a funnel plot. The latter then also makes it possible for your own decision-making to assess whether positive (or negative) effects tend to be overestimated based on the available data.

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*Decisions of the Marburger Bund General Assemblies can be requested from the Marburger Bund Bundesverband.