Overview: dental guidelines

Expectations, reality and the limits

Dental guidelines are regarded as a key source of guidance for diagnosis and treatment. They are intended to consolidate scientific evidence, support clinical decision-making and improve the quality of care. However, in practice it is evident that, whilst guidelines are valuable, they are by no means free from problems. A critical assessment is necessary to realistically evaluate their benefits and avoid misinterpretations.

Guidelines are recommendations—not laws

The most important point, which is often overlooked in practice, is that guidelines are not legally binding. They are recommendations for action intended to reflect the current state of scientific knowledge.

Nevertheless, they are often treated as quasi-normative requirements in expert reports, insurance proceedings or legal disputes. This leads to two problems: on the one hand, guidelines are presented as mandatory, even though they expressly do not set binding standards (over-interpretation); and on the other hand, individual clinical decisions are retrospectively assessed against guideline criteria that were not mandatory at the time of treatment (lack of flexibility). In principle, whilst guidelines may provide guidance, they do not replace clinical judgement.

The evidence base is often less robust than claimed

Many dental guidelines—particularly in implantology, endodontics and periodontology—are based on heterogeneous studies, limited case numbers or data with limited validity. Typical problems include: a lack of randomised trials, short observation periods, industry-funded research and a lack of standardised definitions of success and failure. As a result, guidelines are often based on expert consensus rather than on sound evidence. Consensus is valuable—but it is no substitute for robust data. Guidelines are only as good as the evidence on which they are based.

Conflicts of interest—a structural risk?

Even though guideline groups have strict rules on the disclosure of conflicts of interest, the reality remains complex. Many experts are active in research, industry or continuing professional development. Implantology and digital dentistry are heavily influenced by commercial interests, and conflicts of interest can have subtle effects—for example, through the funding of studies or product preferences. This does not mean that guidelines have been "bought". But it does mean that a critical perspective remains necessary, as we will demonstrate in this issue using a case study from the UK.

Guidelines often lag behind clinical reality

Dentistry is evolving rapidly: digital workflows, new biomaterials, AI-assisted diagnostics, minimally invasive procedures. Guidelines, on the other hand, take a long time to develop, go through consensus-building processes, must meet AWMF standards and are generally only updated every three to five years. As a result, they are often out of date by the time they are published—or fail to adequately reflect new developments.

Expert report: incorrect use

In the field of dental expert reports, a systematic problem frequently arises: clinical guidelines are interpreted as the standard of care, even though they are not. Another form of misuse involves citing specific passages from these guidelines in isolation—stripped of their context. Complex clinical situations are evaluated using oversimplified statements from the guidelines, causing the individual patient's circumstances to be overlooked in favour of a rigid "guideline-based" benchmark. This can lead to erroneous assessments and, in the worst-case scenario, to unjustified accusations of fault.

The strength of guidelines: structure, orientation, transparency

Despite all the criticism, clinical guidelines do offer distinct advantages: they provide structure in complex clinical areas and promote transparency in decision-making processes. They support professional development and quality assurance, and they help in communicating treatment options in a clear, comprehensible manner. Their value, therefore, lies in the guidance they provide.

Conclusion

Dental clinical guidelines are an important tool in modern dentistry. However, their application requires critical reflection, scientific competence, and clinical experience. Using them responsibly means knowing and understanding them, placing them in the proper context, and avoiding the mistake of overstating their significance. Only then can they fulfil their purpose: to support evidence-based, patient-centred, and professionally sound care—without restricting clinical freedom.

References

From S1 to S3

In Germany, medical and dental clinical guidelines are classified according to the AWMF system. The designations S1, S2k, S2e, and S3 represent different quality levels, which are distinguished by their methodology, evidence base, and consensus-building processes.

S1 guideline: expert consensus (lowest level)

An S1-level clinical guideline is developed when a group of experts reaches an informal agreement on recommendations.

Characteristics:
- no systematic literature review
- no formal consensus process
- no structured methodology
- recommendations are based primarily on experience

Validity: S1 is the weakest form of clinical guideline. It is useful when evidence is lacking—but it is not robust enough for legal or expert-opinion assessments.

Typical issue: in practice, S1 guidelines are often overinterpreted, even though they provide no guarantee of scientific evidence.

S2k guideline: consensus-based (intermediate level)

The S2k guideline is based on a structured consensus process, but without a systematic search for evidence.

Characteristics:
- formal consensus methods (e.g. Delphi, moderated voting)
- structured development process
- however: no systematic literature review

Validity: S2k is methodologically more rigorous than S1, but its recommendations are still primarily based on expert opinion rather than systematic evidence.

Typical issue: S2k guidelines are frequently presented as "scientific," even though an evidence base is lacking. In dentistry in particular, most guidelines are of the S2k type—due to a scarcity of robust studies.

S2e guideline: evidence-based (intermediate level)

S2e means systematic literature search, but no formal consensus process.

Characteristics:
- systematic evidence search
- structured assessment of the studies
- however: no formal consensus process among experts

Validity: S2e is scientifically more robust than S2k because its recommendations are based on evidence. However, without a consensus-building process, its level of acceptance may be lower.

Typical issue: S2e is rare because the combination of evidence-based work without consensus is organisationally difficult.

S3 guideline: evidence + consensus (highest level)

The S3 guideline represents the most methodologically robust form: it combines a systematic search for evidence with a formal consensus-building process.

Characteristics:
- systematic literature search
- assessment of evidence (GRADE, etc.)
- structured consensus-building
- transparent methodology
- multidisciplinary involvement

Validity: S3 is the gold standard. It is scientifically robust and methodologically sound—and therefore the most relevant type of guideline for clinical decision-making and expert assessments.

Typical issue: S3 guidelines are extremely time-consuming and expensive to develop. In dentistry, there are very few S3 guidelines.

What does this classification mean in practice?
- Most dental clinical guidelines are classified as S2k—meaning they are consensus-based rather than evidence-based.
- In expert reports, clinical guidelines are often exaggerated, even though they are not legally binding.
- S1 guidelines are not suitable for assessing potential treatment errors.
- S3 guidelines are rare—and often lack the specificity required for complex, individual cases.
- Clinical guidelines frequently reflect the reality of dental practice only after a time lag.