

Evidence-based dentistry (EBD) is an approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences.

5 steps of EBD

1. Converting info needs into clinical questions that can be answered
2. Conducting a computerized search with max efficiency for finding best external device to answer question
3. Critical appraisal of evidence for validity and usefulness
4. Applying results of appraisal (evidence) in clinical practice
5. Evaluating outcomes and performance

Components of EBD

- Scientific evidence
 - Patient values/preferences
 - Experience/judgment
 - Clinical/patient circumstances
- Or
- Patient values
 - Clinical experience
 - Best research evidence

PICO questions

- Population – problem or client question or population you are describing
- Intervention – what do you do to the patient?
 - o Factor or interest is not always an intervention
 - o Exposure modification can be an evaluation (PECO?)
- Comparison – what is the main alternative, specifically?
- Outcome – specific results that you plan to measure, accomplish, improve, affect, etc

Converting into PICO

- Health subjects (risk factors) → patients (diagnosis) → outcomes
 - o First intervention = etiology and prevention
 - o Second intervention = prognosis and treatment

Background and Foreground questions

- Background – general questions
- Foreground – specific questions related to individual patients

Evidence hierarchy

1. Meta-analysis, systematic review
2. Randomized controlled trials
3. Cohort studies
4. Case control studies
5. Case reports
6. Ideas, editorials, opinions
7. Animal research
8. In vitro

SORT – strength of recommendation taxonomy

- Grade A – consistent and good quality patient-oriented evidence
- B – inconsistent or limited quality
- C – consensus, usual practice, opinion, disease oriented evidence, case series

Evidence appraisal

- CONSORT – research tool that takes an EBD approach to improve quality of reports in randomized trials
- PRISMA – preferred reporting items for systematic reviews and meta-analysis
 - o EBD minimum checklist of things to report in systematic reviews and meta-analyses
- CASP – critical appraisal screening questions
 - o Is study valid?
 - o Does it apply to my patient?
- External validity – conclusions of study can be translated into population
- Internal validity – conclusions of study are true within study's population

Outcomes

- Patient oriented – perceived outcomes (quality of life)
- Oral Health Impact Profile – scaled index for associating oral health with what a patient wants as an outcome from treatment

Effect Measures

- Dichotomous outcome – odds ratio
 - o Odds ratio – intervention ratio / comparison ratio
 - o Risk ratio – (yes intervention/intervention N) / (yes comparison / comparison N)
- Continuous outcome – mean difference
- Clinical significance (relevance) – derived from magnitude and precision of effect measures = change in treatment

Systematic reviews/meta-analyses

- Forest plot – 3 studies with statistically significant effects
 - o 2 graphs, 1 table listing results
- Systematic review – exhaustive summary of literature relevant to research question
- Meta-analysis Questions
 1. Clinical question
 2. Inclusion/exclusion criteria
 3. Search strategy
 4. Select studies
 5. Data abstractions
 6. Data analysis
 7. Interpret results