

Dentistry and Clinical Practice Guidelines

- ❑ To become familiar with the *historical roots* of the development of clinical guidelines
- ❑ To learn link between development of guidelines and quality of care issues
- ❑ To understand link between development of guidelines and *evidence-based research*
- ❑ To become familiar with the notions, evidence hierarchy & hierarchy of studies
- ❑ To consider what evidence-based dentistry (EBD) entails

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Historical Perspective

Three Eras

- I. Expansion
- II. Cost Containment
- III. Assessment & Accountability

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Era of Expansion (40's -60's)

- Health care system grew quickly
 - More hospitals
 - More private insurance coverage
 - Numbers of clinicians increased
 - Advances in technology and science

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Era of Cost Containment (1965-80s)

- Focus on efforts to **curb cost growth**
 - Prior approval Second opinions
 - Utilization reviews Prospective payment
 - Managed care - HMOs, PPOs, independent practitioner associations

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Era of Assessment & Accountability - (late 80s - present)

- Focus broadened -
- Not only cost, but **quality of care**
 - Patients, employers, government increasingly requested information
 - about the *value* of resources spent on health care

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Quality of care

- Most widely accepted view - three dimensions:
 - *structure* - characteristics of the settings in which care is provided
 - *process* - actions taken on behalf of patients, or by patients
 - *outcome* - the effects of care

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Quality of care Dimensions

- Structure - the settings and resources used for health care
 - facilities
 - equipment
 - personnel qualifications and experience
 - staffing patterns
 - organizational arrangements

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Quality of care Dimensions

- Process
 - the content/act of care
 - how the patient moves into...
 - through...
 - out of...the health care system
 - the services provided during the episode

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Quality of care Dimensions

- Outcome
 - the results/effect of care
 - did the patient get better?
 - was morbidity reduced?
 - was mortality reduced?

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Quality of care Issues

- How to know **which procedures** were "best"?
Examined process (procedures)
 - In the 60's, in medicine
 - as way to learn about treatment appropriateness
- Found **considerable variation**
 - in the utilization rates of surgical procedures
 - within small, similar geographic areas

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Quality of care Issues

Variation in use

- Most commonly refers to:
different observed levels of per capita consumption of a service
 - when all the usual explanations have been controlled
- leaving no obvious explanation except "practice style"

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Quality of care Issues

Implications of **variation in use**

- Can result in:
 - under- and over- utilization
- With cost implications
- With health implications

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Quality of care Issues

- **Need to know “best” treatments**
 - only those so categorized would be reimbursed,
 - thus reducing the amount of ineffective care & its costs
- Led to development of practice guidelines

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Evidence-based guidelines - Types of evidence

Efficacy - Does the agent “work” under *ideal*, “laboratory” conditions?

Often studied with the **randomized clinical trial**

- conducted in highly controlled settings
- often expensive
- may present ethical constraints
- may not reflect the outcomes obtained when used in a typical practice setting

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Evidence-based guidelines - Types of evidence

Effectiveness - Does the agent work under ordinary “*real life*” conditions, i.e., the average DDS for the typical patient?

Often studied with clinically-based/
practice-based research designs

Examine average providers providing care in average clinical situations

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Evidence-based guidelines - Outcomes research

- Congress began to look to *outcomes research*
 - as a means of evaluating medical/dental treatment
 - as a sound source for the development of practice guidelines

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Evidence-based guidelines - Outcomes research Dimensions of oral health outcomes

- Drs. Jim Bader & Dan Shugars described **four** dimensions of oral health outcomes:
- 1. **Physical and physiological dimension-**
 - pathology (dental caries, periodontal disease, oral cancer, periapical infection, etc.), pain, & functional capacity

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Evidence-based guidelines - Outcomes research Dimensions of oral health outcomes

- 2. **Psychosocial outcomes of dental care**
 - aesthetics
 - level of perceived oral health
 - satisfaction with oral status
 - self-concept
 - interpersonal relations
 - Measured by asking patients about their experience, perceptions

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Evidence-based guidelines - Outcomes research

Dimensions of oral health outcomes

- 3. Longevity and survival of dental restorations, tooth vitality, tooth retention
 - reflects the *survival* of dental restorations
 - *time* until restoration failure
 - need for *subsequent treatment* for same condition

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Evidence-based guidelines - Outcomes research

Dimensions of oral health outcomes

- 4. Economic dimension
 - Assess the direct and indirect costs
 - From the patient's, practitioner's, purchaser's, and society's perspective
- Cost of dental care
- can be an important patient *outcome*

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Evidence-based guidelines - Outcomes research

Summarizing -

- examines the clinical, functional *results* of a therapeutic intervention
- as well as the patient's perceptions of outcome & quality of life

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Evidence-based guidelines - Need for evidence

- **Growing focus on developing practice guidelines based on outcomes research:**
 - Medicine – 1980's
 - Dentistry – 1990's
- **Need to know "best" treatments**
- **Need to reduce variation in use**
 - only those so categorized would be reimbursed
 - thus reducing the amount of ineffective care & its costs

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Evidence-based guidelines - Need for evidence

- **Discovered lack of evidence**
 - Almost no studies of efficacy
 - Almost no studies of effectiveness
 - Many guidelines the product of expert opinion
- **Patients' perceptions** of outcomes of treatments
 - Little known
- Overall:
 - Had paucity of information
 - Had ever-increasing health care expenditures

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Evidence-based guidelines - Need for evidence

- In 1989 Congress established the agency for Health Care Policy and Research (ACHPR)
- **In 1999, became AHRQ – Agency for Healthcare Research and Quality**
 - to support studies designed to:
 - *reduce variation* in tx selection
 - *to assess efficacy/effectiveness of care*
 - *to support studies designed to develop program/ clinical guidelines*

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Evidence-based guidelines Evidence hierarchy

- **Level 1 - Replicated clinical trials**
 - Systematic replication of results from well-controlled, multiple, randomized controlled trials in which the outcomes are relatively homogenous
- **Meta-analyses**
 - Meta-analytic studies of well-designed studies in which the literature review is comprehensive and the selection criteria are explicit

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Evidence-based guidelines Evidence hierarchy

- **Level 2 - Randomized clinical trial**
 - Large multisite studies employing controls such as:
 - randomized sampling and assignment to conditions,
 - double-blind design,
 - and appropriate statistical analysis

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Evidence-based guidelines Hierarchy of Studies: Evidence-based value

- **Level 3 - Systematic, well-controlled, longitudinal studies with careful sampling**
 - One or more well-conducted cohort studies
 - One of more well-conducted case-control studies

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Evidence-based guidelines Hierarchy of Studies: Evidence-based value

- **Level 4 - Randomized, non-controlled, studies**
 - Surveys with random sampling (e.g., census)
 - Cross-sectional studies with careful random selection and clear exclusion rules

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Evidence-based guidelines Hierarchy of Studies: Evidence-based Value

- **Level 5 - Non-random, non-controlled**
 - Dramatic uncontrolled field observations or experiments
 - Expert committees, task forces, professional reports
 - **Lowest level of evidence base**
 - Case studies
 - Editorial & articles in non-peer reviewed journals
 - Opinion pieces

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Quality/Hierarchy of Evidence (Guide to Clinical Preventive Services, 2nd ed.)

- I: Evidence from at least 1 properly randomized controlled trial
- II-1: ...from well-designed controlled trials w/o randomization
- II-2: ...from well-designed cohort or case-control analytic studies from >1 research grp
- II-3: ...from multiple time series w/ or w/o the intervention (dramatic results, e.g., penicillin)
- III: Experts, experience, case reports

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Strength of Recommendations

- A: *Good evidence* to support the rec that condition be considered in periodic hlth exam
- B: *Fair evidence* to support rec that be specifically considered
- C: *Insufficient evidence* to rec for or against the inclusion of the condition, but rec may be made on other grounds
- D: *Fair evidence* to support the rec that be excluded
- E: *Good evidence* to support the rec that be excluded

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Evidence-based dentistry

- Practice in accordance with **rules of scientific evidence...**
- Whenever possible, evaluate health care using **controlled clinical trials...**

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Evidence-based dentistry

- **Taken in a narrow sense**
- suggests that randomized clinical trials qualify as "evidence" ...
- ...that experiential knowledge acquired through experience and practice, however useful & usable, does not

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Evidence-based dentistry

- **EBD - narrowest sense**
 - Counterproductive? –
 - since intention of evidence-based is to bridge the gap between research and practice
- **EBD - broadest sense**
 - includes both experiment and experience
 - Neither form of evidence is sufficient
 - both necessary for good clinical care

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Evidence-based dentistry

- *Use of practice-based research networks (PBRNs) to collect data these studies*
 - a network of practitioners
 - define research questions
 - record health and health care events
 - in relatively unselected patient populations

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Evidence-based dentistry

- Organized dentistry could provide the leadership
- to form *networks of private dental practices*
 - to collect information on treatment effectiveness
 - in a scientifically valid and reliable manner

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Evidence-based dentistry

- Would allow DDS to systematically evaluate a particular procedure or condition of interest
 - provide results directly representative of and applicable to the daily practice of dentistry in the “field”

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Evidence-based dentistry

- **Challenge has been made:**

“With the exception of dental sealants, the effectiveness, or average benefit of a procedure, when used by the average provider in the average community, of most common dental therapies has not been established”

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Evidence-based dentistry

- In the future, seven-fold ranges in tx costs (re Reader’s Digest)
 - **hard to defend to payers and patients**
- Consensus on tx guidelines to reduce this variation will be elusive
 - **until have a better understanding of tx outcomes**

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