

Lecture Summary: What We Believe: Evidence-Based Orthodontics

Dr. Thomas E. Southard

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9:15-9:45 AM

Summary by: Dr. Rodney D. Hyduk

Dr. Thomas Southard's presentation focused on evidence-based dentistry and orthodontics, integrating the best research evidence with clinical expertise and patient values. Dr. Southard used personal experience from clinical practices, research and his extensive activities relating to the AAO council on scientific affairs to introduce the audience to evidence based orthodontics (EBO).

Evidence based treatment is a good approach especially considering the fact that patients are demanding to know the basis for our decisions. Patients and their families are very astute and informed to some degree by the Internet.

Dr. Southard distinguished patterns from evidence based. He feels patterns can be meaningful and can lead to believing and truth, but can also lead to "false-hoods." To best define EBO one should think of integrating: 1) Best research evidence, 2) Clinical expertise, and 3) Patient values. All three factors should be given equal weight.

When considering the best evidence for treatment for our patients we should rely on the following: 1) Clinical opinion/case report, 2) Case controlled studies, 3) Cohort studies, 4) Prospective randomized controlled double blind studies, 5) Systematic reviews, and 6) Meta-analysis.

The traditional health care models are largely "experience based". There is too much reliance on expert opinion. We need the facts, the scientific facts.

It was pointed out that we perceive one individual as an authority figure and trust him completely. One of his examples was that of a quote taken from Clinical Management of Basic Maxillofacial Orthopedic Appliances, Volume I Mechanics, YBMP 1987, Witzig, J, Where John Witzig was quoted and displayed his diagram of what he perceived as occurring with a maxillary sagittal appliance in relationship to the pre-maxillary and maxillary sutures. (First of all on a side note the pre-maxilla is an embryological term and is not appropriate after birth, but rather the term anterior maxilla should be used.) Major significance is that the skeletal segments and sutures do not respond to the removable appliance but rather tooth movement (tipping) occurs. He went on to present other examples of his anecdotal information being spread including a discussion regarding the proposed benefits of the Damon appliances.

One of his major concerns during his residency and subsequently has dealt with the proposed effect of functional appliances, specifically Class II treatment and its ability to "grow mandible." He followed this question with discussion regarding anecdotal

reporting, actual scientific findings and subsequent post-functional treatment. All of this discussion pointed to the fact that the council on scientific affairs is an integral component of the Evidence Based model we are striving to perfect.

An important resolution by the council on scientific affairs from 6-30-04 related to “Systematic Reviews”, such that the AAO in concert with the AAO Foundation encourages systematic reviews to identify those areas within orthodontics that require funding for additional research and if sound data is available in an area, summaries will be developed from the systematic reviews by the AAO to help clinicians make treatment decisions.

When employing systemic reviews it is important to formulate a **question**, define **criteria** for including studies, **identify** all relevant studies and finally to **interpret** the evidence. Dr. Southard went on to discuss using key words to identify all previous relative studies. This will aid in refining our search on Pub Med.

By performing systematic reviews we facilitate objective summary of evidence but do not guarantee it. Therefore the systematic review does not provide an unequivocal result due to the fact that previous necessary studies may not have been done or are of poor quality to answer the question.

Dr. Southard continued using examples to exemplify the concept of EBO ranging from studies regarding fluoride use in preventing white spots, different retention strategies, stabilization splints reducing symptoms in patients with pain dysfunction syndrome, orthodontic adhesives, etiologic factors relating to apical root resorption, and psychosocial impact of orthognathic surgery.

In summary, we should strive for better evidence. We may want to employ the AAO website to assist us in our work. Experience based protocol is not sufficient, but rather the standard should be a focus on conclusive scientific research in conjunction with the previously stated criteria, keeping in mind the importance of those criteria factors when evaluating treatment for our patients.

“The American Association of Orthodontists should proceed cautiously so that ‘Evidence-Based’ does what it is supposed to do, provide what is best for our patients.”