An Example of Hierarchy of Evidence vs Hierarchy of Information

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Evidence-based thinking is now the dominant mindset in research and clinical practice. Its merit is irrefutable: integration of individual clinical expertise with the best available external clinical evidence from systematic research. This has led to the establishment of a hierarchy of research evidence, led by the double-blind, placebo-controlled clinical trial. However, it remains opportune for us to ask ourselves: What do we as a profession endorse as legitimate evidence or information that is valid for our daily clinical practice? An example of this conflict is presented here.

Prosthodontics is a demanding discipline with many clinical and laboratory procedures where a successful outcome depends on close cooperation between dentists and dental technicians. Dental laboratories can be an invaluable source of information regarding current trends in dental technology, problems and miscommunication between team members, and materials or techniques most often used. Such information can help us assess the current level of quality in prosthesis fabrication and pinpoint the areas that need improvement. A number of dental laboratory surveys from different countries regarding fixed prosthodontics have been published. Although these studies differ in terms of types of questions, chronological order, and geographical region, they share common conclusions: In the majority of cases there is a lack of communication between the dentists and the dental technicians on many issues, and there is an overestimation of each others' ability to correct mistakes without repeating certain procedures. Regrettably, in spite of many published studies, only a few have been conducted during the last decade, a period of rapid development in dental materials and techniques.

A cross-sectional study, in the form of a survey, was conducted to assess the current trends, techniques, and materials used for the fabrication of fixed prostheses in commercial dental laboratories in Thessaloniki, Greece (Hatzikyriakos A, Petridis H, Tsiggos N, Sakelariou S). The study was conducted by personnel from the Department of Fixed and Implant Prosthodontics, Dental School, Aristotle University of Thessaloniki, Greece. A questionnaire was constructed with the following 8 sections: A) General questions, B) Infection control, C) Impressions-interocclusal records, D) Die technique-mounting, E) Information from working casts, F) Prostheses design-materials, G) Communication-shade selection, and H) Implants.

The results of this cross-sectional study were rather disturbing. In the majority of cases no infection-control protocol existed between the 2 parties. According to the results, the overall quality of tooth preparations, definitive impressions, and interocclusal registrations was far from ideal and constituted a major source of tension in the dentist-technician relationship. Tooth shade selection was another area where major miscommunication seemed to occur. The majority of dental technicians considered the delivery times demanded by dentists as insufficient for quality work to be produced. This sentiment was emphasized by several added comments implying that many dentists considered time a more important factor than quality.

Of course, this survey had its limitations, one being that the majority of responses were based on memory rather than records. Although this may have had implications regarding the accuracy of information, it was felt that the answers and percentages were sufficiently accurate to be useful indicators of trends and basic problems. Indeed, a statistical comparison of the answers of the 2 groups of "method of recall" revealed no statistically significant difference ($P > .05$) for the majority of questions. The results of this study were mainly applicable to Thessaloniki, the second largest city of Greece, with a dental association of over 1800 enrolled members. It is quite remarkable, though, that when the same questionnaire was distributed to 2 major dental laboratories in Toronto, Canada as part of a pilot study, the results from most sections of the questionnaire were very similar to those of Thessaloniki (personal communication, Dr Aaron Fenton).

The results of this cross-sectional study indicated a lack of communication and cooperation between dentists and dental laboratory technicians regarding many procedures. It is quite disturbing that in an era of prosthodontics in which sophisticated technology, bioengineering, and advanced basic science research are being implemented, clinical and laboratory procedures in daily practice do not even comply with basic protocols taught in dental schools. Quite understandably this cross-sectional study in the form of a questionnaire does not stand high in ranking in the hierarchy of research design. In fact, its submission to this journal was rejected. It is, however, high in the hierarchy of information relating to everyday clinical practice and is highly relevant. It is extremely difficult to construct dental laboratory questionnaires that obtain truly objective answers since the majority of dental laboratories keep only some financial records relating to the

amount, type, and cost of laboratory procedures performed. However, such studies can help the profession realize the reasons why patients are not enjoying the full benefits that prosthetic dentistry can provide. I appreciate the *IJP*'s invitation to express my views on current research standards in the context of this issue's provocative initiative.

Evidence-based dentistry has led to many positive changes in prosthodontics. However, treatment planning remains a complex process wherein many other factors play a crucial role. We need to learn how to integrate other sources of evidence and information into an evidential structure that maximizes clinical benefits for our patients.

Literature Abstract

Assessment of convergence angles of tooth preparations for complete crowns among dental students

The aim of this study was to compare the convergence angles of tooth preparations for full-coverage crowns prepared at 3 dental schools (University of Tanta, Egypt; King Abdulaziz University, Saudi Arabia; The Ohio State University, Columbus, OH). A total of 449 teeth were examined for convergence angles. Two hundred sixty-two were from the University of Tanta, Egypt and were prepared by third-year dental students from 1997 to 1998 under normal preclinical conditions and were selected randomly from 500 teeth. Two hundred tooth preparations were collected from Kin Abulaziz University, Saudi Arabia. These were prepared on typodont teeth by fourth-year dental students from 2001 to 2002. The remaining 37 preparations were from first-year dental students in Ohio State University and were prepared from 1997 to 1998. The buccolingual and mesiodistal convergence angles of each preparation were calculated. ANOVA was used to test for statistical difference between groups. Convergence angle measurements were significantly different between groups with the highest buccolingual measurements of 19.8 ± 10.0 for Egyptian dental students. The smallest was for Saudi dental students with 14.1 ± 3.8 in mesiodistal measurements.

Ayad MF, Maghrabi AA, Rosenstiel SF. *J Dent* 2005;32:480–487. **References:** 31. **Reprints:** Mohamed F. Ayad, Section of Restorative Dentistry, Prosthodontics, and Endodontics, College of Dentistry, University of Tanta, 9 Al-Gaish Street, PO Box 443, Tanta 31111, Egypt. Email: ayadmf@hotmail.com—*Esquivel-Upshaw, San Antonio, TX*