



New Challenges in Treatment Planning

Shifting the Paradigm Toward Risk Assessment and Perceived Value—Part 1

John C. Kois, DMD, MSD

Abstract

The fundamental rationale for a comprehensive treatment approach is a long-term strategy for dental health commensurate with an enhanced level of wellness for patients. Understanding parameters of disease expression can be confusing due to inaccurately implemented science or a lack of diagnostic information available to the patient. Formulating specific treatment needs based upon an individual's risk assessment can be challenging without objective data and better metrics. This two-part article (Part 2 will be published in the Spring 2011 *JCD*) will help to eliminate confusion in the diagnostic process by outlining a systematic approach for treatment planning; by reviewing the five most important diagnostic categories; and by detailing how to develop critical risk parameters that can minimize failure and maximize successful outcomes. These articles also discuss protocols that can be implemented during treatment-planning strategies.

Introduction

Many dentists have become more astute about and very efficient when evaluating the dental health of a new patient or reevaluating an existing patient. An interaction that involves examining a radiograph for five seconds and the patient's mouth for five seconds does not provide enough value. Ironically, instead of perceiving the doctor as better trained, many patients believe the doctor is uncaring, uninvolved, and lacking in expertise.¹ Transcending such perceptions requires clinicians to provide care that exceeds patient expectations² and to cultivate patient understanding of what is being reviewed, evaluated, and diagnosed in those crucial five seconds.

When patients understand the “why” behind the “do,” they are better equipped to make decisions about their treatment and are more likely to perceive their dentist as a healthcare provider.

To this end, the careful incorporation and utilization of “disruptive technologies” that enable precise diagnosis and, subsequently, predictable and effective therapies valued by patients have the potential to transform the practice.³ Typically viewed as a financial and competitive threat by the major pharmaceutical companies, a shift in market leaders is plausible as new companies adopt and deploy these technologies more efficiently.³ However, these so-called disruptive technologies (e.g., new machinery, production methods, risk analysis) can enable doctors to provide comprehensive explanations of a patient's condition, along with options for treatment and the risks involved with each.^{2,4-6} When patients understand the “why” behind the “do,” they are better equipped to make decisions about their treatment and are more likely to perceive their dentist as a healthcare provider.

While technologies that provide diagnostic information are making headway in the dental arena, they already are in place in other areas of healthcare to help start making universal care a reality.⁷ All health records will eventually be in digital format, and there may come a day when public kiosks can provide individuals with diagnostic data indicating whether a physician visit is necessary.⁴⁻⁶

Such precision medicine lends itself to the concepts of “the healer” and “the hit-man,” which are significant to the manner in which patients respond to dentists when presented with treatment options. Today, dentists still are considered “the hit-man” or bearer of bad news.⁸ When patients present with no data and are informed of problems, the practitioner is to blame in the patient's mind.

Functional Disorders Checklist: Nine Questions

Conditions of the temporomandibular joints (TMJs) are among the most difficult to diagnose and manage. Therefore, a complete understanding of the patient's oral and overall health is required. To help dentists and patients understand functional disorders, the nine questions allow for simple risk assessment of conditions of the TMJ and occlusion. By using these questions as diagnostic tools, dentists can gain better insight into what may be causing their patient's pain and functional disorders.

If the patient answers affirmatively, they do not necessarily need treatment; rather, their responses indicate that their occlusion is in some way incorrect. The focus should be on risk assessment and quantifying the facts so the patient can develop an understanding of their conditions and why certain treatments may be necessary.

- ✓ **1. Do you/would you have any problems chewing gum?**
If the patient cannot chew gum, there is a functional problem with the patient's occlusion and TMJ and the patient is at risk. This should be quantified to inform them that although it may not be a problem requiring immediate attention, it is one that may need correcting in the future.
- ✓ **2. Do you/would you have any problems chewing bagels or other hard foods?**
When asked this question, the majority of patients feel that they do not. In actuality, the patient may have been avoiding foods that bother their TMJ. By doing so, the patient has actually begun a form of treatment for their specific problem, reducing the risk of pain and discomfort. The cause of this problem is occlusal.
- ✓ **3. Have your teeth changed in the last five years, becoming shorter, thinner, or worn?**
This question is of paramount importance to diagnosing and treating a patient's condition. If the patient has an old yearbook or wedding photograph, it can provide a historical timeline of tooth changes that have occurred.
- ✓ **4. Are your teeth crowding or developing spaces?**
The spacing of the teeth should not change much as patients age. If they are, an underlying functional issue is likely to blame. Patients should understand that no matter what condition has caused the change, orthodontics will need to be involved to some extent.

However, if technology and the subsequent data they provide were to first explain the clinical situation, then technology becomes the “hit-man” and the dentist becomes “the healer,” since the patient now schedules the appointment with full knowledge of his or her condition and possible solutions.⁸

Preparing for the Paradigm Shift

Acknowledging and accepting a shift in the paradigm of dental practice requires adaptation to maintain success.⁹ Unfortunately, creating change is very difficult in practice because it must be justified, similar to the manner in which a patient’s need for treatment must be supported by diagnostic data.²

Six Sigma, a concept designed by Motorola, is a business model that promotes change and working smarter with simple tools and practices.^{10,11} An example of its application to dentistry is eliminating the likelihood of chipped porcelain through the use of data and systematic diagnostic/treatment processes that assess and reduce risk. “Six Sigma dentistry” therefore is a concept aimed at removing what causes added stress or risk throughout the workday, even if it involves the simplest procedures.^{10,11}

Six Sigma dentistry also involves predictability, which can be improved with technology and repeatable procedures, as well as a smarter workflow that enables practitioners to embrace opportunities for expansion, efficiency, and cost effectiveness. By solving small problems first, correcting large issues is less daunting.^{10,11}

Guiding Patients with Technology and Risk Assessment

Dental practitioners following a Six Sigma model are leading a paradigm shift of addressing patient and practice problems from a systematic perspective. In the process, they are improving their lives and practices by removing even the smallest obstacles.^{10,11} Among the tools that are useful for systematically examining both practice and patient “conditions” are checklists that can help identify why situations occur. For example, a part of my dental history form helps to uncover problems that can be evaluated by a traditional exam that evaluates morphology (see sidebar, **Functional Disorders Checklist, beginning on page 69**).¹² In the context of diagnosing and evaluating patients, a risk assessment checklist that encompasses evaluation of five key areas (periodontics, biomechanics, function, dentofacial, medical) is fundamental to necessary data collection, regardless of the technologies used.

For example, consider the case of restoration breakage. It is well known that most patients do not break restora-

✓5. Do you have more than one bite, or do you clench (squeeze) to make your teeth fit together?

If the patient is clenching or squeezing, a functional problem needs to be addressed. Equilibration will likely be the required treatment for this condition.

✓6. Do you have any problems with sleep or wake up with an awareness of your teeth?

Studies have found that, in some populations, 15% of people with restless leg syndrome have sleep bruxism. When patients experience restless sleep, the condition is actually one of the central nervous system, not local to the teeth. Therefore, a nightguard will not fix the problem; it will simply ameliorate the symptoms.

✓7. Do you have problems with your jaw joint? (pain, sounds, limited opening, locking, popping)?

Even if the patient is experiencing no pain in the joint, except when loading, it is still an unhealthy joint when these symptoms are present. With clicking and popping, the patient is at future risk for more damaging conditions that will cause functional disorders.

✓8. Do you have tension headaches or sore teeth?

A patient presenting with these symptoms is more likely than not experiencing symptoms of a functional disorder of occlusion or the TMJ. The added stress on the tooth structures and joints can cause problems elsewhere in the body, leading to headaches and soreness.

✓9. Do you wear or have you ever worn a bite appliance?

If the patient has, it should be brought to the office so it can be read. The marks on the appliance should be examined and should be linear, with no chewing marks. A splint, used not to stop nocturnal bruxism but to prevent further tooth damage, should have a pattern to the marks. By examining this pattern, the dentist should be able to develop a better understanding of the patient’s functional disorder.

tions when sleeping.¹³ For the most part, breakages occur while eating. Many times restoration failure also is directly related to parafunction.¹³ This issue could be solved by simply questioning the cause, studying why it occurs, and quantifying it. Once this problem is assessed systematically and understood, a solution can be developed.

However, presentation of the patient's condition and possible treatment options also must be approached systematically and appropriately.¹⁴ Once patients are advised of the problems, focus should shift to what is clinically relevant to enhance understanding and comprehension.¹⁴

For example, consider that teeth should not wear more than 11 μ per year, which means it would take 100 years to lose 1 mm of tooth structure. A patient who has lost 4 mm of tooth structure needs to be told that the amount of wear they present is equivalent to 400 years of use. Based on this explanation, any occlusal restoration or treatment can be viewed as an anti-aging strategy and more likely to be accepted by the patient, since the problem can be more clearly understood.¹⁴

Unfortunately, many times a lack of clear and objective data allows one dentist to determine a treatment that another dentist may deem inappropriate.^{14,15} The result of this emotionally-driven decision making creates much of the stress experienced in the dental practice and that Six Sigma dentistry and systematic approaches aims to eliminate.^{14,15} As a result, things may happen in the practice and treatment process that should not. When risks are known and ignored due to emotions, the final outcome often is compromised.¹⁵

By utilizing a better technologically-based metric, much of the dentist's clinical decision making can be removed from an emotionally-driven state. With better metrics and a systemic approach to risk assessment and evaluation, patients can be offered significantly improved treatments.^{14,15}

Conclusion

The paradigm of systematically approaching patient examinations, risk assessment, diagnosis, and treatment planning emphasizes the need to prevent oral health problems from progressing in the future.¹⁶ Because the burden of responsibility rests with the dentist, problems should not be corrected with solutions that will not be permanent.²

All health records will eventually be in digital format, and there may come a day when public kiosks can provide individuals with diagnostic data indicating whether a physician visit is necessary.

Although it is generally accepted that most choices are never perfect, they should be, at the least, well calculated.² In dentistry, calculating risk and predicting the outcome many times may involve the lesser of two evils. The critical objective is to utilize systems that eliminate subjectivity so patients receive the best in care at the lowest functional, periodontal, biomechanical, dentofacial, medical, and financial cost while simultaneously increasing reward.² After all, part of what patients pay for is guidance from their dentists toward the best treatment options for their case, whether for longevity or esthetics.^{2,14}

Risk assessment is beneficial not only for patients, but also for dentists.¹⁷ The struggle, however, is not in understanding the risk. The problem most dentists face is in implementing risk-reducing protocols. Although implementing science into practice remains a challenge, using evidence enables dentists to better predict and control the outcome.²

Part 2 of this article will elaborate on the process of risk assessment and the categories to be addressed therein.

References

1. Whitehouse J. Dealing with patient feelings. *Dent Today*. 2004;23(12):99-102.
2. MacRobert M. A leadership focus on evidence-based practice: tools for successful implementation. *Prof Case Manag*. 2008;13(2):97-101.
3. Schmid EF, Ashkenazy R, Merson J, Smith DA. Will biomedical innovation change the future of healthcare? *Drug Discov Today*. 2009;14(21-22):1037-44. Epub 2009 Jul 30.
4. Silvey GM, Willis JM, Lobach DF. Deployment of health information kiosks in diverse community settings: experience and lessons learned. *AMIA Annu Symp Proc*. 2008:1132.
5. Lowe C, Cummin D. The use of kiosk technology in general practice. *J Telemed Telecare*. 2010;16(4):201-3.
6. Pendleton BF, Labuda Schrop S, Ritter C, Kinion ES, McCord G, Cray JJ, Costa AJ. Underserved patients' choice of kiosk-based preventive health information. *Fam Med*. 2010;42(7):488-95.
7. Chen W, Shih CC. Architecture of portable electronic medical records system integrated with streaming media. *J Med Syst*. 2010 Feb. 17. [Epub ahead of print].
8. Pendleton BF, Labuda Schrop S, Ritter C, Kinion ES, McCord G, Cray JJ, Costa AJ. Underserved patients' choice of kiosk-based preventative health information. *Fam Med*. 2010;42(7):488-95.
9. Garcia RI, Inge RE, Niessen L, DePaola DP. Envisioning success: the future of the oral health care delivery system in the united states. *J Public Health Dent*. 2010;70 Suppl:S58-65.

10. Schweikhart SA, Dembe AE. The applicability of lean and six sigma techniques to clinical and translational research. *J Investig Med.* 2009;57(7):748-55.
11. Fischman D. Applying lean six sigma methodologies to improve efficiency, timeliness of care, and quality of care in an internal medicine residency clinic. *Qual Manag Health Car.* 2010;19(3):201-10.
12. Weiser TC, Haynes AB, Lashoher A, Dziekan G, Boorman DJ, Berry WR, Gawande AA. Perspectives in quality: designing the who surgical safety checklist. *Int J Qual Health Care.* 2010;22(5):365-70. Epub 2010 Aug 11.
13. Taskonak B, Mecholsky JJ Jr, Anusavice KJ. Fracture surface analysis of clinically fixed partial dentures. *J Dent Res.* 2006;85(3):277-81.
14. Weiner AA, Stark PC, Lasalvia J, Navidomskis M, Kugel G. Fears and concerns of individuals contemplating esthetic restorative dentistry. *Compend Contin Educ Dent.* 2010;(31)6:446-8, 450, 452 passim.
15. Jaffe DS. Empathy, counteridentification, countertransference: a review, with some personal perspectives on the "analytic instrument". *Psychoanal Q.* 1986;55(2):215-43.
16. McLaughlin N. Where the buck stops. health-care needs to stop blaming patients and take responsibility for errors. *Mod Healthc.* 2006;36(48):22.
17. Dym H. Risk management techniques for the general dentist and specialist. *Dent Clin North Am.* 2008;52(3):563-77, ix. **JCD**



Dr. Kois is the director of the Kois Center, in Seattle, Washington. He also is in private practice in Seattle.

Disclosure: The author did not report any disclosures related to the content of this article.

