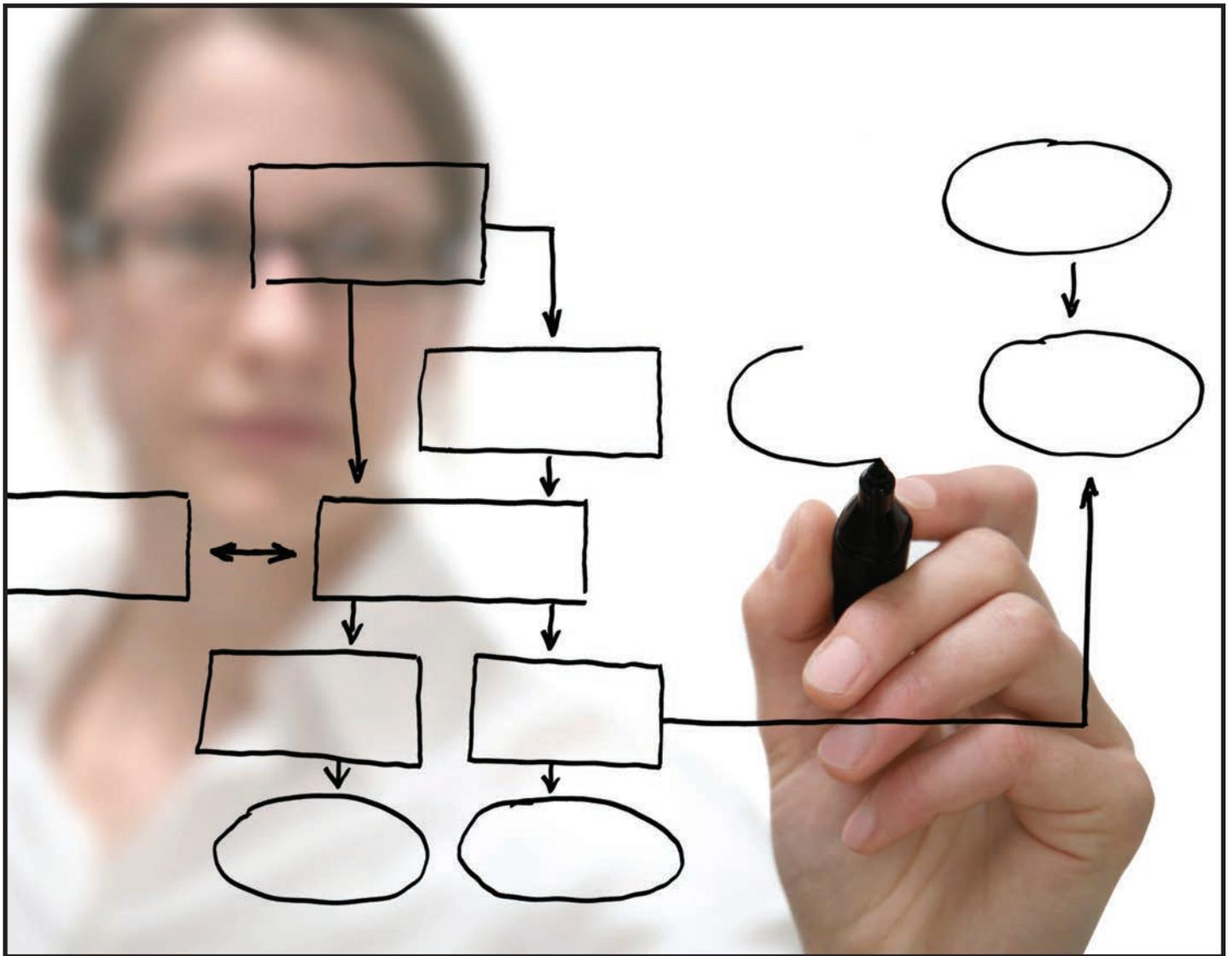
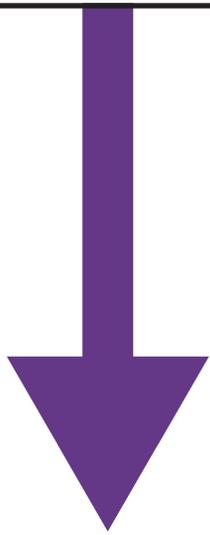


A SYSTEMATIC APPROACH FOR TREATMENT PLANNING

MAXIMIZING SUCCESSFUL OUTCOMES





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 white paper is a brief overview of part one in a two-part series originally published in the *Journal of Cosmetic Dentistry* in 2011. The full articles 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 re-evaluating an existing patient. Interacting with your patient for more than five seconds, while examining a radiograph, is necessary in order to pro-



vide value to the patient. This requires clinicians to deliver care that exceeds patient expectations¹ and to cultivate patient understanding of what is being reviewed, evaluated, and diagnosed in those crucial five seconds.

The incorporation and utilization of “disruptive technologies” that enable precise diagnosis and effective therapies valued by patients have the potential to transform the practice.² These so-called disruptive technologies (e.g., new equipment, 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.^{1, 3-5} 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.

PREPARING FOR THE PARADIGM SHIFT

Accepting a shift in the paradigm of dental practice requires adaptation to maintain success.⁶ 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.¹

Six Sigma, a concept designed by Motorola, is a business model that promotes change and working smarter with simple tools and practices.^{7,8} 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.^{7,8}

Six Sigma dentistry involves predictability through improved technology, procedures, and a smarter workflow that embraces opportunities for expansion and productivity. By solving small problems first, correcting large issues is less daunting.^{7,8}

GUIDING PATIENTS WITH TECHNOLOGY AND RISK ASSESSMENT

Following a Six Sigma model will not only lead a paradigm shift of addressing patients and practice problems from a systematic perspective, but also improve dental professionals' lives and practices by removing even the smallest obsta-

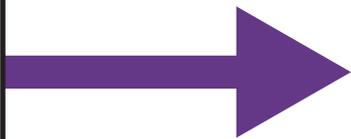
cles.^{9,10} One of the tools I use in my practice is following a checklist. It helps me identify why situations occur in my patients and uncover problems that can be evaluated by a traditional exam that evaluates morphology.

FUNCTIONAL DISORDERS CHECKLIST: 10 QUESTIONS



Conditions of the temporomandibular joints (TMJs) are among the most difficult to diagnose and manage. Therefore, a complete understanding of patients' oral and overall health is required. To help dentists and patients understand functional disorders, the following 10 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 patients' pain and functional disorders.

If patients answer 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 patients can develop an understanding of their conditions and why certain treatments may be necessary.



- 1. DO YOU HAVE PROBLEMS WITH YOUR JAW JOINT (PAIN, SOUNDS, LIMITED OPENING, LOCKING, POPPING)?
Assess concerns for TMJ stability by a differential diagnosis to rule out structural joint problems by conducting a load test in centric and eccentric positions vs. an immobilization test. This potentially rules out acceptable function and does not rule out any of the remaining occlusal disorders of nondental origin.
- 2. DO YOU FEEL LIKE YOUR LOWER JAW IS BEING PUSHED BACK WHEN YOU BITE YOUR TEETH TOGETHER?
Concerns for TMJ and/or muscle disorders most likely indicate a constricted chewing pattern.
- 3. DO YOU AVOID OR HAVE ANY DIFFICULTY CHEWING GUM, CARROTS, NUTS, BAGELS, BAGUETTES, PROTEIN BARS, OR OTHER HARD, DRY FOODS?
When addressing concerns for TMJ vs. muscle disorders keep this in mind: TMJ dysfunction typically shows signs of a constricted chewing pattern or when distalizing vectors exist during chewing. Muscle concerns are related to an inefficient chewing system, which creates premature muscle fatigue and/or attrition, primary occlusal traumatism. However, if patients are missing many posterior teeth, they may have acceptable function, but not enough posterior teeth to chew

ASSESSES

efficiently. Patients who avoid posterior teeth when chewing may present with no posterior attrition (they may likely be fast eaters with less chewing cycles) and would more likely have a constricted chewing pattern.

4. HAVE YOUR TEETH CHANGED IN THE LAST FIVE YEARS, BECOMING SHORTER, THINNER, OR WORN?

These issues characteristically indicate that the problem is active.

- Generalized attrition/shorter teeth tend to indicate: dysfunction, parafunction, or neurologic issues.
- Anterior attrition/thinner teeth tend to indicate a constricted chewing pattern.

Additional shared risk factors include high friction (perimyolysis) and/or cheek sucking. Note: The patient may have a shared risk factor for erosion or higher risk for erosion (extrinsic-dietary); note more “chipping” and “cupping.” Attrition with exposed dentin and no evidence of cupping usually has a higher risk for attrition (dysfunction) and/or excessive attrition (parafunction and neurologic disorder). Other shared risk factors may include intrinsic erosion, i.e., gastroesophageal reflux disease, which affects the mandibular posterior teeth, and bulimia, which affects the lingual of the maxillary anterior teeth.

5. ARE YOUR TEETH CROWDING OR DEVELOPING SPACES?

Crowding is usually physiologic as proximal surfaces wear during chewing. Point interproximal contacts become flat surfaces. Developing spaces provide concern for primary occlusal traumatism (mobility with normal bone support), usually a function of dysfunction or constricted chewing pattern. If accompanied with bone loss or periapical infection, diagnosis is more likely secondary occlusal traumatism.

6. DO YOU HAVE MORE THAN ONE BITE, OR DO YOU CLENCH (SQUEEZE) TO MAKE YOUR TEETH FIT TOGETHER?

Consider dysfunction if clenching is adaptive (to make them fit). Parafunction is not associated with improving fit (usually occurs during stressful events).

7. DO YOU CHEW ICE, BITE YOUR NAILS, USE YOUR TEETH TO HOLD OBJECTS, OR HAVE ANY OTHER ORAL HABITS?

Chewing anything other than food is considered a parafunctional activity. Our studies have shown hard objects like ice can lead to tooth fracture, porcelain chipping, or cement fatigue.

8. DO YOU CLENCH YOUR TEETH IN THE DAYTIME OR MAKE THEM SORE?

Consider a parafunction-stress-related central nervous system induced activity.

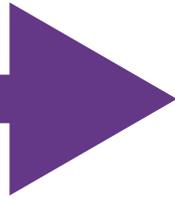
9. DO YOU HAVE ANY PROBLEMS WITH SLEEP OR WAKE UP WITH AN AWARENESS OF YOUR TEETH?

Examine concerns for a sleep disorder; consider nocturnal bruxism.

10. DO YOU WEAR OR HAVE YOU EVER WORN A BITE APPLIANCE?

Previous appliance therapy is a history book for previous concerns. Evidence of lateral streaks is indicative of dysfunction or nocturnal bruxism. Compare the pattern on the night guard with facets on teeth to validate diagnosis. Non-linear facets indicate dysfunction or constricted chewing pattern.¹¹

In the context of diagnosing and evaluating patients, a risk assessment checklist that encompasses evaluation of five key areas (periodontics, biomechanics, function, dentofacial, and medical) is fundamental to necessary data collection, regardless of the technologies used.



For example, consider the case of restoration breakage. For the most part, breakages occur while eating and are directly related to parafunction.¹² Systematically it can be solved by questioning the cause, studying why it occurs, and quantifying it. Then, once understood, a solution can be developed.

Unfortunately, many times a lack of clear and objective data results in emotionally driven decision-making that creates stress in the dental practice. Luckily, Six Sigma dentistry and systematic approaches aim to eliminate this stress.^{13,14,15} Do not let emotionally driven decisions and stress negatively affect your treatment process and allow patient risks that are known to be ignored and the final outcome to be compromised.¹⁴

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 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, whether it be for longevity or esthetics.^{1,13}

Risk assessment is beneficial not only for patients but also for dentists.¹⁷ Although implementing science into practice remains a challenge, using evidence enables dentists to better predict and control the outcome.¹ Part two of this article, available online, will elaborate on the process of risk assessment and the categories to be addressed therein.

To access Part 2 of this paper (including access to a Diagnostic Opinion checklist outlining the dentist's critical risk assessment of the four primary oral parameters) [click here](#).

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