With an increased emphasis on interdisciplinary treatment planning in recent years, the deficiencies associated with traditional methods of diagnosis and treatment planning have become more evident and problematic.

Historically, sophisticated, comprehensive diagnosis and treatment planning was based on an occlusally driven philosophy. Diagnostic casts were mounted in centric relation on a fully adjustable or semi-adjustable articulator to evaluate tooth-tooth and arch-arch relationships.

In conjunction with radiographic, periodontal, endodontic, and caries data, the plan was based on restorative space, anterior guidance, and retention and resistance form of the final preparations. There was no focus on placing the teeth in the correct position in the patient’s face.
This all changed in the early 1980s when Kois and Spear changed the emphasis from condylar position as the starting point in treatment planning to incisal edge position of the maxillary anterior teeth in the face. This was the beginning of their concept termed “facially generated treatment planning.” My partner, Dr. Jeff Rouse, and I were early adopters of this concept. However, we realized that the incisal edges could be in the correct position in the face, but if the gingiva was not idealized, the case would still be a failure. Our emphasis on gingival levels was the genesis of our treatment planning system, termed global diagnosis.

The numbers in the title of this article each have a meaning. The 4 stands for the “4 global diagnoses” that dictate all interdisciplinary treatment planning. The 5 stands for the “5 questions” that lead us through the diagnostic process. The 6 stands for the “6 tools” that we have in our bag of tricks to fix any landscape, tooth and/or gingival problem.

These are the 4 global diagnoses:
1. Skeletal discrepancy
2. Short or hyperactive upper lip
3. Dentoalveolar extrusion
4. Short/long tooth

The skeletal discrepancy that is most commonly an esthetic problem is related to the vertical length of the face. It is either too long (vertical maxillary excess or VME) or too short (vertical maxillary deficiency or VMD). The treatment for VME is either orthognathic surgery or Botox to mask the excess gingival display. The treatment for VMD is either orthognathic surgery or restorative dentistry to increase the incisal display of the maxillary teeth. The final skeletal discrepancy is the class 2 or class 3 malocclusion which is managed with either orthodontics and/or orthognathic surgery.

The second global diagnosis is a short or hyperactive upper lip. The average lip length in the young adult female patient is 20-22 mm and 22-24 mm in the young male. The average lip mobility, which is measured from repose position of the upper lip to the full animated smile position of the upper lip, is 6-8 mm. The primary treatment for the short or hyperactive upper lip is Botox.

The third global diagnosis is dentoalveolar extrusion (DAE). This means that the teeth have supererupted due to lack of occlusion with opposing teeth, or attrition and/or erosion, or a cant due to a developmental problem. This condition is diagnosed based on the gingival levels in relation to horizon. In the normal patient, when viewed in a normal head position, the gingival line should be parallel to horizon. In the DAE patient, the gingival line is concave rather than straight. There are 3 primary treatment options for DAE: orthodontic intrusion, functional crown lengthening surgery, and restoring at an increased vertical dimension.

The final global diagnosis is a short or long tooth. There are 3 etiologies for the short tooth: microdontia, attrition, and altered passive eruption. The treatment for a short tooth is either restorative dentistry for microdontia and attrition or esthetic crown lengthening surgery for altered passive eruption. The treatment for the long tooth is most commonly a root coverage grafting procedure.

The “5 questions” that lead us through the global diagnosis process must be asked and answered on any patient that has a gingival discrepancy.
1. Facial proportions and skeletal relationships
2. Length and mobility of the upper lip
3. The relationship of the gingival line to horizon
4. The length of the maxillary anterior teeth
5. Is the CEJ palpable in the gingival sulcus

Using the answers to these questions, a global diagnosis can be made. The power of the system is that once the condition has been named, there are only a limited number of treatment options for each global diagnosis.
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Once the global diagnosis has been made, there are only 6 options to treat any landscape, tooth/gingiva interface problem:

Tool 1. Tissue grafting for root coverage  
Tool 2. Crown lengthening  
Tool 3. Orthodontic intrusion  
Tool 4. Orthodontic extrusion  
Tool 5. Surgery (orthognathic surgery, extraction, implant placement)  
Tool 6. Plastics (plastic surgery procedures, Botox, dermal fillers)

Case Study

This 16-year-old patient presented with a chief complaint of short teeth and a gummy smile. The "5 questions" revealed that her maxillary teeth were short and the CEJs could not be palpated in the sulcus. This lead to a diagnosis of altered passive eruption. The treatment for altered passive eruption is esthetic crown lengthening surgery. The crown lengthening was completed on teeth #2-15.

Conclusion

The global diagnosis system is a diagnostic approach used to determine the etiology of aberrant gingival levels in the dental patient. The power of the system is that once the clinician has named the problem, the treatment plan follows from the diagnosis.