Dentists are from Mars; Dental Assistants are from Venus

Introduction

Today’s cosmetic dental practices are challenged to provide comprehensive treatments to esthetically demanding patients in ways that cater to their functional and emotional needs. Although many dentists have come a long way in enhancing their chairside manner—as well as how they empower their staff (e.g., dental assistants), it might still be fair to say that when it comes to communication, “Dentists are from Mars, and dental assistants are from Venus.”

However, savvy cosmetic dentists can capitalize on the inherent interpersonal and communication skills of their dental assistants. By helping to expand their dental assistants’ knowledge and proficiency in different technical aspects of restorative practice, dentists can empower them to accept greater responsibility for communicating detailed case information to patients and laboratory technicians.

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In particular, cosmetic dental practitioners can use the training concepts from a lecture at the 25th Anniversary AADC Scientific Session to help their dental assisting staff better understand records appointment procedures, smile design principles, and mock-up and provisionalization techniques. In particular, when dental assistants understand and are trained in the use of mounted diagnostic models for visualizing the necessary functional and esthetic changes through smile design, as well as how to create a diagnostic mock-up based on the golden proportions and proper ratios, they will be well-equipped to support the dentist in the creation of preparation reduction guides (Fig 1) and provisional matrices.
This article outlines how cosmetic dentists can involve their dental assistants in the planning procedures required to provide comprehensive cosmetic dental treatment; enhance their understanding of the technologies and materials necessary to ensure predictable results; and broaden their familiarity with smile design principles. Such knowledge will enable the dental assistant to support the restorative team with the diagnostic and procedural skills necessary to help satisfy patient expectations.

**EXPLAINING HOW TO OBTAIN THE NECESSARY RECORDS**

Dental assistants can play a significant role during the records appointment by taking quality diagnostic impressions, pouring casts, mounting models on the articulator, and obtaining facebow and other records.

**TAKING QUALITY DIAGNOSTIC IMPRESSIONS**

Caution your dental assistant that diagnostic impressions should be handled with the same attention to detail as impressions taken for a final crown or bridge. The dental assistant should understand the level of scrutiny with which diagnostic impressions will be examined, as they will be used for diagnosis, treatment planning, diagnostic waxing, and eventual provisional fabrication.

Emphasize the need to obtain extremely accurate impressions. Dentists might consider recommending the use of an alginate replacement polyvinyl siloxane impression material with a light-body wash (e.g., Flextime Putty, Heraeus Kulzer; Armonk, NY) (Fig 2). Explain that this material category will enable multiple pours, if necessary, and eliminate the need to pour the model immediately.

Additionally, dentists can provide specific instructions about this procedure, including the need to dry the teeth prior to placing the impression material to ensure that all of the surfaces of the teeth are captured. Explain that a quality impression includes the details well beyond the free gingival margins of the teeth, the entire buccal and lingual vestibules, and the entire hard palate.

**CREATING QUALITY CASTS**

Be sure that your dental assistants understand the need to follow the water-powder ratio for the specific stone being used (e.g., Fujirock, GC America, Inc.; Alsip, IL) when pouring casts (Fig 3). The use of a vacuum-mixing machine also is recommended to eliminate air in the mix. Explain that this results in bubble-free, dense casts for maximum accuracy.

**WORKING WITH ARTICULATORS**

Although the use of articulators may be part of everyday routines in the cosmetic practice, that does not mean that dental assistants understand why. To fully involve them in the process, cosmetic dentists can educate their assistants about the purpose and function of articulators, as well as emphasize why a quality articulation system is worth its weight in gold to the cosmetic restorative practice. Demonstrate why such features as an ability to accept a facebow transfer and condyle guidance that can be altered when necessary are most important to cosmetic dentists. To facilitate the staff’s ability to use the instrument, dentists might consider selecting an

Figure 1. The task of creating an accurate and quality preparation reduction guide can be delegated to the dental assistant.

Figure 2. Dental assistants should be instructed that quality diagnostic impressions include details well beyond the free gingival margins of the teeth, the entire buccal and lingual vestibules, and the hard palate.
articulator that their laboratory uses, that their staff can be taught to use on a daily basis, and that feels right in their hands. One of the simplest articulators available was designed by Dr. Peter Dawson (Combi 2 Articulator, Whip Mix Corp.; Louisville, KY).

**Using a Corrected Facebow Transfer**

Similarly, the importance of ensuring accuracy when obtaining a facebow transfer may not be fully understood by dental assistants until the rationale for its use is explained. Therefore, cosmetic dentists can ensure their dental assistants’ understanding of why facebow transfers are needed by explaining that their purpose is to enable the maxillary cast to be mounted on the articulator in the exact same orientation to the skull that the maxilla is when the patient is standing up straight. Dentists should also explain that the distance from the maxillary incisal edge to the axis of rotation of the mandible should also be duplicated when the facebow is mounted in the articulator.

However, simply understanding the purpose of these tools does not guarantee successful outcomes. Therefore, dentists can help ensure that their dental assistants will be successful by providing instruments that enhance the predictability of the facebow process. For example, a simple earbow type of facebow (Slide-o-matic, Whip Mix Corp.) can be used in combination with a rigid bite registration material (Venus Bite, Heraeus Kulzer) to mount the maxillary cast. Additionally, dental assistants can be made aware that some patients’ ears are not level, which can lead to the incorporation of a cant to the maxillary incisal plane. As a result, dentists may recommend that they use a bubble level (Great Lakes Orthodontics; Tonawanda, NY) to ensure that the facebow is level with the floor when the patient is standing upright.

**Recording Centric Jaw Relation**

Although there are several methods for recording centric relation (CR), dentists may want to instruct their dental assistants in their preferred method for finding, verifying, and recording CR. One such method is bimanual manipulation, as described by Dawson. Taking the time to teach dental assistants this technique will add predictability to the diagnosis and treatment of occlusally driven restorative treatment. Therefore, consider teaching dental assistants how to position the patient, properly position the hands, and employ the proper pressure when using this technique to record CR.

**Mounting the Models**

The independent procedures previously described—taking accurate impressions and making quality cases, working with articulators and using a corrected facebow transfer, and recording CR—make even more sense when the cumulative results of their use are brought into unified context for the dental assistant. Therefore, cosmetic dentists can explain the significance of mounting the models to their dental assistants, as well as how to use all of these collected “information tools” during the diagnosis and treatment planning process.

Additionally, dental assistants should be instructed in how to mount the models to ensure that the precise maxillo-mandibular relationship is recorded clinically. Such training can begin with a demonstration of how contemporary
facebow systems enable the mounting jig to be separated from the earbow—which allows easy mounting of the maxillary cast on the articulator—so that the corrected facebow technique previously described can be employed to position the maxillary cast on the instrument. Then, dentists can provide instruction in how to stabilize the maxillary cast using a rubber band and mount it with mounting stone.

Finally, the importance of CR can be translated for dental assistants by relating the mandibular cast to the maxillary cast and stabilizing it using a hot glue gun with four nails. Dentists can further instruct their assistants to mix and place stone between the cast and the mounting plate, without fear of inadvertently rocking the lower model.

**Teaching the Principles of Smile Design**

The dental assistant’s education in cosmetic restorative procedures now can segue into the important decision-making process regarding optimum esthetics and function; this can begin by addressing the precise position of the maxillary incisors. They should learn why finding the correct incisal edge position from a vertical and horizontal perspective ensures not only beautiful restorations, but also functional harmony.

For example, cosmetic dentists can explain that the “rest position” (Fig 4) and “E” sound are excellent and important considerations for designing a smile, but that they do little to indicate whether the incisal edge is too far forward (i.e., infringing on the patient’s lip) or too far to the lingual (i.e., interfering with the patient’s occlusion). When dental assistants understand the parameters that can affect the envelope of function, they will be better able to support cosmetic dentists in providing functional and esthetic elective procedures.

Then, dental assistants also can be instructed to work with patients in identifying potential problems with lip support and lip closure path which, as described by Dawson, allows the lower lip to comfortably close around the incisal third of the maxillary incisors. For example, if dental assistants know that the maxillary teeth should be far enough forward to provide proper lip support—as well as have the proper two-plane contour to allow proper closure of the lips—they will be able to help dentists work with their patients to assess whether the provisional and/or final restorations feel and function as expected (Fig 5). Therefore, dentists may want to advise their assistants to be alert to signs and complaints from patients with lip closure path problems include the following:

- teeth that feel too long (so they should always check the horizontal position of the maxillary incisal edge)
- anterior teeth that feel dry (so they should ask patients if they feel they cannot close their mouth easily, which could cause dry facial surfaces of the maxillary incisors)
- tired facial muscles; and difficulty saying “F” or “V” sounds, which—during the provisional stage—may suggest an incorrect horizontal and vertical incisal position.

**Delegating Mock-up and Provisional Fabrication**

Dentists also can instruct and empower their dental assistants to perform intraoral diagnostic mock-up and putty matrixes after the creation of an intraoral mock-up can be delegated to the dental assistant.
ups using either diagnostic wax (Whip Mix Corp.) or composite (Venus, Heraeus Kulzer), depending on what works best in their hands. Then, they can lend further support to the cosmetic restorative team by making putty matrixes and taking impressions (Flextime Putty/light body wash, Heraeus Kulzer) for their later use in fabricating provisional restorations (Fig 6).

However, before undertaking this task, dental assistants should understand that today’s provisional restorations are no longer regarded as just temporaries. Rather, they should know that they serve specific functions and purposes (e.g., working out the correct vertical and horizontal incisal edge position) (Fig 7). Dental assistants therefore should be instructed to consider anterior guidance that is in harmony with the envelope of function so that they can ensure that the lingual contours are sufficiently steep to disclude the posterior teeth, but still in harmony with the envelope of function. They should be reminded that the provisional restorations—and the impressions of them—are often the only way to predictably communicate this information to the dental laboratory, so this information must be accurate.

**CONCLUSION**

Today’s dental assistants are more than just chairside assistants. When educated and trained in different technical aspects of restorative practice, dental assistants become partners to the dentist and laboratory technician, as well as better communicators and advocates on behalf of the dental patient. From providing invaluable support during the records appointment to facilitating treatment planning using an esthetic mock-up, the dental assistant of today enjoys expanded duties and the satisfaction that comes from fulfilling greater expectations. By empowering their assistants with knowledge of mounted diagnostic models, smile design principles, preparation reduction guides and provisional matrixes, and the technologies and materials necessary to ensure predictable results, cosmetic dentists can ensure they stay well supported in their endeavors.

**References**