

CLINICAL Impressions®

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Full-Face Orthopedics with One Multifunctional Appliance – No Cooperation Required

by Terry Dischinger, D.D.S.
Lake Oswego, Oregon



Dr. Terry Dischinger received his dental training at the University of Tennessee and completed his orthodontic residency at the University of Oregon Health Science Center. He has been published and is a frequent lecturer on early treatment, functional appliances and teamwork. Dr. Dischinger also holds a quarterly hands-on, in-office, full-face orthopedics course that includes his staff and selected patients. He has maintained his private practice of orthodontics in Lake Oswego, Oregon, for 21 years.

In Pursuit of the Class I Face

I believe that the goal of orthodontics today should be to create the Class I face. And just what is a Class I face? It is a face with a balanced profile based on the norms that produce a pleasing face in your and your patients' eyes. There are a number of soft-tissue cephalometric esthetic measurements you can use. A Class I face is more than facial profile. It should have:

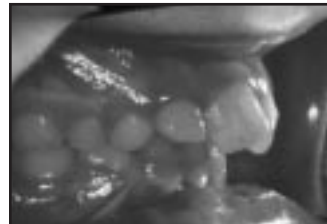
- correct transverse width of the dentition, jaws and denture base
- correct vertical dimension
- correct alignment of the teeth
- proper function

Not long after I entered my orthodontic training, I decided that an orthodontist should be responsible for more than just straight teeth. The orthodontist should also create the face with proper facial esthetics, arch width and anteroposterior position of the dentition in the facial profile. Figure 1 illustrates the creation of a Class I face from a severely crowded Class II, division 1, malocclusion, and Figure 2 shows that doing so has its rewards.

I don't feel that enough attention is paid to the transverse dimension of the dentition. The article by Howe, McNamara and O'Connor in the *American Journal of Orthodontics* entitled "An Examination of the Dental Crowding in its Relationship to Tooth Size and Arch Dimensions"¹ addresses this issue. It is worthy of everyone's examination. Basically, their study of a Michigan growth sample

showed that the size of the teeth had no bearing on the amount of crowding. In most cases that had an arch width of 38 mm (in the permanent dentition), there was room for all the teeth. Especially related to mixed dentition, their conclusion was that development of the arches, as opposed to dentoalveolar reduction, could be the treatment of choice in crowded cases.

As soon as I graduated and started my practice, I initiated my search for the treatment systems that would allow me to achieve my treatment goal of a Class I face. I used headgears, Fränkels, Bionators and expanders, all of which required patient cooperation. It was not until I saw the Herbst* appliance article by Hans Pancherz in the *American Journal of Orthodontics* in 1979² and then heard his presentation at the AAO convention in 1981 that I thought creating a Class I face without regard to patient cooperation might be a possibility.



Posttreatment



(These photographs taken three years after all appliances removed)

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* Herbst is a registered trademark of Dentaaurum, Inc.

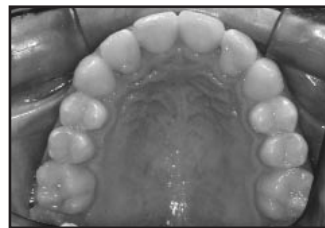
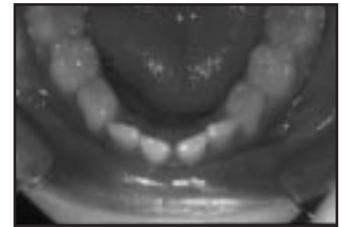
Figure 1. Creating the Class I Face

Patient S.R., male

Patient presented as mixed dentition, Class II, division 1, with narrow upper and lower arches and severe crowding. Age at start of treatment 9-11; age at start of second stage of treatment 15-1.

Treatment Philosophy: Develop arches before mandibular permanent cuspids erupt.

Pretreatment



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(case continued from page 3) Before and after superimposition of tracings

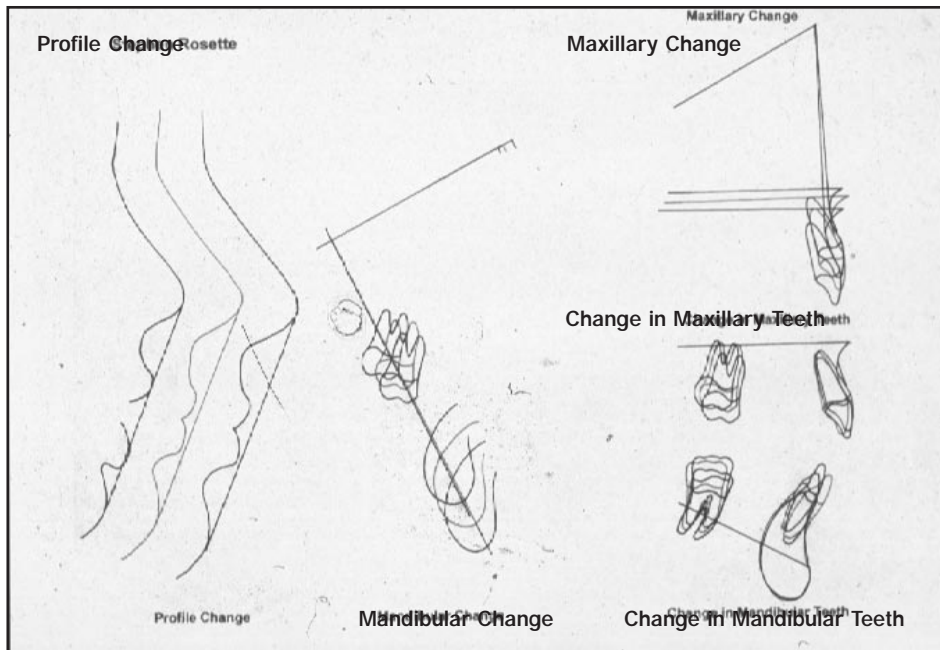


Figure 2. Creating the Class I face has its rewards.

From the very beginning Stephen wanted better teeth. His smile was always a closed mouth. Even his chin was disappearing.

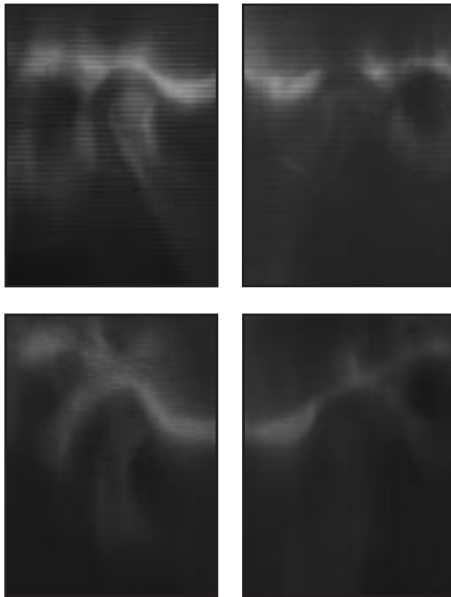
Today he has a full, happy smile and holds his head high. No longer does he look away when talking to others. Many people have complimented him on his smile. He feels good about himself. Of course, we think he is handsome, but we may be prejudiced! Thank you, Terry.

Sincerely,

N.R. and Family

Figure 3. Fränkel appliance. A transfer patient previously treated with the Fränkel and now in Herbst treatment commented that the Herbst is much easier to wear and that she likes what it does for her face.

Before and after tomographs

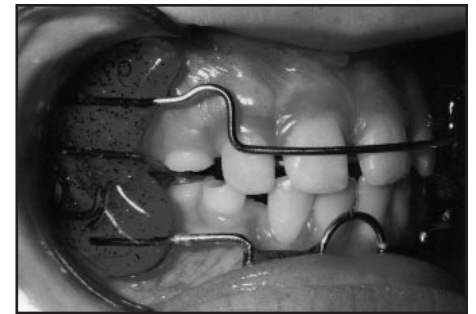


The Noncompliance Appliance Advantage

In response to my first article about the Herbst appliance in the *Journal of Clinical Orthodontics* in 1989,³ Larry White wrote an editorial that I feel is appropriate to orthodontics today.⁴ White made the point that in today's world, it could be very important to use appliances that don't depend on patient cooperation to help ensure a successful treatment outcome. White continued to point

out that the Herbst was a fixed and almost indestructible appliance that was not dependent on patient cooperation to achieve the desired result. Regardless of the number of consultations that I have with patient and parent throughout treatment about lack of cooperation, when the case is not finished properly, the blame is placed on me, not on noncooperation.

Our patients or their parents are paying us to produce a result, and it is our obligation to use appliances that enable us to accomplish that result when they are available to us. Practice studies (and this varies based on location) indicate that up to 80 percent of the mothers of our patients work and up to 50 percent of them are single. They are not available to supervise the wearing of appliances. When they get home at night, the last thing they want to deal with is a problem with an orthodontic appliance that must be worn to accomplish its intended result. Studies have also shown that the more patients are talked to about compliance, the less they want to cooperate; furthermore, the less they'll cooperate in other important areas such as hygiene and maintenance of the dentition. Once we started using noncompliance



appliances in our office, previously uncooperative patients developed an entirely new attitude. Now, the atmosphere in our office is very positive, because the only thing we need to discuss with the patient in order to achieve the desired results is hygiene. We use many forms of motivation, and we target our training to educate our patients on their need for proper oral hygiene. We have found that our use of noncompliance appliances allows us to do that.

When I first heard of McNamara's research on the use of functional appliances in monkeys, I felt if it would work on animals, it would also work with our patients. When I saw Pancherz's appliance at the '81 convention, I saw an appliance similar to the ones used on the monkeys, because it was nonremovable and it worked continuously, just as in the animal studies. When I was using appli-

ances requiring patient cooperation, such as headgears, Bionators and Fränkels (Figure 3), I was treating an uncooperative youngster with a severe Class II malocclusion. One day his mother came in and said, "It's not worth it to me to spoil my relationship with my son to get his teeth straightened." Young people are as busy today as their parents. When you can place an appliance in their mouths that does not interfere with their activities and allows you to accomplish the desired treatment result, shouldn't that appliance be the treatment of choice?

"Once we started using noncompliance appliances in our office, previously uncooperative patients developed an entirely new attitude. Now, the atmosphere in our office is very positive...."

Bringing the Staff Aboard Buying into Herbst Therapy

How do you successfully employ appliances in your office? The following comments are directed toward the Herbst, but they apply equally to any type of appliance you put to work in your operatory. It is imperative that the doctor totally believe in the treatment regimen, because if you totally believe in an appliance, it will be evident to all, and the patients will believe it is best for them. The "true believer" can enthusiastically and honestly describe how that appliance is the treatment of choice to resolve the orthodontic problem. Once the doctor – fulfilling his or her role as the leader and visionary – has determined what type of treatment system is best for the office, the staff must be thoroughly educated as to how the appliance works and why it is the best choice. I want my assistants to

know why the appliance is indicated, not just what it does. My staff has more patient contact than I. As you saw in the previous issue of *Clinical Impressions*, we display our staff's pictures and credentials in the waiting room.⁵ Previously, I would get numerous questions from parents about their child, or from adults about themselves, as to who would be doing the work on them. We rarely get those questions anymore, because the staff's state-licensed credentials are available for everyone to see (Figure 4).

The staff must believe as much as the doctor in their treatment systems. When any appliance is placed in a patient's mouth, that patient goes through a period of adjustment. Even if it's just a lingual arch, there is always an adjustment period. Think about some of the appliances known to create speech difficulties: tongue spurs, Fränkels, Bionators, expanders. The Herbst appliance is much less intrusive than some of these, but the patient still has to adapt to it, and the staff has to totally believe in it if they are to enthusiastically and successfully encourage the patient during this critical period.

I recommend that you treat your staff's children with the same systems used with your other patients. We treat them free of charge in our office; consequently, the staff can see how their children respond to the treatment. When talking to patients, the staff members can convincingly state that their son or daughter had the same treatment and went through the same type of adjustment.

Training, Training...and More Training

The use of the Herbst and other noncompliance appliances allows the intervals between treatments to be extended, making it much more convenient for everyone, especially the parents and patient, since they will not have to come to the office so often. Because of these longer intervals, the staff must fully understand what the Herbst is doing, why we are using it and why we feel it is the best treatment for that specific patient. We have to get the most out of each visit. It

continued on following page

Figure 4. Professional portraits of our staff along with their certification credentials are displayed in our main waiting room.



Figure 5a-c. Treatment coordinator presents a Herbst appliance on a typodont model that the patient can see, touch and feel, reviews the take-home appliance description and refers to an example on the wall similar to the patient's malocclusion.



Figure 5a



Figure 5b



Figure 5c

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continued from preceding page

is a continual education process with the staff. We have a yearly schedule of staff training and devote one half day each month to it with the entire staff participating. We videotape our training sessions so that new employees can refer to the tapes in their training program. I conduct these training sessions myself unless there is a staff member who is better qualified in the subject to be covered.

"I stress staff training so much because their role is critical to the successful implementation of the Herbst. If the staff does not buy into any appliance and feels inadequately trained to use it properly, it is likely to fail."

We have made a videotape of the clinical use of the Herbst appliance that has helped our staff maintain its proficiency with the appliance. We also find it useful in acquainting new employees with noncompliance appliances. The staff also benefits from the hands-on, in-office course that we hold four times a year. Clinical and management principles of our noncompliance appliances are taught in a dynamic doctor, staff, patient and parent environment. Although the course is oriented to the attending orthodontists, the staff benefits greatly from their repeated participation in the training.

I stress staff training so much because their role is critical to the successful implementation of the Herbst. If the staff does not buy into any appliance and feels inadequately trained to use it properly, it is likely to fail. When President Kennedy

decided we were going to the moon, we had no hardware to allow us to do that. NASA engineers had to start at the moon to construct the hardware and work backwards to the earth. We have a saying in our office: "If man can go to the moon and back, then we can find a way to make the Herbst appliance work in our office." Again, you have to buy into it, believe it is the best treatment and have a staff that understands it from A to Z. It is my obligation as the leader of the orthodontic team to empower the staff to succeed by providing them with proper training and support.

Patient and Parent Education and Communication

The Initial Exam

At the initial exam when the Herbst appliance is presented, have an appliance available on a typodont model that the patient can see, touch and feel (Figure 5a). It's equally important to have a follow-up description of the appliance,

along with examples of patients treated with it, as part of the initial exam packet that goes home with the parent and patient (ammunition to convince Dad [Figure 5b]).

Show examples of treated patients to the patients and parents during the initial exam. Initially, we placed a notebook of treated patients in the waiting room so that parents and patients could see our results. I was surprised to hear them comment routinely that they had no idea this could be done with orthodontics. They just assumed that we could only correct crooked teeth. So we selected the most useful of these before-and-after photographs of the faces and the teeth and placed them on the wall in the initial exam room. Now, when describing the patient's malocclusion, we can refer to a similar case on the wall, since we display all the different types we treat (Figure 5c). If you use a treatment coordinator

Figure 6. The "Terry's Chair" concept facilitates consistent doctor/parent/patient communication.



AOA – Expertise in Bite Jumper Design

Allesee Orthodontic Appliances (AOA) has worked closely with Dr. Terry Dischinger on his Herbst SSC bite jumper appliance. Dr. Dischinger's concepts have provided the basis for the designs and modifications that reach into nearly every aspect of Class II treatment, from the premise of simple, noncompliance internal headgear to molar intrusion mechanics. Comprehensive fixed therapy is easily combined with his appliance by introducing upper and lower archwire tubes provided in well thought out and accessible positions.

Dr. Dischinger's design variations, including mixed and permanent dentition, various expansion capabilities and intrusion mechanics, are now available through AOA in a comprehensive booklet. Simply request our new booklet "Clinical Management of the Herbst Appliance."

AOA also has a wide range of experience with other Herbst anchorage systems, including the banded approach, removable or bonded acrylic, combinations of different anchorage systems per arch and the

popular cantilever system which has rapidly gained universal acceptance. AOA is well known throughout the industry for serving your custom laboratory requirements. Many of you modify designs from leading clinicians to individualize your Herbst appliance to your specifications. We look forward to meeting your custom requirements. Contact our technical team (800-262-5221) to review them with us in detail.

system in your office, she should be trained to recognize the different types of malocclusions, so that she can discuss the problem with the patient and parent prior to your entering the room. This empowers your staff and creates a great deal of trust on the part of the patient and parent in the ability of you and your staff to meet their needs.

Terry's Chair

A special part of our office is "Terry's Chair." Terry's Chair is a small, separate area near the operatory where I am able to meet with the parent and patient, eyeball to eyeball, after every appointment (Figure 6). I tell them what we have accomplished since the last appointment, what we did today and answer any questions they might have. Terry's Chair has proven a boon to communication. It eliminates the problem with the child returning to the waiting room, the parent asking, "What did they do today?" and the child answering, "Nothing." We always do something and there needs to be a purpose for that something, which then needs to be communicated to the parent and the patient. After every appliance placement, I also meet with the parent and the patient and explain what they should expect and how to adapt to the new appliance.

Written Communication

We have sheets printed that are exact word-for-word reproductions of the communication I give verbally, so that the parent and patient can take the message home with them. Before we provided the printed sheet, the occasional parent would say they were never told this or that, even though I *always* verbalized the same thing. It's no longer a problem,

thanks to the printed sheets. The way we present the printed information is, "You have been given a lot of information today and we don't expect you to be able to remember all of it, so here is printed exactly what we have talked about. If you have any questions, you can refer back to it." Be sure to cover any potential problems, because if discussed beforehand, they do not become a problem. Our Herbst patients adapt and do extremely well in Herbst treatment; we attribute this to the belief and enthusiasm we have for the appliance plus proper communication between doctor, staff, patient and parent.

"Our Herbst patients adapt and do extremely well in Herbst treatment; we attribute this to the belief and enthusiasm we have for the appliance plus proper communication between doctor, staff, patient and parent."

Implementing Herbst Therapy Ninety Percent Success Ratio Ain't Bad

I recently read an article about bone grafting followed by implant placement. Ninety percent of the implants were successful, and the conclusion was that

implant treatment was extremely successful. Pancherz recently showed that 90 percent of Class II corrections with a Herbst appliance in the permanent dentition are stable. So if Herbst treatment in the permanent dentition is more successful than any other treatment modality for Class II correction and is not dependent on patient cooperation, why shouldn't everyone be using it?

Treatment Mechanics

Our treatment mechanics in creating the Class I face use orthopedic expansion of the maxilla in conjunction with the Herbst appliance, along with dentoalveolar expansion of the mandible. We are able to control vertical dimension, arch coordination, tipping of the teeth, muscle function, maintaining the appliance in position, asymmetrical correction and Class II correction all in one appliance. We use brackets on the incisors to level arches and maintain proper torque. On the lower incisors, they prevent excessive tipping. On the uppers, they maintain proper torque, so that once the Class II is corrected, a Class I cuspid relationship can be achieved, allowing us to have a Class I face. Permanent dentition cases are finished in full appliances. Mixed dentition cases are finished with a partial appliance, commonly known as a 2 x 4 appliance, with attachments only on incisors and molars. Proper overbite, overjet, coordination and torque of the bracketed teeth are achieved.

All Class II malocclusions treated with Herbst therapy should be overcorrected. Determine the condylar position with the use of a corrected tomogram prior to removing the appliance. Long-term

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Revenue Management in Orthodontics

by J. W. Barnett, D.D.S., F.A.C.D.
Dallas, Texas



Dr. Jay Barnett, Diplomate, American Board of Orthodontics, founded the orthodontic department, L. D. Pankey Institute, and served as its chairman from 1973 through 1982. He has published numerous articles and lectured extensively on treatment efficiency, activity-based costing, practice management and scheduling. Dr. Barnett served for 25 years as a contributing editor to the *Journal of Clinical Orthodontics* and still serves as a consultant to the *American Journal of Orthodontics and Dentofacial Orthopedics*.

To my loving wife Mary Lou, without whose help this article would have remained in the deep recesses of my mind. She gave it life.

The term *revenue management* was given birth by the airline industry in the mid-1970s. Public demand for discount airfares had increased dramatically, and in response, several charter airlines were formed. By the winter of 1976, charter fares as low as \$99 were available in the highly-traveled New York-Florida market. American Airlines was severely affected, because their fares were considerably higher than the fares of discounted charter flights. Bob Crandall, then Senior Vice President, Marketing, American Airlines, could not find a way to compete with these discounted prices. Late one night he called an emergency brainstorming session to probe how American could lower its costs to be competitive with the charters. Someone drew a picture of an aircraft on the blackboard. American's planes were currently flying, on average, only half full. That meant that they were carrying millions of empty seats. It dawned on the strategy staff that American was already producing seats cheaper than the charter

operators could ever hope to produce. The empty seats they were already flying between New York and California were being produced at a cost of close to zero. In actuality, American had a *revenue problem*, not a *cost problem*.

"If we could figure out a way to sell those empty seats at the prices of the charter guys," figured Crandall, "we would make a lot of dough." Crandall set out to solve the problem of those empty seats on American flights. He started to sell seats at discounted prices: first the Super Savers, then the Advantage Card for rewarding passengers for flying American, later the Senior Citizen's Discounted Tickets in books of four and eight tickets, and more recently Active Americans – the latter two for persons over 65. All were developed to fill the empty seats on his scheduled flights – and it worked!

Those without the vision of Bob Crandall kept on doing business as usual. In 1979,

the airlines were deregulated. During the mid-1980s there was a mild recession, fuel costs were higher, airlines continued to cut the cost of fares, and planes flew 40-50 percent occupied. The result was bankruptcy for People's Express, Eastern Airlines and Continental. TWA, Pan American and others were reduced to insignificant players in the industry. American, Delta and Southwest Airlines adopted the idea of managing their revenues. They developed strategies to assure that each flight was filled to maximum capacity – and they survived and thrived.

Revenue Management Applied to an Orthodontic Practice

There is a great deal of similarity between a scheduled flight of an airline and the daily schedule of an orthodontic practice. The orthodontist is the pilot, responsible for the diagnosis, treatment planning and quality of treatment of his patients. The orthodontist's staff is the flight crew, responsible for the patient experience and the quality of care. If the airplane is 100 percent filled, the flight will be extremely profitable. For an orthodontic practice to operate at the same efficiency as the airlines, it, too, must have every chair filled with patients paying some fee for the services rendered that day. These services can vary in dollar amounts. In terms of revenue produced, we might compare original bandings to first-class airline seats. At a much lower level, archwire changes compare to a discounted seat for a senior citizen. Every seat is filled during every minute of the day with productive patients creating revenue for the office. These are our best days, our "Ideal Days."

Time Control in an Orthodontic Office

When we address the issue of revenue management, one of the first things we must examine is how we use the time available each day. We are talking about doctor, staff and patient time. To appoint the correct amount of time for a specific procedure, we must know how much total chair time is required. This can vary, depending on the difficulty of the task and the level of training and capability of the person performing the service. The

object of our staff training program is to bring all members of the staff to a level of quality and speed which approaches that of the best and fastest assistant – usually the clinical supervisor.

“With proper office design and a well-trained staff, it is possible to accomplish as much in one day with five chairs and five assistants as could be done in a week with one chair and one assistant.”

In the beginning, before we could bar code in real time the clinical procedure performed by our staff, we would time new employees at six-month intervals to see how they were progressing in relation to the other staff members. This permitted us to check on their progress and let them know how they were doing. Timing of procedures is no longer necessary. For a number of years, I have used a software package (which my systems analyst and I developed) with the type of bar coding you would see at a supermarket checkout station. This is a stand-alone computer in the treatment department at the “point of care.” *Exceed* is the name of the system. The primary purpose of this software is to record:

- Daily production
- Cost of services
- Time patient is in the office
- What procedures were performed and the actual time required per procedure
- Which doctor saw the patient
- Treatment assistant who worked with the doctor

An enormous amount of data comes from gathering this information on each patient visit. Since we have information on each treatment assistant covering all services they perform, we are able to compare the

treatment efficiencies of all employees. This also permits us to have a current running-time requirement for all patient services and enables us to schedule the appropriate time for these services.

After examining the data, it is evident that a well-trained staff can have a substantive effect on office productivity. Scheduling eight hours a day with one doctor, one assistant and one chair provides 480 productive minutes per day. With proper office design and a well-trained staff, it is possible to accomplish as much in one day with five chairs and five assistants as could be done in a week with one chair and one assistant.

Scheduling Like Things at Like Times

Joseph Cooper, in his book, *How to Get More Done in Less Time*, says, “It is much easier to do more of the same than to readjust to entirely different problem situations.” This simply means we should schedule like things at like times. Using this principle for appointment scheduling, we group procedures according to these guidelines:

1. They require similar amounts of time to perform. For instance, we know it requires more time to do a full upper and lower bonding/banding than to check a headgear or a positioner.
2. They use similar types of equipment. A headgear or positioner can be checked with a tongue depressor or mirror. Full banding or complicated archwire procedures require much more equipment and more sterilization time.
3. They have similar degrees of difficulty. Difficult treatments require more time and a higher level of competence than simple treatments.
4. They involve similar risks. Full-banded cases have a greater chance of having loose brackets/bands and broken archwires that may require more time, possibly posing a problem if scheduled for a short check period. Emergencies require an average of 20 minutes to treat.

These guidelines and our time studies allowed us to develop a color-coded system of time control in which like

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Green	Pink
Red	Yellow
Blue	Orange

Figure 1. Ideal Day color-coded appointment schedule.

Date: Monday, February 7, 1997

8:00	1. David Farson	2. Leisa Lamb	3. Duane Fuller	4. James Trujillo	5. Patricia Radow 6. Charles Hopkins
8:15	7. Joan Gaber	8. Jean Cozart	9. Almeda Nelson	10. Carole Tegeler	11. William Ross 12. Keith Bunce
8:30	13. Lawrence Garcia	14. Monica Smith	15. Patricia McNellis	16. Mary Degarmo	17. Shirlean Hausmann
8:45	18. Kandi Porter	19. Kenneth Jones	20. Sara Gold	21. Cynthia Tan	22. Lisa Olson 23. Daniel Griffiths
9:00	24. Frank Crider	25. Gwenn Mitchim	26. Lynn Spring	27. Bradley Lopez	
9:15	HG-2x4 lower Orig. bd	Orig. bd. 6u	Lower 2x4 3u	Orig. bd. 6u	
9:30	6u				
9:45					
10:00					
10:15					
10:30	28. Barbara Day	29. Rule Andreatta	30. Ronald Rothberg	31. Louise Zietz	32. Dennis Lininger
10:45					Orig. rec. 3u
11:00	33. Larry Peterson	34. Claudia Smith	35. Wayne Lee	36. Jan Frohmader	
11:15					37. Lynda Cook
11:30	38. James Lucero	39. Kathy Galusha	40. Gary Horowitz	41. Terry Shimley	Orig. rec. 3u
11:45		Chairside JWB	42. Norma White	43. Shannon Shimley	
12:00	44. William Hotzworth	45. Susan Freeman	46. Robert Connolly	47. Sandra Connally	48. Edwin Potts
12:15					Orig. rec 3u
12:30	49. Helen Johnson	50. Terry Greenlee	51. John Whitney	52. Timothy Birney	
12:45					
1:00					
1:15					
1:30					
1:45					
2:00	1. Paul Diehl	2. Thomas McCord	3. Margret Johnson	4. Dennis Budai	5. Ellie Cornia
2:15	Chairside JWB				Orig. rec 3u
2:30	6. Mary Henderson	7. Jon Leggett	8. Sherry Mohr	9. Sean Seale	
2:45	PI HAs			Chairside JWB	10. Marti Steputis
3:00	11. John Menzor	12. Ewa Koplin	13. Kim Gostling	14. Ronald Bryson	Prog. rec. 3u
3:15				15. Kelli Luna Sep	
3:30	16. Suzanne Ramey	17. Dorothy Lester	18. Robert Obletiloff	19. Lena Valodine	20. Donald Levine
3:45				21. Russ Gallaher Sep	Orig. rec. 3u
4:00	22. Kirk Deboer	23. Janene Beyer	24. Pete Douglas	25. John McCulloch	
4:15			Chairside JWB		26. Linda Rowland
4:30	27. Mary Zondlo CE JWB	28. Dale Gaber CE JWB			Orig. rec. 3u
4:45	29. Steve Cowan CE JWB				
5:00	30. Dallas Houkom Cons JWB				

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procedures are scheduled during like-colored time periods. We block 8:00 a.m. to 1:00 p.m. and 2:00 to 5:00 p.m. on the daysheet in colors: 8:00 to 9:00 a.m. is green time, 9:00 to 10:30 a.m. is red time, 10:30 a.m. to 1:00 p.m. and (after lunch) 2:00 to 4:30 p.m. is blue time, 4:30 to 5:00 p.m. is yellow time, after 5:00 p.m. is orange time, and one column on the right of the chart is pink time. I find that the schedule (Figure 1) works well for one doctor performing services for 82 patients per day with five chairs and four chairside assistants, a bookkeeper, a receptionist, a treatment coordinator and a part-time assistant (who takes records and helps with treatment when not taking records).

“Most orthodontic practices see more patients in the afternoon and after school than in the morning. That kind of practice is controlled by the patients and parents instead of a format of efficient time utilization.”

Most people’s energy level is generally highest during the first five hours of the working day, and we take advantage of this energy, as a surgeon does when he schedules surgical procedures in the morning. An orderly, well-planned, realistic schedule helps relieve stress in the office. Patients can sense stress and become uneasy when doctor and staff are not happy with one another. We schedule only archwire adjustments, records appointments, and new patients in the afternoon; the staff goes home at 5 p.m., and I may stay for a consultation. Most orthodontic practices see more patients in the afternoon and after school than in the morning. That kind of practice is

controlled by the patients and parents instead of a format of efficient time utilization.

Ideal Day Schedule

In this system, only certain kinds of appointments are scheduled for each color period (Figure 2). From 8 to 9 a.m., we have five patients in green time every 15 minutes – 20 patients in all – for short check appointments. (In Figure 1, note that 23 patients are scheduled in green time, posing no problem. Each patient has 15 minutes, but normally only five to seven minutes are used.) At 9 a.m., we change to original banding (red time), and the doctor works with four capable treatment assistants on four patients for whom bands are fitted and cemented, brackets are placed and archwires are constructed. From 10:30 a.m. to 1:00 p.m. (blue time), we schedule four patients every 30 minutes for archwire changes. At 10:30 a.m., we also start a records appointment every 45 minutes (pink time). After an hour for lunch, we continue with archwire changes and records appointments. At 4:30 p.m. (yellow time), we schedule one patient every ten minutes for initial examinations. Only young patients, six to eight years of age, are scheduled at this time. The examination is to determine if they are likely to be candidates for orthodontic treatment at a later date. One treatment evaluation (consultation) appointment is scheduled at 5 p.m. (orange time).

This method of scheduling gives us the opportunity to have an ideal day every day – for doctor, staff and patients (Figure 3). At a time when we are trying to create goodwill for orthodontics and our individual practices, there is no better public relations tool than being considerate of our patients’ time. Can you imagine a parent coming to an orthodontist’s office over a period of two years and having to wait an hour or an hour and a half for each appointment? After two years, this parent would certainly be unwilling to recommend us to friends. The best way I know to create missionaries is to let people know that you see patients on time and complete the scheduled work on time.

Green:	1. Check headgear 2. Check positioners 3. Check retainers – green days only 4. Check elastics 5. Activate closing arches 6. Activate coil springs 7. Recall patients when an explanation to parents will not be required (e.g., holding arches, under observation for serial extraction, etc.) 8. Check expansion appliances 9. Any other appointments that require 4-5 minutes per patient
Red:	For original bonding/banding only
Blue:	Treatment of patients in full bonds/bands
Pink:	Records appointments
Yellow:	New patients being seen for their original examinations
Orange:	Treatment explanations

Figure 2. Types of treatment rendered during various color periods.

8 a.m.-1 p.m.	52 patients
2 p.m.-5 p.m.	30 patients
	82 total patients
Services rendered:	
1. Short treatments (green)	23
2. Original bandings (red)	4
3. Archwire changes (blue)	44
4. New patient examinations (yellow)	3
5. Treatment explanations (orange)	1
6. Records (pink)	7
	—
Total patients	82
One orthodontist, four chairside assistants, one treatment assistant and records technician, and five chairs scheduled.	

Figure 3. An Ideal Day’s schedule.

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Bite Jumper Enhancements

by Joe H. Mayes, D.D.S., M.S.D.
Lubbock, Texas



A native of Crane, Texas, Dr. Joe H. Mayes received his B.S. from Texas Tech University, followed by his D.D.S., M.S.D. and certificate in orthodontics from Baylor College of Dentistry. Dr. Mayes is engaged in the private practice of orthodontics in Lubbock, Texas, and has been actively involved in new product development.

The Cantilever Bite Jumper (CBJ) continues to grow in popularity as it proves itself to the specialty as a reliable, effective and efficient noncompliance appliance that is well tolerated by patients. It affords correction of Class II malocclusions without having to depend on patient cooperation. Due to the posterior Bite Turbo effect, it is the appliance of choice for deep-bite Class IIs (I've *never* had to use Bite Turbos on a deep-bite Class II corrected with a CBJ). Note the deep-bite and Class II correction of a typical case (Figures 1-9). The success of the CBJ made it economically feasible for Ormco/"A" Company to introduce a number of evolutionary improvements for added efficiency, simplicity, reliability and patient comfort. This article is intended to make you aware of these advances so that you can take advantage of the additional benefits they bring to Class II correction.

Larger Hex-Head Screws

Increasing the size of the screw head from 4 to 5.5 mm adds significantly to patient comfort (Figure 10). This size change increases the surface area by 89 percent (almost double!) and helps eliminate the soft-tissue discomfort of the cheeks. These larger screws are designed for use with the axles on the cantilever arms of the CBJ appliance and in conjunction with the new offset rods to form a smoother inner-cheek surface on the appliance.

Offset Rods

New offset rods also aid in eliminating soft-tissue irritation (Figure 11). Each rod has a distinct inside and outside configuration, but there are no rights and lefts to inventory. The rod and tube assembly

helps hold the cheek away from the screw head on the lower portion of the bite jumper. With the offset, the screw head is recessed so that it is level with the rod and tube assembly. In addition, the rod is made of a more rigid stainless steel to eliminate the possibility of bending. Another improvement is a larger opening at the end of the rod that attaches over the axle on the lower portion of the bite jumper, increasing the freedom of movement of the lower jaw. A posterior separator placed over the axle before attaching the rod holds the entire assembly out and prevents cheek pressure from pushing the assembly in and making the screw head stand out and irritate the cheek (Figures 12-13).

Curved-Base Axles

New curved-base axles (Figures 14-15) can be used when fabricating all types of bite jumpers, except for cantilever arm connections (where a flatter base is more suitable). Labs and offices making bite jumpers in-house will note the improved adaptation to both molar and bicuspid crowns. This reduces the amount of solder required to attach the axle to place and increases the strength of the solder joint, reducing the likelihood of breakage. Since the introduction of CBJ kits, Ormco has provided these curved-base axles brazed to the distal of upper 1st molar crowns and is now making them available unattached. They also adapt very well to the distal of upper molars and the mesial of lower bicuspids when fabricating Molar-Moving Bite Jumpers (MMBJ) or "standard" bite jumpers.



Figures 1-3. Pretreatment Class II, division 2, 100 percent overbite.



Figures 4-6. End of CBJ therapy; no brackets were used and the upper incisors were torqued by advancement of the lower jaw.



Figures 7-9. Final occlusion. No Bite Turbos were used, as the posterior Bite Turbo effect of the CBJ opened the bite.



Figure 10. The larger-headed screw dwarfs the surface area of the original.

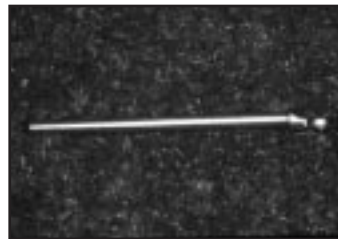


Figure 11. The new offset rod.



Figures 12-13. The old (left) and the new (right)! Note the smooth surface presented to the lips and cheeks by the use of a posterior separator placed on the axle before placing the offset rod and the larger-headed screw.

Dr. Mayes

continued from page 12

AEZ Crown Slitting Plier

The AEZ® Crown Slitting Plier was designed as a key component of an improved technique to facilitate stainless steel crown removal, so I'll describe the technique along with the plier. Crown removal begins before the crown is placed. Air-dry the occlusal surface of the tooth and apply Chapstick® with a Q-Tip® (Figures 16-17). A coating will do; it is not necessary or even desirable to fill the occlusal anatomy. The Chapstick acts as a barrier to prevent the glass ionomer cement (definitely the cement of choice) from adhering to the occlusal anatomy and necessitating lengthy and tedious cleanup.

Notch the crowns in the lab before cementation (Figure 18). Notch the uppers on the mesiopalatal and the lowers on the mesiobuccal, just lingual to the cantilever arms (Figures 19-20). The notches should be 1.5 to 2 mm in length and perpendicular to the edge of the crown. Use a separating disc to create the notch; avoid the unnecessary step of smoothing the burs by rotating the disc so that any burs created will be inside the crown. The notches allow the use of the AEZ Crown Slitting Plier (Figures 21-22) without having to place the slitting blade subgingivally.

At the time of crown removal, place the sharp point of the slitting blade into the



Figures 14-15. The new curved-base axle adapts very well to the crown, reducing the amount of solder needed, increasing the surface area of the solder joint and increasing the strength of the attachment.

notch and position the pad of the other beak on the occlusal surface (Figure 23). The plier should be held at a slight angle to the occlusal plane – slightly above the occlusal plane for lower crown removal and slightly below for upper crown removal. This slight angling enhances the attack of the point and blade of the slitter, preventing the point from riding underneath the crown as the force of squeezing the plier slits the crown in an occlusal direction. As the slitting occurs, the width of the blade forces the crown apart so that it can be easily removed. Usually the crown comes off in the jaws of the plier.

Cement cleanup of the tooth is similar to cleanup following band removal. With Ormco crowns, however, most of the cement will have been removed from the tooth due to factory-microetching of the crowns; a large chip of cement will fall off

the occlusal surface where the Chapstick was placed.

ETM Crown Contouring Plier

The excellent design of the ETM Crown Contouring Plier allows rapid and precise reshaping of the crown's peripheral borders to hold the crown securely to the tooth (Figures 24-25). Shaping should be performed just prior to cementing.

Conclusion

I've been very pleased with the continual improvements to the CBJ and related auxiliaries. And these latest refinements will upgrade other bite jumper designs as well as the CBJ. Other advances are currently underway, so look for even more convenient and simple bite jumper therapy in the future.

Latest Bite Jumper Advances Now in Stock and Available from Ormco/"A" Company

These latest bite jumper enhancements described by Dr. Mayes afford their advantages to not only CBJ appliances but also other bite jumper designs.

Curved-Base Axle/4 mm Screw

Assemblies: Previously available only brazed to CBJ/stainless steel crown assemblies, Curved-Base Axles are now available separately for laboratory fabrication of all bite jumper designs. The better adaptation to the distal of upper molar and to the mesial of lower bicuspid crowns increases the strength of the solder joint and reduces breakage.

5.5 mm Hex-Head Screws: Almost twice

the size of previous screw heads, the smoother surface reduces cheek irritation. Used in conjunction with the new Offset Rods for the cantilever connection, the 5.5 mm Hex-Head Screws improve comfort in the sensitive inner cheek area.

Offset Rods: New Offset Rods create a smoother plane in the critical inner cheek area. Used in conjunction with the 5.5 mm Hex-Head Screws, they provide the ultimate in bite jumper comfort in this sensitive area responsible for most complaints about bite jumper discomfort. Made from 17-4 stainless steel, Offset Rods are four times as rigid as regular rods, so bending of

the rods is a thing of the past. The larger opening at the lower connection improves freedom of movement of the lower jaw.

AEZ® Crown Slitting Plier: Designed specifically for stainless steel crown removal, the AEZ Crown Slitting Plier speeds and simplifies the procedure.

ETM Crown Contouring Plier: This new design facilitates rapid adaptation of the gingival border of stainless steel crowns for a precise fit.

Order information on these latest bite jumper enhancements and auxiliaries is provided on page D of the Center Section.



Figures 16-17. Use Chapstick® on a Q-Tip® to keep the glass ionomer cement from sticking in the occlusal anatomy upon crown removal.

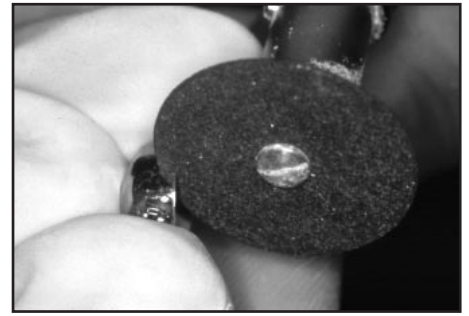
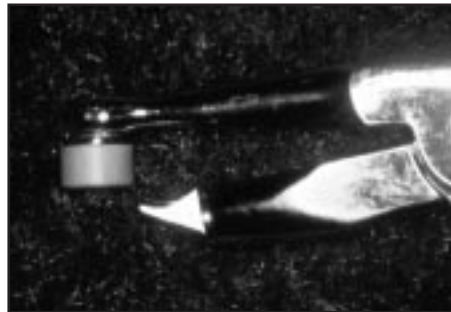
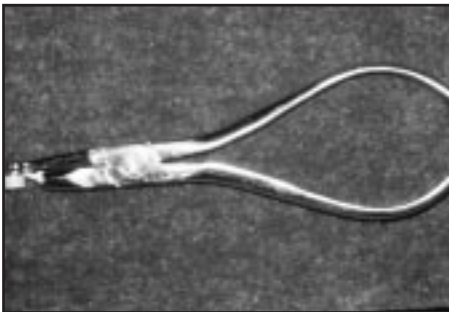


Figure 18. Use a separating disc to create a notch. Rotate the disc so that any burs created will be inside the crown, eliminating the need for their removal.



Figures 19-20. Notch the crowns before cementation, uppers on the mesio-palatal and lowers on the mesio-buccal.



Figures 21-22. AEZ Crown Slitting Plier. Note that the tip of the blade misses the occlusal pad when the plier is closed.

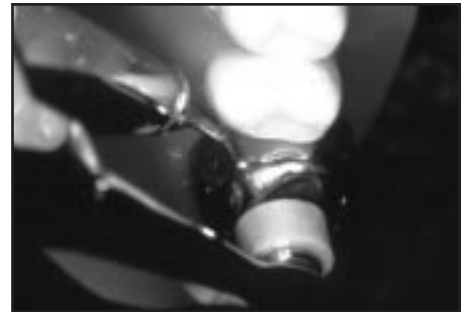
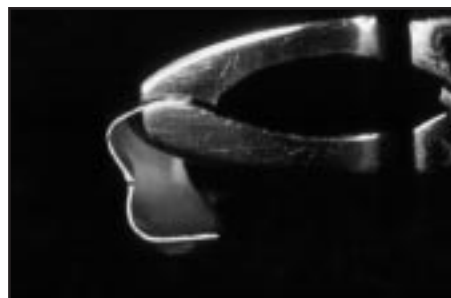


Figure 23. Correct placement of the AEZ Crown Slitting Plier for easy crown removal.



Figures 24-25. The new ETM Crown Contouring Plier. The ball and socket shape correctly adapts the periphery of the crown for maximum retention.

Third European Lingual Orthodontic Congress Success Denotes E.S.L.O. Progress

by Giuseppe Scuzzo, M.D., D.D.S., Rome, Italy

It is a pleasure to inform you of the highly successful third European Lingual Orthodontic Congress organized by the European Society of Lingual Orthodontists and held at the historical University Gregoriana in Rome on June 18-20, 1998. It was an honor to serve the E.S.L.O. as president these past two years and turn over the presidency to my friend, Dr. J. F. Leclerc of Le Vesinet, France, at the gala dinner culminating the meeting in the splendid Villa Miani. The E.S.L.O. holds its meeting every two years without limiting the involvement to European societies but including interested societies and orthodontists from all over the world who practice the lingual technique.

As I have been practicing lingual orthodontics for more than 15 years, maintaining membership in all lingual orthodontic societies and teaching the technique with Dr. Kyoto Takemoto of Tokyo, I am aware of the growing interest in lingual orthodontics. By attending the most important orthodontic and lingual orthodontic meetings these past two years, I have been fortunate to come in contact with a number of young proponents of the technique as well as the established leaders. Consequently, it was possible for us to develop a fine scientific program with over 60 highly scientific lectures presented to over 400 participants. The excellent presentations delved into interdisciplinary relations between lingual orthodontics and other branches of dentistry – such as prosthetics, implantology, periodontology and maxillofacial surgery – providing a wide panorama of the effectiveness of the technique and its superiority to labial orthodontics.

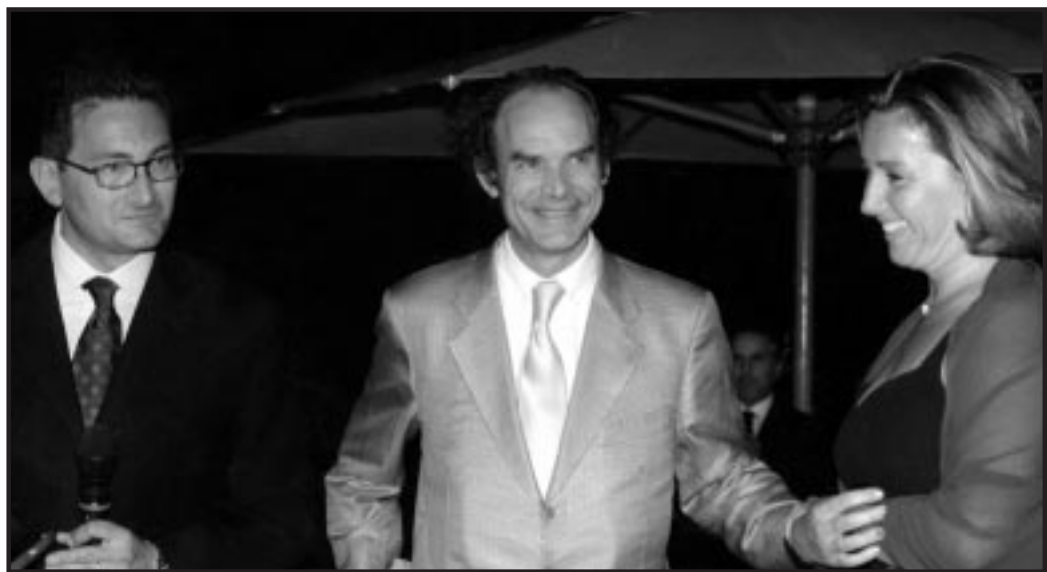
Established leaders such as Drs. Didier Fillion, Wick Alexander, Mario Paz, Robert Baker, and Bob Smith (who paid touching homage to fathers of the technique, Drs. Jack Gorman and Craven Kurz) contributed heavily to the meetings, as did many younger

colleagues who, although relatively new to the technique, demonstrated excellent results. Perhaps the real novelty of the congress was the unveiling of a new experimental lingual bracket now being studied by Dr. Takemoto and myself. Some cases were shown that had been treated with this “straight wire” lingual appliance that promises to further simplify and advance the technique. Also, a course for laboratory technicians given

to over 60 participants by Scott Hugel of Specialty Appliances was very well received.

I want to give a special thanks to all my colleagues who contributed to the success of the meeting and to Ormco, our main sponsor, who also helped us publicize the congress through *Clinical Impressions*. And my very best wishes to the new E.S.L.O. President, Dr. Leclerc.

Mrs. Christina Scuzzo beams proudly following new E.S.L.O. President Dr. Leclerc's presentation of a plaque to Dr. Scuzzo (left) in recognition of his work in organizing the meeting.



Over 400 participants enjoyed over 60 lingual orthodontic presentations that served as a testament to the advanced state of the technique today.



Show Me the Commitment!

by Douglas K. Eversoll, D.D.S., M.S.
Lincoln, Nebraska



Dr. Doug Eversoll was raised and educated in the heart of Husker mania in Lincoln, Nebraska, where he now maintains a full-time orthodontic practice. He also performs part-time as a musician with *Raw Nerve*, an all-dentist "rock 'n soul" band that has entertained coast-to-coast for the past ten years.

Smooth Sailing?

It was a perfect afternoon in the orthodontic office and our team was hitting on all cylinders. The treatment coordinator was taking new patient records, our receptionist had just scheduled a new exam and was taking down information for another, and our clinical staff was dutifully working on patients, performing what was previously written down in the "next-time" column of the charts.

As usual, I was hopping from chair to chair and basking in the glow of orthodontic efficiency when it happened! From across the room I heard one of my patients tell my assistant that she wanted to be an orthodontist. When asked why, she exclaimed, "Because all you have to do is look in your patient's mouth with a mirror and say, 'Looks great. Let's see you in six weeks.'" Ouch! The sting of objective observation. Sure, it was the after-school rush hour. Sure, the patient had forgotten that at her previous appointment, I had spent an hour of quality time with her when I placed her appliances. Nevertheless, deny it as I may, for the moment I was an impersonal orthodontic assembly line. I felt like Tom Cruise in the movie "Jerry Maguire" when our hero Tom gets his true identity served to him on a silver platter by a much younger but more observant son of one of his injured clients.

Moments like the above cause one to pause and reevaluate where we are and, more important, what paths we took that steered us into this scenario. I had spent years building a loyal, dedicated staff that could anticipate my every move well before I could. We had successfully incorporated the position of treatment

coordinator and the concept of the one-step consultation into our practice. After taking several hands-on courses and attending many seminars, I felt that we were providing our patients with the kindest, most modern treatment choices and techniques available. However, despite all our efforts, in the eyes of this particular patient, I had graded out as an "F" for not recognizing the person behind the braces.

"Doctor Time" Takes Center Stage

The concept of the efficient scheduling of "doctor time" seems to be the prime focus of most orthodontic consultants and management articles. Taking control of the schedule to maximize doctor time is the key to increasing overall production in the orthodontic office. If your goal is to develop an extremely large practice, you will not receive any argument from me on the importance of efficient use of doctor time. It demands a tremendous amount of coordination and training to effectively duplicate the doctor, usually in the guise of the treatment coordinator who frees the doctor to move to a "more important" task. I have observed this concept in action in offices that have more treatment coordinators than most sheiks have wives, and I must admit that I am impressed with the numbers racked up at the end of the day. However, there is a price to pay with duplication, and that price is the dilution of quality communication between doctor and patients.

Great Advice

I must give credit to my wise non-orthodontist father for seeing the big picture. One day I was describing to him my

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Reduced-Friction Sliding Mechanics

by M. Alan Bagden, D.M.D.
Springfield, Virginia



Dr. M. Alan Bagden, currently practicing in Springfield, Virginia, received his dental medicine degree from the University of Pennsylvania School of Dental Medicine and his orthodontic training from the University of Maryland. A diplomate of the American Board of Orthodontics and a fellow of the American College of Dentists, Dr. Bagden is a past president of the Northern Virginia Dental Society and is president of the Virginia Association of Orthodontists. As an advocate of economical and time-efficient orthodontic treatment, Dr. Bagden has a special interest in clinically evaluating new and progressive orthodontic products.

The negative orthodontic buzzword of the nineties is *friction*. Nobody wants it and reducing it is a constant goal (the theory being the less friction there is in a system, the less drag there will be to slow tooth movement). One approach is by designing brackets that minimize their contact with the archwire so that they can move along it more easily.^{1,2} The second approach is to develop a “greased” wire that will more readily accommodate movement, one that will improve movement with any bracket design. Surprisingly enough, such a wire exists in the forms of Low Friction and Colored TMA®.

Obviously, low coefficients of friction are desirable in archwires. But, the invaluable new space-age wires (nickel titanium and titanium molybdenum [TMA] alloys) have demonstrated higher coefficients of friction than stainless steel arches.³ Burstone hypothesizes that in the case of TMA, the friction is probably due to its relative softness compared to the harder stainless steel bracket.⁴ So what had to be done to decrease the friction of TMA was increase its hardness, reduce the coefficient of friction and maintain the desired mechanical properties. It would also be nice to offer this product in different colors to appeal to our adolescent patients, while affording a more sophisticated hue for adults. This is exactly what has been done with Low Friction and Colored TMA! The wire exhibits all of the above-mentioned properties and is available in purple, violet, aqua and honeydew (gold) as well as in a more conventional metallic hue (Low Friction).

It is interesting to note that the desire to create multicolored TMA wires was really

the genesis of this remarkable improvement in archwire efficiency. The lower coefficient of friction came about as a surprise benefit of the manufacturing process. In the search to manufacture colored wires, a prime concern was to avoid the unfavorable effects of “coated” colored wires whereby the coating would either come off during treatment or become stained by repeated contact with intraoral fluids. What was developed was a process which would change the external surface of the wire and actually implant the color in the most external surface. This process of manufacturing is known as ion implantation,^{2,5} wherein basic elements or complex compounds are ionized and then

“The natural clinical advantage of these improved forms of TMA is evident whenever sliding mechanics are used.”

accelerated toward a particular target. In this situation, the target is an orthodontic archwire. The ions penetrate the outer surface on impact, creating a product that consists of the original wire with a layer of compound at the surface and the immediate subsurface. This layer is very hard and has a considerable amount of compressive force. The increased compressive force and surface hardness facilitate fatigue resistance and ductility while reducing the coefficient of friction of the wire.



Figure 1a-c. Ideal case for use of .016 round Colored TMA as initial leveling and cuspid retraction wire.

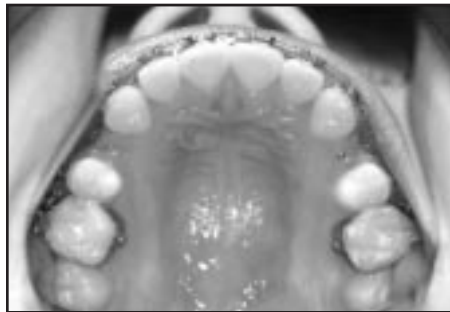


Figure 2a. Ni-Ti spring on .016 round Colored TMA on maxillary cuspid only. Initial retraction.



Figure 2b. Same case, five weeks later. Retraction starting on lower cuspids. Note maxillary cuspid already retracting.



Figure 3. Close-up view of ideal ligation of Ni-Ti springs to bracket.

Properties

Ion implantation does not produce sharp interfaces between a wire and a coating, so there is no problem with delamination of the coloring. It does not alter wire dimensions, thus allowing for uniform production. Different colors can be produced by varying the type and thickness of the ions.

Results of a friction study by Burstone and Farzin-Nia showed the static coefficient of friction of untreated TMA (.52) to be significantly higher than stainless steel (.19). However, the static coefficient of friction of treated TMA was significantly reduced (.13). Concerning friction in a wet environment, such as the mouth versus the laboratory bench, wet ion-induced TMA (honeydew color) had slightly lower coefficients than wet stainless steel. This study concluded that the frictional forces of treated TMA are likely to be less than 40 percent that of stainless steel because of the above-cited differences in frictional force and the fact that TMA is only 40 percent as stiff as stainless steel.⁴

Clinical Applications In Early Treatment Stages

The natural clinical advantage of these improved forms of TMA is evident whenever sliding mechanics are used. It is obvious to conclude that when one intends to retract a tooth, such as a cuspid in an extraction situation, the use of Low Friction and Colored TMA (LF/CTMA) has decided advantages. But it is most important to realize that these treated wires are extremely useful in the early stages of treatment where the bracket slides along the archwire during initial leveling and rotation of single-tooth discrepancies. These irregularities can be corrected much more efficiently when the frictional force is only 60 percent that of stainless steel.

With Ceramic Brackets

Another simple extrapolation concerning efficient utilization of LF/CTMA is in its incorporation with ceramic brackets without metal slots, where friction can be quite a problem. When the LF/CTMA can be adequately engaged in the bracket, it will likely outperform nickel titanium wires.

With Mildly Crowded, Bimaxillary Protrusive Four-Bi Cases

For selection efficiency, a .016 round Colored TMA archwire (large or small) would be the initial archwire of choice in a mildly crowded, bimaxillary protrusive, four-bicuspid extraction case (Figure 1). Here the wire is placed as the initial leveling wire, since its flexibility allows for ideal bracket engagement right from the inception of treatment. Once initial leveling and aligning are complete, retraction of the cuspids can begin.

It is at this point that certain treatment concepts should be considered. First, when employing this technique, as with most cuspid retraction, it is advisable to retract the maxillary cuspid before retracting the mandibular cuspid (Figure 2). By doing so, the Class I cuspid relationship is preserved or even established. If the lower is fully retracted before the upper, it is likely to create a Class II relationship, which is difficult to convert. Second,

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Dr. Bagden

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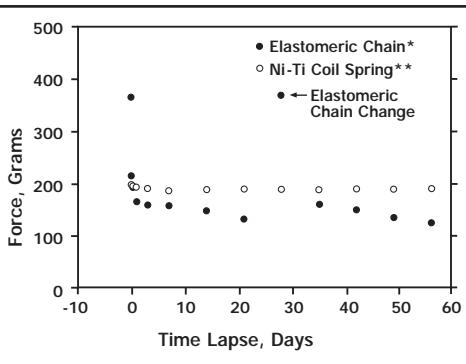


Figure 4. Comparative force decay with time in oral environment.

*Lu et al, *AJO* Oct. 1993, 373-377.
**Farzin-Nia, Ormco R&D study.



Figure 5. Lower protraction with .016 round Colored TMA and Ni-Ti springs. Note "figure-eighted" six lower anterior teeth and the Ni-Ti spring between cuspid and molar.



Figure 6. Class I cuspid relationship achieved and maintained by retracting maxillary cuspid and protracting mandibular posterior teeth.



Figure 7a. Bowed arch form from Ni-Ti springs on Colored TMA being left unsupervised too long.



Figure 7b. Bowing was corrected with an .017 x .025 Ni-Ti archwire, as no step-out bends were required.

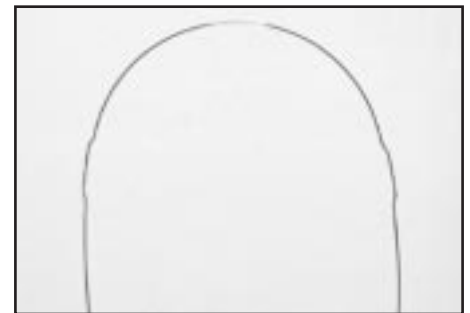


Figure 8. "Step-out" on .016 Colored TMA to counteract bowing tendency shown in Figure 7a.

in maximum anchorage situations, it is advisable to use a Nance palatal button during retraction. Due to the low friction of this wire, it can protract molars if particular caution is not exercised. The Nance button has been efficiently used with this wire with no unfavorable side effects.

In cases with more severely malposed teeth that will not readily accommodate a TMA wire, I normally select an .016 28°C Copper Ni-Ti™ as an initial arch and then move up to either an .016 or .016 x .022 LF/CTMA wire (I use .018 slots) for retraction.

With Ni-Ti Coil Springs

An interesting adjunct produced by Ormco has been used successfully with LF/CTMA to dramatically increase its efficiency. By incorporating Ni-Ti® (closed coil) extension springs with LF/CTMA in cuspid retraction,

I have found that not only are cuspids retracted faster, but appointments can be made at longer intervals than is feasible with elastomeric chain retraction. Using the combination of LF/CTMA and Ni-Ti springs, we only need to see our patients at six-week intervals. So when one couples a 40 percent faster movement with longer appointment intervals, a procedure that historically has taken 12 to 15 weeks with 4 to 5 visits can be reduced to 8 to 12 weeks with 1 or 2 visits. This has brought about a remarkable savings in chair time and associated costs. The Ni-Ti springs are also more hygienic and less prone to breakage or dislodging from the patient's mouth than elastomeric chain. As a precautionary measure, it's advisable to attach the Ni-Ti springs to the brackets with stainless steel ligature rather than merely slipping the open-eye ends of the springs over the ball or elastic hooks (Figure 3).

Ni-Ti springs also have a comfort advantage. Elastomeric chains tend to "decay" over time; they exhibit a far greater force upon initial insertion than they do one, two or three weeks later. By virtue of Ni-Ti's metallurgical properties, this decay does not occur (Figure 4). Hence it does not generate the severe activation pain caused by elastomeric chain. Efficiency and patient comfort are increased as appointments for cuspid retraction are fewer and less painful.

Following Maxillary Cuspid Retraction

After successful maxillary cuspid retraction, final space closure can then be accomplished with TMA "T" Loop arches as described in my previous space closure article in *Clinical Impressions*.⁶ Ni-Ti springs can also be used for en masse protraction of the mandibular posteriors for Class II correction in extraction cases. Typically, this technique involves retrac-

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Figure 9. Typical Treatment Sequence Using .016 Round Colored TMA Wire in an .018 Appliance in an Extraction Case

Figure 9a. Typical pretreatment situation for ideal use of this technique: bimaxillary protrusive, mildly crowded, Class I malocclusion. **Figure 9b.** Six months later (third visit): An ideal construction to begin cuspid retraction with Ni-Ti springs on same .016 LF/CTMA wire. Note the Nance palatal button will allow greater intervals between appointments without worry of loss of anchorage. A transpalatal bar will also work well. The same .016 LF/CTMA wire was placed for initial leveling and alignment.

Figure 9c. Six weeks later (fourth visit): Initial retraction noted. I like to schedule this short-interval appointment to be sure the system is operating properly. **Figure 9d.** Six weeks later (fifth visit): Retraction continues. This appointment is not necessary but was used to show amount of retraction expected in another six-week interval.

Figure 9e. Six weeks later (sixth visit): Cuspids nearly retracted. **Figure 9f.** Six weeks later (seventh visit): Cuspids completely retracted. **Figure 9g.** Same visit: Nance button removed by sectioning Nance wire with handpiece. This saves time in that no band removal or recementation is necessary. The button is removed and the bands stay. Note very favorable tissue reaction to the Nance due to the constant light force of the Ni-Ti springs on the LF/CTMA wire. Because there is constant light force and little friction, there doesn't seem to be the problem of the button embedding in the palatal tissue. **Figure 9h.** Same visit: TMA T-Loop wire is inserted and activated as shown.

Figure 9i & j. Twelve weeks later (ninth visit since initial banding): All spaces closed. Bite has opened due to the "reverse curve" action of the

TMA T-Loop. This wire is superb at closing spaces while opening the bite. If additional torque is desired, a gable bend can be added at the eighth visit. At this point, the TMA T-Loop is removed and a finishing wire is inserted. In this case, it is an .017 x .025 Ni-Ti wire. Individual practitioners can employ finishing mechanics of their choice from this juncture until treatment is completed.

Overall treatment time has been 15 months with nine visits and three wires. Typical finishing time is four to six months, depending on the practitioner. Remember that the lower arch has been treated at the same time with reciprocal closure with Ni-Ti springs so that Class I correction is also accomplished. Class II elastics can be worn with the TMA T-Loop wire if additional Class II correction is needed.



Figure 9a. Pretreatment.



Figure 9b. Six months later (third visit).



Figure 9c. Six weeks later (fourth visit).



Figure 9d. Six weeks later (fifth visit).



Figure 9e. Six weeks later (sixth visit).



Figure 9f. Six weeks later (seventh visit).



Figures 9g & h. Seventh visit (after removing Nance button). TMA T-Loop wire inserted and activated.



Figure 9i-j. Twelve weeks later (ninth visit).



Colored and Low Friction TMA For Sliding Mechanics with Minimum Friction

Colored TMA® adds a dash of fun for your patients, but as Dr. Bagden described, you'll be more excited about its superior sliding mechanics. TMA has attained worldwide popularity with its proven, consistent performance in providing an amazingly versatile archwire with twice the working range of stainless steel and only half the force. Through ion beam implantation using a mixture of oxygen and nitrogen, we created Low Friction TMA and even lower friction Colored TMA. The result is a coefficient of friction as low as stainless steels, and with purple and honeydew colors, even lower.

Low Friction TMA is available in the Broad Arch Form or in arch blanks in sizes .016 x .022, .017 x .025 and .019 x .025. Colored TMA is available in the Broad Arch Form in the same sizes plus .016 round. Order information for both Colored and Low Friction TMA is provided on page D of the Center Section.

tion of the maxillary cuspids as previously described. The lower six anteriors are consolidated on an .016 round LF/CTMA wire. Then, when the maxillary cuspids are retracted, the mandibular cuspids are protracted into the six-anterior-tooth consolidated unit. At this point, the upper arch space is closed with a TMA "T" Loop archwire. The six lower anteriors are figure-eighted with stainless steel ligature wire to prevent separation, and Ni-Ti springs are attached to each lower cuspid and 1st molar (Figure 5). The anchorage unit of the six anterior teeth is enhanced by the Class I cuspid relationship (Figure 6). This combination of anchorage forces is thereby resistant to the reciprocal anchorage of the posteriors, and the resulting protraction of the posteriors is accomplished in the Class I cuspid environment.

Precautions

On occasion, I have experienced "bowing" of the .016 LF/CTMA in the area of the 2nd bicuspid at the end of cuspid retraction (TMA is only 40 percent as stiff as stainless steel). I was seeing the patients at eight- to ten-week intervals, and once the cuspids were completely retracted, the constant force exerted by the Ni-Ti springs caused this effect (Figure 7a). I corrected the bowed bicuspid with an .017 x .025 Ni-Ti, as step-out bends were not necessary (Figure 7b). My solution to this occasional problem was to observe the technique to determine the ideal intervals between visits and to pay particular attention to those cases nearing completion of retraction. I have also used a slight step-out of the .016 wire in the bicuspid area (remember that all TMA is bendable [Figure 8]). I have not encountered any "dumping" of the teeth with .016 LF/CTMA.

Use of .016 x .022 LF/CTMA initially (when possible to engage) or as the second archwire also will eliminate the bowing effect, but I prefer to use .016 round for the described applications. With its combination of flexibility and reduced coefficient of friction, it is ideal for initial leveling and correcting malposed individual teeth. I find rectangular LF/CTMA to be more useful as a working archwire

following an initial archwire and for finishing. A typical treatment sequence using .016 round Colored TMA wire in an .018 appliance in an extraction situation is presented in Figure 9.

Conclusion

Orthodontics in the late nineties is categorized as a profession committed to providing not only the best possible treatment but to delivering this treatment as efficiently and economically as possible. Delivering such care through a system with minimum friction, coupled with as few wire changes as possible, is the ultimate goal of such a vision. In essence, true efficiency is that treatment which takes place within a short time frame and with as few patient visits as possible. The above-described clinical technique meets both of these qualifications.

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Dr. Dischinger

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stability is greatly enhanced by proper positioning of the condyle in the fossa prior to appliance removal. Maximum orthopedic effect is created by constant hyperpropulsion of the mandible, causing the orthopedic effect in the fossa and condyle. The only way to maintain the mandible in a hyperpropulsive position is to tie the maxillary arch together as a unit so that the maxillary molars will not be distalized by the headgear effect of the appliance. In summary, in creating the Class I face, we want to deal with the transverse first, next the AP and the vertical, and then proper torque of the teeth with coordinated arches.

The Herbst in Mixed Dentition

Should this appliance be used in mixed dentition? In our office, we use the Herbst appliance in the mixed dentition:

- in severe full-step Class IIs with protrusive maxillary incisors. Research has shown that if allowed to go into the permanent dentition without Class II correction, 30 percent of incisors are fractured. I feel this is reason enough for treatment in the mixed dentition.
- with a Class II condition when additional treatment is anticipated. We correct the Class II so we don't have to deal with it when we get to the permanent dentition.
- in Class IIs with TM dysfunction. Pancherz has shown that there is a possibility of better disc positioning with the use of the Herbst appliance. Although our office gives no guarantees for resolving the TM dysfunction, we would still treat the case in the mixed dentition.
- following arch development. We also want to correct the Class II, because the literature⁹ indicates that there is abnormal muscle function with Class II orthognathic surgery patients, and once the surgical correction is accomplished and a Class I occlusion is achieved, the muscle function becomes normal.
- in Class II, division 2, cases when the parents or patients desire to have the teeth aligned. Class II, division 2's, can be treated in the permanent dentition very successfully, but if any of the

previously listed conditions are present, we would treat in the mixed dentition.

Figure 7 is a mixed dentition case that presents most of the aforementioned conditions.

“The big advantage of Herbst therapy in the mixed dentition is the ability to get in and out of first-phase treatment in 14 to 16 months and into a Class I relationship.”

Instability with Mixed Dentition Herbst Therapy?

It has been published that Herbst treatment in the mixed dentition is not stable. Many clinicians have recommended waiting until the late mixed dentition to start the Herbst correction. Are their reasons based on treatment technique that might cause instability when employed in the mixed dentition? Certain treatment techniques can lead to this instability:

- removal of the Herbst appliance before the condyle is properly positioned in the fossa
- lack of overbite correction or proper maintenance of the overbite correction in the transitional dentition stage
- improper torque on the maxillary incisors

I do not feel the Herbst appliance affects growth during the mixed dentition differently than in the permanent dentition. I have not been able to prove this to date, but I hope we can do so in the future. Orthodontics is orthodontics, whether you are using a Herbst or any other type of appliance. Class II correction requires overbite correction, proper torque on the teeth and proper positioning of the condyle in the fossa if stability is expected.

continued on following page

“The Edgewise Herbst Appliance”: Training Video Documents Dr. Dischinger's Techniques

Whether you are just beginning to use the Herbst appliance or you are an experienced practitioner looking for up-to-the-minute tips, you will benefit from the professionally produced training video, “The Edgewise Herbst Appliance” by Dr. Dischinger and team. The video documents over three hours of step-by-step procedures offering close-ups of Dr. Dischinger and his team performing techniques that have made this appliance so effective in his treatment. Dr. Dischinger also explains how to introduce the appliance into your practice. Order information can be found on page D of the Center Section.



Dr. Dischinger

continued from preceding page

The Beauty of It All

The big advantage of Herbst therapy in the mixed dentition is the ability to get in and out of first-phase treatment in 14 to 16 months and into a Class I relationship. You can then be in holding appliances during the transition phase. We do not, however, use any type of retention for the Class II correction in the transitional dentition. We've found this to be very important, because wearing any kind of appliance in the mouth full-time or nighttime burns patients out. We do use lingual holding arches to maintain the arch form, overbite correction, maxillary incisor torque and the E-space in the transition phase.

Conclusion

What I hope to convey with this article is that successfully creating Class I faces with the multifunctional Herbst appliance requires not only sound mechanics but also the coordinated application of sound practice management principles. There is nothing complicated about Herbst mechanics. There are basics to learn and considerations to ponder, but that's true with all orthodontic mechanics. In future editions of *Clinical Impressions*, we'll address the use of Herbst customizations that facilitate treating specific indications. The finesse comes into play in training and motivating your staff into a team that is ready and able to bring the inherent benefits of Herbst therapy to your patients.

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Figure 7. Herbst Treatment in Mixed

Patient C. L., female, age 8-0

Treatment Steps

Commenced Tx

Initiated treatment with maxillary/mandibular arch development with the mixed dentition expander/Herbst (transverse before AP).

Two Months

Completed maxillary expansion and began AP correction, asymmetry correction and coordination of arches with attachment of Herbst rods and tubes.

Four Months

Removed mandibular expansion screw and placed maxillary/mandibular incisor brackets (placed lower lateral bonded brackets later as space permitted).

Thirteen Months

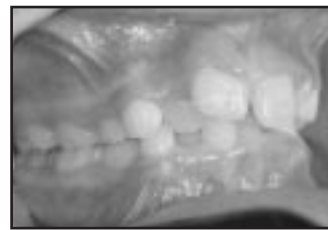
Removed Herbst appliance and initiated 2x4 appliance therapy.

Twenty-three Months

Completed 2x4 appliance therapy. (The average Herbst treatment time in 55 consecutive cases was 8½ months; in this treatment, it was 11 months. Total treatment time was 7½ months longer than the normal 15½ months. The Herbst was on 2½ months longer than average, and the maxillary 1st molars were intruded by the Herbst and could not be banded for 5 months after removing the crowns. Their banding was important to coordinate arch width. Today, I would place the Herbst crowns on the E's rather than permanent 1st molars.)

Total treatment time – 23 months, requiring 17 appointments with 30 minutes of doctor time, including:

- 2 months orthopedic expansion of the maxilla
- 4½ months fixed mandibular expansion
- 11 months Herbst Tx



Case four months in progress.



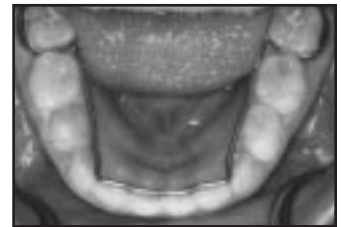
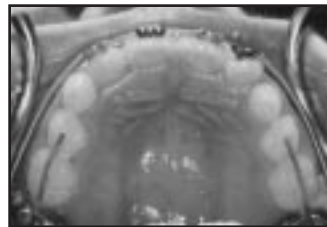
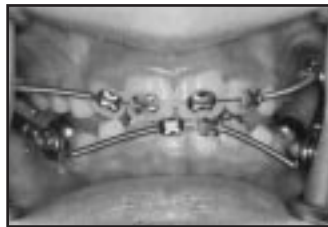
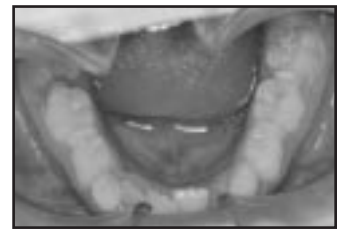
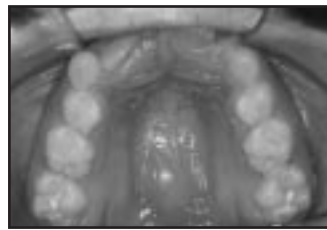
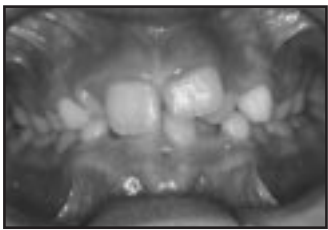
Posttreatment (Phase I).



Patient in first stage retention to maintain torque on the teeth, arch coordination and overbite control – all important for maintaining the Class II correction.

Dentition

Pretreatment



"I saw my daughter's face change daily."

- Caitlin L's mom



1. Review daysheet	Receptionist
2. Emergency time	Receptionist
3. Lab work	Desig. Trt. Asst.
4. Progress reviews – every visit	Receptionist
5. Bandings for today	Receptionist
Have bandings been confirmed?	
6. 13-Week Projection Calendar	Receptionist
7. Post trt. cons.	With Pat./Parent
8. Post trt. cons. before/after recds.	With Pat./General DDS
9. Review yesterday's daysheet	Financial Sec.
a. Letters to be written	
b. Calls to be made	
c. Patients scheduled (delinquent)	Receptionist
10. Personal calls	Dr./Receptionist
11. Personal appointments	Dr./Receptionist
12. New patient consultations	Trt. Coordinator

Figure 4. Typical staff meeting agenda.

“The best way I know to create missionaries is to let people know that you see patients on time and complete the scheduled work on time.”

All you ask from them prior to starting treatment is a willingness to come in at the times you request. This is best done at the records appointment with the parent who will be bringing the child in for the majority of appointments. At this time, the parent must show a willingness to accept the times we offer them. With proper explanation and the understanding that there will be much less waiting time, most parents accept our concept of scheduling. In fact, a frequent comment in our feedback letters is, “We appreciate the fact that we are seen on time.”

Daily Staff Meeting

Every day begins with our 7:45 a.m. staff meeting, which always follows a certain format (Figure 4). Our daily meeting is for one reason only: to discuss the day at hand and determine whether patients are scheduled in their proper time periods for the procedures to be performed. At the staff meeting, each person on the staff has a particular topic to report based on information gathered at the end of the previous day.

The 13-Week Projection Calendar

The 13-Week Projection Calendar (Figure 5) is used to plan the schedule

for the next three months, while listing the number of appointments available in each color category during this time frame. This calendar is the heart of detailed planning for our schedule. It is here that we manually draw up our design for all of the activities that will occur in the practice for the next three months. We look at the number of Ideal Days that must be scheduled. There must be adequate time to see all patients currently under treatment at the proper intervals of time. We must ensure completion of their work on schedule, guarantee new patient enrollment and provide time for bonding and banding new patients, while still performing all other services – 82 patients per day (Figure 3). After working this out in detail on the 13-Week Projection Calendar, the information is loaded into the computer. From here on, all appointments are scheduled as planned in the computerized patient appointment book. Frequently there is a tendency for conflict between the receptionist and the treatment department regarding scheduling. By using this system, appointments can be made in the treatment department or by the receptionist – providing everyone in the treatment department, as well as the receptionist, thoroughly understands what types of appointments can be scheduled in the various colored times. It is most appropriate for the doctor and operatory assistant who have completed work on the patient to make the decision of when to schedule the next appointment. The doctor should give serious consideration to how long the archwires placed today will be active or how long today's adjustments can be effective. Superelastic and heat-activated archwires (i.e., Copper Ni-Ti™) should be given sufficient time to have maximum effect. Eight to ten weeks is not too long an interval for these archwires to remain active. As Hilgers states, “For the first time, all the archwires from superelastic through ideal are computer designed and fabricated to achieve the most ideal fit of the teeth. If the tubes and brackets are properly placed, the clinician's main responsibility is to decide which archwire is needed to achieve a desired result.”²

Spring 13-Week Calendar

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2-Mar 82 pts.	3-Mar 82 pts.	4-Mar 82 pts.	5-Mar 82 pts.	6-Mar 82 pts.	7-Mar
2	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar
3	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar
4	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar
5	30-Mar 82 pts.	31-Mar 82 pts.	1-Apr 82 pts.	2-Apr 82 pts.	3-Apr 82 pts.	4-Apr
6	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr
7	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
8	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
9	27-Apr 82 pts.	28-Apr 82 pts.	29-Apr 82 pts.	30-Apr 82 pts.	1-May 82 pts.	2-May
10	4-May	5-May	6-May	7-May	8-May	9-May
11	11-May	12-May	13-May	14-May	15-May	16-May
12	18-May	19-May	20-May	21-May	22-May	23-May
13	25-May 82 pts.	26-May 82 pts.	27-May 82 pts.	28-May 82 pts.	29-May 82 pts.	30-May

Fall 13-Week Calendar

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	31-Aug 82 pts.	1-Sep 82 pts.	2-Sep 82 pts.	3-Sep 82 pts.	4-Sep 82 pts.	5-Sep
2	7-Sep	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep
3	14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep
4	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep
5	28-Sep 82 pts.	29-Sep 82 pts.	30-Sep 82 pts.	1-Oct 82 pts.	2-Oct 82 pts.	3-Oct
6	5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	10-Oct
7	12-Oct	13-Oct	14-Oct	15-Oct	16-Oct	17-Oct
8	19-Oct	20-Oct	21-Oct	22-Oct	23-Oct	24-Oct
9	26-Oct 82 pts.	27-Oct 82 pts.	28-Oct 82 pts.	29-Oct 82 pts.	30-Oct 82 pts.	31-Oct
10	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov
11	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov
12	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov
13	23-Nov 82 pts.	24-Nov 82 pts.	25-Nov 82 pts.	26-Nov* 82 pts.	27-Nov 82 pts.	28-Nov

Summer 13-Week Calendar

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	1-Jun 82 pts.	2-Jun 82 pts.	3-Jun 82 pts.	4-Jun 82 pts.	5-Jun 82 pts.	6-Jun
2	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
3	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
4	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
5	29-Jun 82 pts.	30-Jun 82 pts.	1-Jul 82 pts.	2-Jul 82 pts.	3-Jul 82 pts.	4-Jul
6	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
7	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
8	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
9	27-Jul 82 pts.	28-Jul 82 pts.	29-Jul 82 pts.	30-Jul 82 pts.	31-Jul 82 pts.	1-Aug
10	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
11	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
12	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
13	24-Aug 82 pts.	25-Aug 82 pts.	26-Aug 82 pts.	27-Aug 82 pts.	28-Aug 82 pts.	29-Aug

Winter 13-Week Calendar

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	30-Nov 82 pts.	1-Dec 82 pts.	2-Dec 82 pts.	3-Dec 82 pts.	4-Dec 82 pts.	5-Dec
2	7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec
3	14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
4	21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec
5	28-Dec 82 pts.	29-Dec 82 pts.	30-Dec 82 pts.	31-Dec 82 pts.	1-Jan* 82 pts.	2-Jan
6	4-Jan	5-Jan	6-Jan	7-Jan	8-Jan	9-Jan
7	11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan
8	18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan
9	25-Jan 82 pts.	26-Jan 82 pts.	27-Jan 82 pts.	28-Jan 82 pts.	29-Jan 82 pts.	30-Jan
10	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb
11	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb
12	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb
13	22-Feb 82 pts.	23-Feb 82 pts.	24-Feb 82 pts.	25-Feb 82 pts.	26-Feb 82 pts.	27-Feb

* When falling on holidays, Ideal Days (or the entire week) can be rescheduled to prior or following weeks.

Figure 5. Thirteen-Week Projection Calendars

Dr. Barnett

continued from preceding page

1. Present Work Schedule	
a. Number of days per week	= 5
b. Number of chairs	= 6
c. Patients/day (Mon.-Fri.)	= 82
d. Patient starts/year	= 320
e. M.D.	= 75
P.D.	= 245
T.M.J.	= 0
Linguists	= 0
f. Dr./Drs. per office	= 1
g. Administrative staff	= 2
(days/month)	= 20
h. Clinical staff	= 6
(days/month)	= 20
2. Patients/Month = 1,640	
(offices involving treatment)	= 1
New patient starts/year	= 320
Starts/month	= 26
3. Create Ideal Day For:	
Number of Drs.	= 1
(clinical assts.)	= 6
Total patients	= 82
(Schedule 8:00 - 5:00)	
Green Time:	
# Patients every 15 minutes (5)	= 23
(Between 8:00 - 9:00 a.m.)	
Red Time:	
Original bandings/bondings	
(9:00 - 10:30 a.m.)	
# Patients (4)	= 4
(6 units or 1 1/2 hours)	
Blue Time:	
# Patients every 30 minutes (4)	= 44
(10:30 - 1:00, 2:00 - 4:30)	
Pink Time:	
# Patients every 45 minutes (1)	= 7
(10:30 - 1:00, 2:00 - 5:00)	
Yellow Time:	
# Patients (4:30 - 5:00)	= 3
Orange Time:	
# Patients (5:00 - 5:45)	= 1
Total Patients Seen Per Day	= 82
4. Time Requirements For Various Services	
a. Ideal Days - # patients/day	= 82
b. Treatment Days - # patients/day	= 94
c. Optional Days - # days/month	= 6
Includes: Progress bandings/bondings	
Band/bond removals	
New patient exams & records	
Recalls (pre- & posttreatment)	

Figure 6. Developing a time control system.

13-Week Schedule:					
20 Days Scheduled out of 65 Workdays					
(or approximately 1/3 of time)					
26-Week Schedule:					
40 Days Scheduled out of 130 Workdays					
80 Days out of 260 potential workdays/year					
(5 days/week, 40 hrs/week)					
	Per Day	Per Week	Per 13 Weeks	Per Year	
Green	23 x 5	115 x 4	460 x 4	1,840	Short check
Red	4 x 5	20 x 4	80 x 4	320	Original bandings
Blue	44 x 5	220 x 4	880 x 4	3,520	Archwire changes
Pink	7 x 5	35 x 4	140 x 4	560	Records
Yellow	3 x 5	15 x 4	60 x 4	240	New patient exams
Orange	1 x 5	5 x 4	20 x 4	80	Tx explanations
Total visits scheduled	82	410	1,640	6,560	
Staff Requirements:					
1 Receptionist					
1 Administrative assistant					
1 Treatment coordinator					
4 Treatment assistants					
1 Records technician/part-time treatment assistant					
8 = Total personnel required					

Figure 7. Ideal Days scheduled at four- and eight-week intervals.

Four 13-Week Calendars/Year

We work out our schedule in advance for the entire year. The year is divided into four 13-week quarters – two spring/summer and two fall/winter calendars. Planning the year in advance on the 13-Week Calendars and then transferring these dates to a three-year reference calendar provides an opportunity to plan every important aspect of the practice in advance. By doing this, we are ensured of achieving the goals set out in the business and marketing plan for that year.

Steps in Developing a Time-Control System

In order to explain the process of developing a time-control system, we will walk through the essential steps. Once the process is clearly understood, the doctor can create an Ideal Day that is unique to the demands of the practice.

Gathering the data is the first and most important step. We begin by examining

the doctor's present work schedule (Figure 6). Provide the information based on your current scheduling process. Once you have worked through this data and the patients/month, you have completed "the way it was" and you move forward to "the way it will be."

Using your data, create Ideal Days and Time Requirements For Various Services portions of the form. When completed, the doctor makes the commitment to work five days a week – all Ideal Days – and schedule patients in four- and eight-week intervals.

At this point, we should mark off weeks on the 13-Week Calendars, beginning with the first week of each quarter and scheduling every four weeks. In essence, we will be scheduling Ideal Days on weeks 1, 5, 9 and 13 of each 13-Week Calendar and establishing the minimum number of weeks we are required to schedule during the coming year. This is comparable to an airline scheduling one

	Monday	Tuesday	Wednesday	Thursday	Friday
Weeks 2, 6, 10	X	9:30 Progress Bandings	9:30 Retainer Checks	9:30 Progress Bandings	X
		12:30	10:30	12:30	
		2:00 New Patient Exams	10:30 New Patient Exams	2:00 New Patient Exams	
		5:30	1:00	5:30	
Weeks 3, 7, 11	9:30 Original Bandings	9:30 Short Checks	9:30 Progress Bandings	Marketing	X
	12:30	10:30	12:30		
	1:30 Marketing	10:30 Staff Meeting	2:30 Short Checks		
	5:30	1:30 2:30 Short Checks	5:30		
Weeks 4, 8, 12	X	Marketing	9:30 Original Bandings	Marketing	X
			12:30		
			2:00 Retainer Checks		
			5:30		
Progress Bandings	3 Mornings (9:30-12:30)	Retainer Checks	1 Morning (9:30-10:30)		
Original Bandings	2 Mornings (9:30-12:30)		1 Afternoon (2:00-5:30)		
New Patient Exams	1 Morning (10:30-1:00)	Staff Meeting	1 Morning (10:30-1:30)		
	2 Afternoons (2:00-5:30)	Marketing	3 Full Days		
Short Checks	1 Morning (9:30-10:30)		1 Afternoon (1:30-5:30)		
	2 Afternoons (2:30-5:30)				

Figure 8. Example of Optional Week plan.

flight each day with 82 passengers five days per week, Monday through Friday, in weeks 1, 5, 9 and 13 out of every three months (13 weeks).

Figure 7 shows the number and type of patient visits per year available by scheduling in 13-week increments every four and eight weeks. From this point, we turn to a three-year reference calendar, position the required work weeks (from the 13-Week Calendar) and use the remaining available weeks for creative professional and personal planning.

The Glass Ceiling – Shattered

In the 1950s, Bob Levy wrote a book titled *How to Build the \$100,000 Practice*. At that time, it was a goal that many in dentistry were trying to reach – including orthodontists. If Levy were writing the book in 1998, his title would likely be *How to Build the \$1,000,000 Practice* (not an impossible dream today). If one would follow the steps described above under Steps In Developing A Time-Control

System, there would be no limitations for building a million – or a million plus – dollar practice. With staff who are highly trained and motivated, a facility adequate to accommodate a larger practice, and a marketing plan designed to achieve your goals, the so-called “ceiling” is a thing of the past.

Although doctors complain that they have “no time for anything but orthodontics,” it is equally important that they understand how to organize the nine weeks (out of every 13) that have now been made available. “What am I going to do with all the time that is available in weeks 2, 3, and 4?” This question is frequently asked and must be considered:

1. Work three days/week instead of five
2. Create Ideal Days for treatment only (Treatment Days) – green and blue time, short check and archwire changes for patients in progress (to move them through to completion sooner)
3. Create Ideal Days to see only new patient exams – one visit for exam,

“If one would follow the steps there would be no limitations for building a million – or a million plus – dollar practice.”

records and consultation

4. Ideal Days for debonding
5. Ideal Days for pre- and posttreatment recalls
6. Ideal Days for original bandings to increase patient starts
7. Staff training days
8. Staff retreat and staff development
9. Develop marketing teams within the staff and set aside time for teams to work within the dental community
10. Leisure and play time
11. Vacation time

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Figure 8 offers an example of what to do with the nine Optional Weeks that have been made available after scheduling four Ideal Weeks from the 13-Week Projection Calendar. (Note the combined weeks 2, 6, 10 and 4, 8, 12 offer *six 4-day weekends for leisure and relaxation.*) This scheduling system works to the benefit of practices of all sizes, as these two examples illustrate:

- For a smaller practice – With 400 active patients and 200 patient starts per year, there is a need for time to grow the practice. By scheduling only four weeks out of 13 as Ideal Weeks (weeks 1, 5, 9 and 13), there is ample time remaining in the Optional Weeks (2, 3, 4, 6, 7, 8, 10, 11 and 12) for staff training, marketing and practice growth.

- For a larger practice – Recently, I developed a schedule for a practice with 1,400 active patients in two offices (the staff totals 12, including seven treatment assistants). The doctor continues to schedule the Ideal Weeks (1, 5, 9 and 13), which enables him to see most of his 1,400 active patients in progress. On the remaining unscheduled weeks, Optional Day choices allow scheduling of patient appointments such as progress bandings, retainer checks and debands, as well as new patient exams, records, consultations; i.e., all the services needed for growth, as well as care of all patients under treatment. This new schedule that we developed enables the doctor to grow his practice by 25 percent over the next year and still have 12 unscheduled days out of the 13 weeks for staff training, marketing and practice growth – or just for enjoying more freedom.

By carefully planning and scheduling both Ideal and Optional Weeks, there will be less stress and more quality time with patients. Regular progress reviews will strengthen the trust level between patients/parents and doctor – and the practice will gain better missionaries.

Controls – Management by Objectives

When any system is put in place, it is essential that certain guidelines are

followed to ensure the effectiveness of the system:

1. **Ideal Days** – Every practice must create an Ideal Day for each office.
2. **The 13-Week Calendars** – They must provide the day-to-day schedules and these must be entered into the computer as such.
3. **The 3-Year Reference Calendar** – Position the minimum number of work weeks required while displaying the availability of weeks remaining for creative planning.
4. **Bimonthly meetings** – The receptionist, treatment coordinator, a treatment department representative (if scheduling from that area) and the doctor meet to review the 13-week or next-3-months schedule. They will also review a call list and determine which categories of patients are waiting to be seen and how that growth can be scheduled. Days off, vacations and meetings are planned well in advance. With this kind of constant communication, there will be few surprises at the morning staff meetings.
5. **Morning staff meetings** – Include scheduled reports from various staff members (Figure 4).

By following the above plan and having staff involved in scheduling, you will find that this is one of the most important ways to maintain order, harmony and an even flow of patients every day in your practice.

Conclusion

According to Herb Kelleher, CEO, Southwest Airlines, “When you talk about revenue management, people like the concept, but they have no idea how to effectuate the concept. There’s a market for revenue management that’s just unbelievable. . . .”

Careful study of this paper and implementation of its principles will enable you to effectuate the concept and produce immediate results. Expect to have a continuous flow of patients throughout the day, providing a different level of revenue in the practice. You will be on schedule, with only rare exceptions. There will be ample time to schedule all the patients needed for growth, as well as time for the doctor and staff to market their practice in the dental community and community at large. Most important, there will be more time for leisure and enjoyment of life.

For more information regarding “Revenue Management in Orthodontics,” write to Dr. J. W. Barnett at 5183 Forest Lane Place, Dallas, TX 75244 or e-mail mlb@nstar.com.

1 Cross, R. G.: Excerpts and thoughts from Revenue Management, Broadway Books, New York, 1997.

2 Hilgers, J.: Bios: A bracket evolution, a systems revolution, Clin. Impress., Vol. 5, No. 4, 14, 1996.

What We Need To Be A Success

- **We Need Purpose** – When you get where you’re going, where will you be? When your dream comes true, will it be worth the effort?
- **We Need Passion** – Enthusiasm: a never-ending source of energy.
- **We Need Principles** (of conduct to live by) – Passion cannot overcome principles.
- **We Need Partners** – We can’t do anything alone; we need others as partners. We must work together.

Dr. Eversoll

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hesitations and difficulties in turning over my patient/parent consultation duties to our treatment coordinator. He interrupted and informed me that no matter how well trained and talented your staff may be (and they are!), the patient is paying to

“The more time we spend with our existing patients, the more we learn about them and ultimately ourselves. Show me the commitment!”

see you. Anything you do to isolate the doctor-patient relationship will prevent you from truly getting to know and serve your patients well. Thanks, Dad! I also recently had the opportunity to meet and talk with Dr. Dwight Damon to learn the latest in low-friction orthodontic treatment techniques. I was surprised that the most valuable information I learned on that day had absolutely nothing to do with treatment mechanics. Dr. Damon

stated that before he starts seeing patients on any given day, he fulfills the following two promises: He promises his patients that he will give them every ounce of energy and attention he can give, and he promises himself that he will make an effort to learn something new each day. The only modification I would make to Dr. Damon's credo would be to learn something new every day from someone younger than you!

As professionals, we spend far too much time looking up to self-proclaimed experts. As orthodontists, we have the opportunity to learn from a true panel of “experts” right in our own office. Whole shelves of books on parenting could be replaced by spending a brief time in an orthodontic office. Where else could you get a sneak preview of what your own children will be like when they reach a certain age? I now make a strong effort to learn from my newfound “teachers,” for there is truth in their innocence and their candid observations. Every patient is here to teach me a different lesson. The patient with the pierced eyebrow and tongue is teaching me tolerance; the patient who is shy and withdrawn is teaching me patience; and, most important, the patient

who is outspoken and fun-loving is teaching me to be less serious and more spontaneous. The proper frame of mind is to believe that everyone around you is much more enlightened than you. This will force you to talk less and listen more to others.

Time Well Spent

One of the greatest revolutions in clinical orthodontic treatment is the use of hyper-efficient techniques and materials. New wire technology alone has given us the gift of more time in the orthodontic clinic. Longer spans of time between patient appointments have opened 20-30 percent more chair time in our schedules. The real question is how each of us will decide to use this newfound time. We can fill that time with additional patients (and potentially a need for additional staff), or we can devote it to our existing patients and provide them with our undivided attention. I have chosen the latter and would encourage you to do the same. The more time we spend with our existing patients, the more we learn about them and ultimately ourselves. Show me the commitment!

Residency-to-Retirement Seminars

Date	Lecturer	Location	Sponsor and Contact
12/5	Remington/Sinicropi/Swartz	Chapel Hill, NC	Ormco/A; Kathi (800) 854-1741, Ext. 7272
3/6	Remington/Righellis/Sinicropi/Swartz	Seattle, WA	Ormco/A; Kathi (800) 854-1741, Ext. 7272
3/20	Remington/McFarlane/Littlejohn/Cordray	New York, NY	Ormco/A; Kathi (800) 854-1741, Ext. 7272
4/17	Remington/Littlejohn/Cordray	Orange, CA	Ormco/A; Kathi (800) 854-1741, Ext. 7272
4/24	Remington/McFarlane/Sinicropi/Swartz	Chicago, IL	Ormco/A; Kathi (800) 854-1741, Ext. 7272



Residency-to-Retirement Program Demonstrates Commitment to Long-Term Relationships

Ormco/“A” Company's Residency-to-Retirement Program acknowledges the need of orthodontic residents and recent graduates (up to five years) to augment their business and clinical knowledge beyond their academic curriculum. It offers one-day workshops presented by experienced practitioners at locations around the United States. The topics address issues of most concern to orthodontists at the beginning of their careers: fiscal management, typical operating

ratios (and even tips for purchasing an existing practice), customer service philosophies that ensure success, how to create a systematic new patient enrollment process and developing a GP referral base as well as proven clinical techniques from the real world perspective. For more information about this valuable program, contact Kathi Carpenter.