Dental Education by CIRCUIT Training

by Harvey Levy, DMD, MAGD

Imagine you are sitting in a lecture hall. You have checked your e-mail on your cell phone three times in the last two minutes. The lecturer, talking in monotone, hides behind the podium, projecting slides with too many words on them. The room is dark. There are no windows to gaze out of, and the people on either side of you are equally uninterested.

Now, instead, imagine a room with eight tables and several chairs filled with dental supplies, equipment and interesting paraphernalia, each monitored by a representative of a dental supply or manufacturing company. During the animated, audience-involved lecture and PowerPoint presentation you learn why each product is useful, how it works and when it is applicable. The lecturer calls one or two volunteer participants to the front of the room to demo each product.

The day ends with "circuit training." During the final two or three hours, you are assigned your workstation sequence, which reminds you of circuit training in a gym. You pair up with a colleague and go to each table in turn. You touch and handle the equipment and use it on your partner under the careful guidance of the representative. After you have completed each task to your satisfaction, your partner applies it on you using sterile supplies.

As a presenter of participation courses, I have found circuit training to be a very effective way of teaching dentists and staff new skills and exposing them to tools, supplies and equipment with which most are unfamiliar. At the end of each module, I ask attendees to articulate one valuable finding – a "take-home pearl."

A typical PowerPoint lecture caters only to learners with aural and visual learning styles. Involving participants in demos that allow them to touch and manipulate three-dimensional objects adds kinesthetic and linguistic learning styles to the mix, allowing participants to better retain concepts (and avoid falling asleep).

My teaching philosophy is based on the Confucian directive: "Tell me, and I will forget; show me and I may remember; involve me, and I will understand." The attendance in my participation courses is typically 20-45, comprised mostly of dentists but include dental students, hygienists and dental assistants.

There are endless topics that can be taught with the circuit training model. Since I work primarily with treating special-needs patients, I've included one such class as an example for this article. Each of the eight workstations tries to answer a question in practical way, reinforcing the slides and demo seen during the lecture part of the course. Take this example and apply the method to your area of expertise.

Workstation 1

Question: How can you get uncooperative patients to sit without kicking or flailing their arms?

Answer: Use body wraps, knee/leg stabilizers and forehead stabilizers.

I demo this equipment by selecting the largest man in the group, wrapping him up and challenging him to get out of the Velcro wrap.

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For the workstation sequence, a chair is placed next to a table covered with Rainbow body wraps – colorful, washable and inexpensive mesh adjustable with Velcro, made in the U.S. by Specialized Care Co. (Fig. 1). The wraps come in seven different sizes and are non-threatening. They are extremely effective in gently restraining any patient's arms and legs.


Fig. 1

The attendee who is playing patient sits on the chair, and the attendee who is playing dentist is asked to wrap him or her up. Once wrapped, the dentist further immobilizes the patient with Velcro knee and leg stabilizers and then with forehead stabilizers. The patient is then asked to wiggle and try to kick the dentist or to injure him or herself. If the dentist has properly applied the equipment, the patient will be unsuccessful.

Workstation 2

Question: How can you open the mouths of uncooperative patients?

Answer: Use mouth props.

After the patient is wrapped and restrained, the dentist explores several different mouth props on the patient. During the lecture the attendees are taught several techniques to open the patient's mouth, not commonly known or used in dental offices, which they can now practice.

The first technique is to hold the patient's nose with two fingers, while the dentist's other hand (or an assistant's) hovers near the mouth with the Open Wide mouth rest (Fig. 2), made of two tongue depressors wrapped in foam. When the patient opens his mouth to breathe, the prop is gently and quickly inserted.

The second technique is to use one finger to firmly push the middle of the chin down at a 45-degree angle, applying vibrating pressure to the acupuncture meridian point Conception 24.

Once the patient's mouth is open with the mouth rest in place, the dentist inserts a unilateral Molt Mouth Gag manufactured by Hu-Friedy on the opposite side (Fig. 3). The dentist then withdraws the foam mouth rest and slowly ratchets open the Molt Gag, which is made of metal and two short rubber hoses. The mouth is now comfortably wide open.


Fig. 2

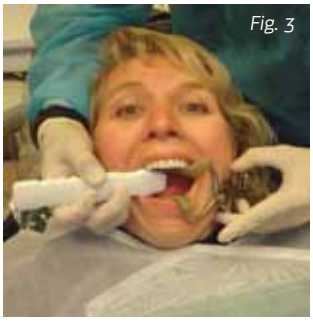
Fig. 3

The dentist then inserts a bilateral Jennings mouth prop (Fig. 4) in the patient's mouth, contacting all the premolars to expose all 12 anterior teeth. This all-metal appliance is commonly used by ENT specialists to examine and treat tonsils, but can also be used by dentists to isolate and treat front teeth.


Fig. 4


Fig. 5


Fig. 6

The dentist then inserts the Isolite five-in-one device in the patient's mouth, learning how to select the proper size or to modify it accordingly (Fig. 5 & 6). This time-saving tool is a mouth prop, high-velocity saliva ejector, lip retractor, tongue retractor and three-level light source. The Isolite device isolates, illuminates and dries an area during restorative procedures. Its use in our practice has virtually eliminated no-charge redos of sealants or composites.

At the end of this leg of the circuit training each attendee will have experienced these props from the patient's vantage point, and learned how to properly apply them. Feedback received from peers ("You're hurting my TMJ!" or "You nipped my lip!") is immediate and honest, which leads to improved chairside application of props.

Workstation 3


Fig. 7

Question: How can you relax anxious patients?

Answer: Use nitrous oxide (laughing gas).

Nitrous oxide anxiolysis is covered in a lively lecture, and I demonstrate proper mask application on an attendee. For many patients, sedation drugs alone are just not enough to allow the needed dental care to be completed. I present videos of several patients experiencing laughing gas.

During the circuit training the dentist learns how to properly select and fit a mask on the patient. The nitrous oxide system available to attendees is one by Porter Instrument (Fig. 7).

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Its representative demonstrates more effective ways of securing the mask and reducing air leakage. No actual gas is used in the classroom setting – that would cause us all to lose focus for the rest of the course! – but merely handling the mask helps each attendee experience what it might feel like to be both the dentist and the patient.

Workstation 4

Question: How can you easily obtain X-rays on special-needs patients when you have a computer loaded with sensor and software?

Answer: Use a handheld portable X-ray unit and a digital imaging system.

The presentation includes slides illustrating the versatility of the NOMAD and the even smaller Nomad-Pro, manufactured by Aribex, in a wide variety of settings. I point out how images can be made without requiring electricity. The Nomad-Pro (Fig. 8), the DEXIS sensor (Fig. 9) nor my laptop need to be plugged in to a wall outlet, and no Internet connection is required. This system can be used in waiting rooms, patients' homes, nursing homes, hospitals, institutions and even lecture rooms.


Fig. 8


Fig. 9

During the demo I illustrate taking an X-ray with the five-pound Nomad-Pro and my laptop, installed with DEXIS instant digital imaging software and hooked up to the sensor. I use an extracted tooth and project the X-ray image on the large screen for all to see instantly.

During the circuit training, attendees use the Nomad-Pro to take an X-ray of an extracted tooth or piece of metal of their own (ring, earring), guided by Aribex and DEXIS representatives. The reps then ask each attendee to promptly take a second image – pretending that the first image missed the apex. A second image instantly appears on the laptop screen, replacing the original image, which is archived, not overwritten.

Although lead aprons may not be considered necessary for the operator, we always have them available at our courses for anyone who requests them. Aprons can provide an extra level of protection from scatter radiation, should an attendee who is learning the system not properly line up the cone at 90 degrees to the object and sensor.

Workstation 5

Question: How can you easily obtain X-rays on special-needs patients without a computer?

Answer: Use a handheld portable X-ray unit and self-developing film.

If I don't have access to the DEXIS system for any reason – computer malfunction being the prime one – my fallback is Ergonom-X self-developing film (Fig. 10), also called Dental Film. Ergonom-X has bailed us out of more emergencies than I care to admit.


Fig. 10

In my demonstration I use the Nomad-Pro by Aribex to expose an extracted tooth onto the dental film, and show attendees how to process the image. All it takes is to gently massage the packet's internal chemicals onto the film for 60-90 seconds. Then I remove the film from the packet and rinse it off in water. The image can be viewed while it is still wet (Figs. 11 & 12).


Fig. 11


Fig. 12

During the circuit training, attendees develop two films previously exposed by my office staff with different mystery objects. They are asked to identify the objects, and place the developed films on a hanger to dry.

Attendees then use the Nomad-Pro to take new images of an extracted tooth or piece of metal of their own (ring, earring) onto two fresh film packets, under the helpful guidance of the Aribex and/or Ergonom-X representative.

Workstation 6

Question: How can you treat patients outside the dental office?

Answer: Use a portable or mobile dental cart (and have a backup cart).

To demo a lightweight portable cart (Fig.13), I often use an Aseptico unit. I demo a fully assembled unit in operation, turn

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Fig. 13


Fig. 14a Fig. 14b

it off, break it down, prepare it for transport and finally reassemble it.

The second category of portable tools I demo is headlights. Not all portable or mobile carts have lights attached. I provide a variety of headlights for attendees to explore. Dental practitioners who already use headlights requiring an electrical outlet are delighted to learn about options for lightweight battery-operated headlights.

Before demonstrating the Sheer Vision (Fig. 14a), Ultralight Optics or other commercial headlamps, I don my $15 Panther Vision PowerCap my wife picked up at Lowes (Fig. 14b). These handy caps have three inconspicuous light sources and we use them in the dental office as well as during home blackouts or out-of-the house emergencies. I have used these inexpensive lifesavers while camping, hiking, fishing, and reading on buses and cars.

During the circuit training, teams of attendees begin with a fully set up portable dental cart. They dismantle the suction, water canister, electric plug and close the boxes. They then reassemble it to the original condition. We don't ask attendees to clean out the suction, replace the water or oil or lubricate the unit, but they get the idea from dissembling and reassembling the unit.

The teams then explore the different headlights. The dentist dons the headlight and the patient is asked to squirm in the chair. The dentist is asked to rotate his head to keep the mouth of the patient in their field of vision and direct light.

When we have a wheeled mobile cart available attendees examine and explore the unit to gauge how effective these carts can be in providing complete dental care in a non-office setting. Typically, mobile carts include high- and low-speed handpieces, fiber-optic lights, sonic scalers, air/water syringes and X-ray viewing boxes. Popular models we have used in our courses include DNTL, Port-Op, Aseptico and ASI.

Workstation 7

Question: How can you modify a toothbrush for manual dexterity-impaired patients?

Answer: Easily – use your imagination plus arts-and-crafts supplies.

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Fig. 15

During my lecture I display photos of a few examples of toothbrushes that were adapted to such patients by attendees in past courses.

When participants reach this workstation they see several dozen Colgate or DentalElite toothbrushes (Fig. 15) and a wide variety of inexpensive arts and crafts supplies. The items include Play-Doh, Velcro, bicycle handles, Styrofoam, rulers, rubber bands, whiffle balls, different kinds of tape, and more.

I challenge attendees to modify a toothbrush so that it can be easily used by some category of special-needs patient.


Fig. 16

Attendees take one or more toothbrushes, enhance it with the items on the table, and submit their creations to be judged as the most practical and effective.

At the end of the program, attendees describe their target population's physical challenge, demonstrate the modified toothbrush and explain how their creation would be used by these patients (Fig. 16). I, along with the vendors and reps select one as "best design."

Workstation 8

Question: How can you work on patients in a wheelchair or gurney?

Answer: Use movable operatory chairs.

My practice in Maryland treats a large number of wheelchair- and gurney-bound patients. Many prefer or need to remain in their own chairs during dental treatment. Others arrive in their wheelchairs and need to be transferred to our operatory chairs. We used DentalEZ J-chairs with Airglide (Figs. 17 & 18).

Since we are unable to display these heavy chairs in our courses, I show videos instead. Attendees see accessibility features we implemented in our office, and see DentalEZ J-chairs with Airglide sliding across a treatment room. Other videos show obese, quadriplegic, amputee or other physically

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Fig. 17


Fig. 18

challenged patients remaining in the comfort of their wheelchairs or gurneys during treatment.

When this course is taught at a large dental meeting with exhibitors, the attendees are encouraged to visit the DentalEZ booth to see the movable operatory chairs for themselves. Often, a DentalEZ rep is there to demonstrate and have everyone practice with the Identafi Oral Cancer screening light. The station exercise calls for each attendee to use the three different colored lights to search out any abnormal soft tissue in the person's mouth, using both the straight wand with a disposable plastic cover and then again with a disposable illuminated mirror. The Identafi light readily detects enamel crazes as well as abnormal soft-tissue lesions.

Other Hands-on and Participation Activities for Hospital Dentistry

My two-day and three-day courses include an entire day about hospital dentistry. One of the exercises for that module includes working on a mannequin or dentiform, similar to those used in dental schools.

Each group of two attendees is asked to place a throat pack (Fig. 19) (about 18" of an ace bandage) into the dentiform's mouth, replicating what they would do on a sleeping dental patient in the operating room of a surgical center or hospital. Attendees are further asked to use a mouth gag or prop to keep the mouth open. Then, they perform or simulate a dental procedure – such as applying a Triodent or other matrix on a tooth on the non-propped side – as part of a mock composite placement. Attendees experience what it would be like to efficiently work on a propped and throat-packed mouth that has no head or tongue movement, no saliva and no chance of aspiration.


Fig. 19

A second activity for the operating room module is to simulate creating and dictating an operative report (Fig. 20), upon completion of a dental case under general anesthesia in an operating room. My course handout includes three different sample operative reports of hospital O.R. dental treatment. In the style of Mad Libs, many words about specific details and results of the case have been replaced by underscored blanks.


Fig. 20

Each attendee is assigned one of the three operative reports and fills in the blanks. Each sample operative report is read out loud to the group, with different participants reading successive sections. Operative case reports have ranged from extremely technical and serious to hysterically funny and entertaining. The only requirement is that all the blanks be filled in to indicate a completed operative report. These group readings are always memorable and everyone learns from each other.

Conclusion

At the conclusion of my courses we go around the room one last time to share a personal epiphany or take-home pearl. Invariably, everyone comments on how they enjoyed the circuit training format. This is where someone also invariably reminds me of the promise I made at the beginning, "No one will enjoy or learn from *every* single workstation, but everyone will take home at least two pearls that they can incorporate into their professional practice."

To date, I have not had a single person tell me that this promise did not ring true. The course goals were met without anyone falling asleep, and everyone benefited. This includes the attendees, the host organizations, the co-sponsoring companies, me and most importantly, tomorrow's patients.

I encourage you to learn from this model and adapt it to courses you teach. Changing the format of a course from lecture to hands-on "circuit training" allows clinicians to learn in a different way and helps them to retain information. ■

Author's Bio

Dr. Harvey Levy is a Tufts 1974 graduate who has been practicing general and hospital dentistry in Frederick, Maryland since 1980. He holds eight fellowships, four diplomates including Special-Patient Care and DOCS, Board Certificate in Integrative Medicine, and has earned Mastership and three Lifelong Learning Service recognition awards from the AGD. He is the recipient of the AGD Humanitarian Award, the ADA Access to Care Award, the Maryland Governor's Doctor of the Year Award, and ran the 2002 Winter Olympic Torch in honor of his dental care for special-needs patients in Maryland. He has written and lectured extensively on management of anxious and special-needs patients. For more information, contact him at DrHLevyAssoc.com or drhlevy@gmail.com.