

# YOUR PRACTICE BUILDER

A QUARTERLY PUBLICATION OF HEALTH CARE TRUST FOR GENERAL DENTAL PRACTITIONERS

## From the Editor's Desk

Internet revolution is fast catching up in India. Will you be left behind? The number of internet users will rise steeply in the next two years. We are fast integrating with the globally wired village.

Internet is a very useful medium and at least for our children's sake we should get this facility at our homes. To do our part in this scene we have just launched our website <http://www.HealthMantra.com>, this website has lots of useful information to get a beginner started with ease. We have also put up the old issues of this newsletter with lot of interesting links for dentists to see on the net.

You may know that lot of dentists put their clinic website on the internet for their patients to get information. We are offering a **free homepage** to you so that you are not left behind. Go to page seven, fill in and mail the form immediately before all the space is gone. Soon after receiving the form we will inform you your web address.

With the wide range of applications of composite resin,s including posterior restorations, it was thought that it will soon replace silver amalgam. Polymerization stresses affecting the tooth- composite resin bond and leading to microleakage, still remain the Achille's heel. Continuous research is going on to minimize the polymerization stress. Many types of curing methods are being tried, equip yourself with the latest information on curing lights and methods in this issue.

Being an Endodontist for two decades, I know that root canal treatment is an exacting job that demands your absolute attention and skill. But the work becomes so much easier and enjoyable if you select the proper instruments. Though you can manage root canal treatment of maxillary anteriors and premolars very well without rubber dam, it is extremely useful while treating mandibular teeth, especially second molars.

Contrary to normal fears rubber dam application on a single tooth is an **extremely simple procedure** and I hope at least some of you will be tempted to start using it after going through the article in this issue in Endoseries section.

We give a lot of importance to sterilization of instruments and operating surfaces. Taking care of our hands is also equally critical. After all, we have only two hands to do dentistry. Take the tips from the write up on hand washing.

How many times have you felt you are hitting against a wall while trying to convince a patient to accept the dental treatment that you think he desperately needs. The true dilemma is about the confrontation. Confrontation whether unspoken and subtle or overt, is the most common reason why patients don't accept treatment and leave dentist frustrated. Enlighten yourself on the fundamental principles that exist in every dentist-patient communication.

Have you come across the "intelligent" restorative material yet? If not, turn to the new product section.

Dr. Beena Rani Goel, MDS

**SUBSCRIPTION INFORMATION IS ON PAGE 7.  
WE REQUEST ALL OF YOU TO TAKE LIFE SUBS**

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## Curing lights for composite resins

**L**ight units have come a long way since the Nuva Light (Dentsply/Caulk) was introduced in the mid-1970s. It used ultra violet light to activate a special kind of filling material. The standard now is visible light units that use a quartz-tungsten-halogen (QTH) bulb as their light source to produce a filtered blue light.

By following incremental placement of resin and proper maintenance of the curing units, these units perform well. New resin curing lights are being introduced now which utilize high intensity fast cure, low intensity slow cure and a combination of both.

Newer techniques using QTH lights are being researched and Laser and Plasma arc light curing units for a very fast curing are being marketed, though the cost of these units is very high.

Recent research indicates that there may be some advantages to curing composite resins by varying the intensity of the QTH light. Routinely the QTH light is turned on for 40-60 seconds for curing the resins and the light is turned off. This constant exposure to intense light source may cause the resin composite to polymerize too quickly. Stresses induced by rapid polymerization compromise the strength of recently formed bond of the material to the tooth structure and lead to leakage.

By using a different light technique we may be able to reduce the amount of polymerization stress. There are two techniques, which use **short duration, and low intensity** light followed by a **longer duration of high intensity**

1. Stepped technique
2. Pulse delay cure technique

**Stepped technique:** Here, the low intensity exposure is immediately followed by the high intensity exposure. The first commercially available light unit using this technique was Elipar Highlight (ESPE). It uses a 10-second exposure of light at 150 mW/cm<sup>2</sup> followed by 30-50 seconds at 700mW/ cm<sup>2</sup>.

**Pulse delay technique** incorporates a waiting period between exposures. The VIP light from BISCO uses the pulse delay cure technique. A very short (3 second) exposure at 200 mW/cm<sup>2</sup> is first used to harden the composite resin. After a waiting period of three minutes, a 30-second exposure at 600 mW/cm<sup>2</sup> is used. The waiting period allows stress relaxation and the restoration can be

finished and polished at this time.

In both cases the low intensity light exposure theoretically allows the resin's newly induced stresses a chance to dissipate. These techniques are the subjects of research and it is wise to delay purchasing new units based on these technologies.

### LASER Curing

Traditional curing lights use 488 nm wavelength blue light, which is filtered and passed onto the composite resin to be cured. This generates a large amount of heat and a lot of energy is wasted. And its intensity is not strong enough. With Argon laser the wavelength is right for the curing of composite resin. Laser curing is deeper and faster because of its higher intensity. Studies have shown that laser curing of composite resin is more complete. This will lead to less post operative sensitivity and discomfort.

**Accucure 3000** (Laser Med) utilises continuous energy output at 4 intensity levels of 320, 480, 640 and 730 mW/cm<sup>2</sup>

**Plasma Arc System:** Newer resin composite formulations have an impressive hardness, better marginal adaptation and better control of internal stresses. When internal tension is reduced, the degree of shrinkage is less important. Some studies have shown that polymerization and shrinkage are not linked to the time of photo activation. Rapid polymerization, reducing the time of exposure to less than 5 seconds improves patient comfort and reduces the time needed to complete the procedure.

**Apollo 95 E** (DMD) is an example of plasma Arc lamp and it utilizes a maximum intensity output of 1930 mW/cm<sup>2</sup>

The lasers and plasma arc lights have been shown to produce highest heat increases on the surface (upto 21 °C) and within the restoration upto 14 °C. But temperature increase within the pulp chamber is less when compared to conventional halogen lights.

### Ref:

**Powell, G.L. et al.:**Journal Of Clinical Laser Medicine And Surgery,17(1),3-5,1999,

**Chiche G. J.:**Practical Periodontics And Aesthetic Dentistry,11(2),260,1999,

**Burgess, J.O. et al.:**Practical Periodontics And Aesthetic Dentistry,11(1),125-32; 1999

## Endodontic Instrumentation

The high success of root canal treatment is dependent upon thorough cleaning and shaping of the root canal system and the placement of a three-dimensional root canal filling of gutta percha and inert sealer. These steps can be accomplished best with the availability of specific instruments. Some of these instruments have been used for many years, whilst others are newer and highly technical.

### Instruments for access cavity preparation

1. A front surfaced mouth mirror, Briault and periodontal probes are needed for the initial assessment of the tooth for caries and localized periodontal condition.
2. The endodontic explorer is a double-ended extra long (approximately 15 mm) sharp instrument. It is useful to locate canal orifices and probing for fractures on the pulp chamber floor.
3. A long spoon excavator is required to scoop out the pulp chamber contents and flick away pulp stones during access cavity preparation.
4. Endodontic locking tweezers are ideally suited to the handling of paper points and gutta percha points. It is worth investing in good tweezers. It is real agony working with inefficient tweezers during RCT especially during obturation.
5. The irrigating syringes are used to deposit endodontic irrigant in the pulp chamber. The Luer- Lok type is the syringe of choice. Its barrel tip prevents needle displacement during irrigation while its notched tip prevents accidental forcing of irrigant into the periapical tissues.
6. An endodontic millimeter ruler should be available to assess the root canal length.
7. Flat plastic instruments and amalgam pluggers are needed to place inter appointment restorations.

### Burs (Friction grip type)

1. Round burs, normal and extra long size 2 (ISO 010), size 4 (ISO 014) and size 6 (ISO 018) are used for initial penetration, to lift the roof off the pulp chamber and eliminate overhanging dentin. The longer and smaller sizes can be used to find calcified canals.
2. Tapered fissure burs 557 (ISO 010) or 701 (ISO 012) are useful to establish the correct outline form.
3. Safe ended burs: Safe ended diamond, or tungsten carbide bur (the Endo Z bur), both with a non cutting tip, is used to taper and smooth the access cavity preparation. The non cutting tip prevents gouging the floor of the pulp chamber.

**Gates Glidden bur:** is a rotary cutting instrument. It has a bud shaped cutting point mounted on a shaft attached to a latch type shank. The bud has a fine blunt tip which acts as a path finder within the root canal without damaging the walls or creating false pathways.

Gates Glidden burs are made in stainless steel and bur diameter ranges from 0.5- 1.5 mm. It has three main uses:

1. For flaring molar root canals. The coronal 2/3 of molar canals are generally wider and less curved than the apical third and these parts can be quickly and safely prepared with Gates Glidden burs.
2. For removing gutta percha during post space preparation or during re-treatment.
3. For widening the root canal to retrieve a fractured instrument.

### Rubber Dam

Rubber Dam is a very useful adjunct to root canal treatment and it is a pity that it is not widely used. The usual excuse given is that it is time consuming. This argument does not hold much water because for endodontic purposes, we have to isolate just one tooth and within 2-3 minutes, the Rubber Dam application can be finished. It may actually be saving time since you don't have to keep changing cotton rolls and the patient can't rinse or talk. The Rubber Dam is useful to -

1. Protect the patient from aspiration of instruments or medicaments and debris.
2. Provide a clean, dry field of operation free from saliva.
3. Prevent the tongue and cheeks from obstructing the operating field.
4. Prevent the patient from rinsing the mouth and interfering with the efficiency of treatment.

Rubber Dam is 150-mm square size, and comes in various thicknesses. Thicker material provides better seal around the tooth without the use of ligatures. It doesn't tear easily and protects the underlying soft tissues better.

### Instruments for Rubber Dam application

1. Rubber Dam punch: It can punch five or six holes ranging from 0.5-2.5 mm diameter. It should cut a clean hole in the rubber, otherwise the Rubber Dam will tear on being stretched.

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## Hand washing

Contaminated hands are a potential source for person to person transmission of infection. Washing your hands properly is the most important step to prevent clinically acquired infections. Hand washing decreases potential pathogens that have been acquired by recent contact with infected or colonized patients, contaminated instruments and environmental sources.

### When should one wash his hands?

This decision should be based on

1. The frequency of contact with patients or fomites.
2. The degree of contamination that is likely to occur with that contact,
3. The susceptibility of patients to infection, and
4. The procedure to be performed.

In your dental clinic before you put on your hand gloves, remember that the hands need washing. Microorganisms dramatically increase when gloves occlude the skin. Washing before gloving reduces the initial microbial levels. Another benefit, if you are using hand-washing products that contain anti-microbial agents, is that their prolonged effect minimizes the number of microbes on the skin.

Hand washing after the glove removal reduces the number of microorganisms that have multiplied under the gloves. It also removes the microbes that may have contacted the skin through defects in gloves.

Waterless antiseptic hand rubs are recommended for specific situations where water and soap can not be used such as when water supply has been interrupted. They also provide extra protection after routine hand washing. Most of the antiseptic waterless hand rubs contain some formulation of alcohol.

- Alcohols have excellent bactericidal activity
- They act against many fungi and viruses
- They are among the safest known antiseptics.

In appropriate concentration i.e., greater than 60% by weight, they provide a rapid reduction in microbial counts on the skin. In India, **Sterillium** is available

from Ramen and Weil so also are some other products.

### Disadvantages:

- Alcohol is not a good cleaning agent and is not recommended for use in the presence of physical dirt.
- It is volatile and inflammable
- It has a drying effect on the skin

To prevent drying, most products add emollients. Emollients may enhance antibacterial activity by slowly drying, thus increasing the contact time of the alcohol.

Waterless antiseptic hand rubs are not substitutes for routine hand washing between patient visits. They are best indicated for use when extra protection is desired after proper hand washing, especially before lunch and at the end of the workday.

Source -Internet

**In your dental clinic before you put on your hand gloves, remember that the hands need washing. Microorganisms dramatically increase when gloves occlude the skin**

### New Product

#### **Ariston pHc**

This an "intelligent" restorative material because it releases fluoride, calcium, and hydroxyl ions when intraoral pH drops below 5.5. Manufactured by **Ivoclar** North America, Ariston pHc is a white, light cured, alkaline glass restorative material which can be used as an amalgam alternative for posterior restorations and in the primary dentition.

The material is recommended to be placed using a traditional **non adhesive technique** in preparations with undercuts and rounded internal line angles. Ivoclar cautions against using Ariston pHc with traditional dentin bonding agents. Instead, the product is supplied with a light activated liner that contains modified polyacrylic acid, HEMA, and catalysts in a water/alcohol base.

It can be placed in a thickness of upto 4 mm, although at least two layers should be placed and light cured when restoring cavities with proximal boxes. This material is quite new and we await the outcomes of clinical research using this new product.

## Getting patient Cooperation

In spite of cosmetic dentistry becoming popular, there is still a section of people who think teeth are not indispensable. When they suffer from any tooth problem they come and demand extraction. Confrontation occurs when patients feel pressure for e.g. to have a complete dental examination rather than just one extraction, or to have X rays taken when they do not see any need for them. Confrontation is the topmost reason why patients don't accept treatment and leave dentists frustrated and perplexed.

Using patient education materials and devices may turn the patients off. When the patient feels the pressure, he becomes defensive and ask questions to raise objections rather than gain understanding. In such a case either the patient ends up not committing to dental treatment or worse than that, he agrees to treatment but does not really understand why, and secretly resents for treatment he did not want in the first place.

The treatment presentation results are most predictive when one understands the principle that governs how patients respond to suggestions. Some fundamental principles exist in every patient- dentist relationship.

The **seven laws** of Patient communication reveal why patients react the way they do and knowing them will enable you to understand patients and communicate with them to get the results you want and serve your patients better as well.

### 1. **There is a natural protective resistance to someone else's proposition**

You talk to a patient about a particular treatment, and the patient becomes defensive, resistant, or puts you off some other way. Some time later, the patient brings up the same treatment and tells you she's ready to start. You're pleasantly surprised, but can't help wondering how the patient's opinion could have changed so much. There is a tendency to resist other's proposition. When they have some time to think they bring it as their own. Give your patients time they need.

### 2. **People won't trust dentists if they don't believe they are understood**

Trust may be the most critical element of a good dentist-patient relationship. Until the patient has developed a significant level of trust in you, she may be reluctant to discuss significant treatment.

The greatest trust builder in the dentist-patient relationship is when the patient believes you understand her. The reason is twofold. First, patients reason that

if dentists don't understand them, they couldn't possibly know what is needed or wanted.

The second reason stems from the subconscious evaluation process occurring in the patients' minds. Patients want to know if the dentist is **a giver or a taker**—will the dentist act in the dentist's best interest or the patient's?

### 3. **Everyone has a story to tell but they won't volunteer**

It's up to you to structure the appointment and ask the right questions so that the patient's story will be told. What does he want? What has annoyed or aggravated him in previous dental experiences? While most patients really want to be able to tell their story, they won't take charge. That's your role. The patient's story must be revealed so that there is an opportunity to build trust, bonding, and rapport.

### 4. **Avoiding a negative consequence is a greater motivator than gaining a positive one**

Listen carefully when your next patient talks about his discolored teeth. He probably won't talk about how nice it would be to have nice, bright teeth. Instead, he'll complain about how his teeth have darkened throughout the years. Likewise, a patient doesn't get implant retained overdentures so he can bite an apple as much as he does to avoid the discomfort and embarrassment of loose dentures.

### 5. **When people say something, they always say it for a reason**

One of our patients once asked if a needle would be used during her dental appointment. Because the appointment was for an initial exam, we assured her that a needle wouldn't be used. But as she was about to be asked her concern about injections, it became apparent that a more general question was appropriate. It turned out that she'd had an especially painful periodontal probing in the past, and what she called the needle was a perio probe. Just think how she would have responded if she'd received a periodontal probing right after being assured a needle wouldn't be used.

### 6. **When someone decides to do something, they do it for their reasons, not the dentist's**

Patients will tell you that they'll do whatever it takes to keep their teeth. So why will patients

....contd. on p. 6

**....contd. from p. 3**

2. Forceps: the forceps are used to place, adjust and remove the Rubber Dam clamps. Several types of forceps are available and the choice is a matter of personal preference.
3. Rubber Dam frame: This stretches the Rubber Dam over the patient's mouth. They are available in a variety of shapes and sizes, and are predominantly made from plastic. Since plastic is radiolucent, it need not be removed for radiographs.

**Rubber Dam Clamps:** Contrary to common belief, you don't have to have a wide variety of clamps for routine Rubber Dam application in endodontics. Rubber Dam clamps serve two purposes, they anchor the dam to the tooth and retract the gingiva. Since the clamps available now are made of stainless steel, sodium hypochlorite does not corrode them.

For routine use, you can have the following clamps: Ivory pattern 1 and 2A for premolars 9 for incisors (I have found 2A useful for incisors also) and 14 and 14A for molars.

**Method of application.**

Undoubtedly, rubber dam applications can be done single-handedly. In endodontics, you need to isolate only the tooth being treated, single tooth application is extremely simple and fast.

There are two methods of application. In the first, which I personally prefer, the rubber dam is attached to the clamp before it is placed in the tooth. Select the clamp and try it on the tooth first for fit and stability. As a precaution against clamp fracture, a 4.5-cm piece of floss can be passed through a hole in the jaw of the clamp and knotted. It is then wound around the bow of

the clamp, threaded through the hole in the opposite jaw and tied again.

Punch the hole on the Rubber Dam. Insert the wings of the clamp into the hole, engage the clamp forceps into the clamp and carry the assembly to the mouth. Position the clamp on the tooth. It is important to make sure you are placing the clamp on the correct tooth, it is very easy to go wrong here. You may place it on the adjacent similar tooth. If more than one tooth are to be isolated, multiple holes are punched and the Rubber Dam is stretched and slipped through each succeeding contact points.

Now stretch the Rubber Dam over the Rubber Dam frame. With a plastic instrument, lift the Rubber Dam from the wings and let it slip onto the side of the tooth.

In the second method, the clamp is attached to the tooth before the dam is stretched over the clamp.

Sometimes, regardless of how well the tooth is isolated, seepage of saliva may occur. To prevent this **Oraseal** putty (Ultradent Products) can be applied around the tooth margins. This provides a totally impervious barrier.

**Removal of the Rubber Dam:** with the clamp forceps, remove the Rubber Dam clamp. Then disengage the frame and remove it. In single tooth isolation, the dam falls free as soon as the clamp is removed. When multiple teeth have been isolated, either pull the dam through each contact or stretch it side ways and cut with scissors, taking care to protect the patient's lips. Always check the dam after the removal, to ensure that no torn pieces remain interdentally. This can cause considerable discomfort to the patient.

Ref: T R Pitt Ford: Harty's Endodontics in Clinical Practice. 4<sup>th</sup> ed. Wright Oxford, 1997

**....contd. from p. 5**

ask dentists to just fill a tooth when they need a crown, or want to come back in 6 months for a cleaning rather than three months for a periodontal maintenance appointment? Why does one patient want the back teeth restored and the front left alone, while the next refuses to treat the back teeth and has porcelain veneers placed on the front? Patients' reasons for choosing what they do are as varied as the people themselves. You must equip your patients to think clearly and accurately, so the decisions they make are sound. Respect your patients and help them in this process, but don't presume to make those decisions for them.

**7. You can't make anyone do anything he doesn't want to do**

Clinicians can't begin to count all the patients they've tried to cajole and prod into doing what they ought to do. But if patients don't want to do it, no amount of pressure is going to change their mind. So why try to pressurize patients and cause confrontation? Why invite them to tune you out, avoid coming into the office, or even leave the practice, especially considering that pressure doesn't work anyway? It all boils down to the fact that the patient has to *want* the treatment. That's the key.

Source- Internet



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