How Are You Bonding?
Howard Speaks Podcast #33
Dr. David Hornbrook
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Howard Farran: Well, it is a huge honor to be here today with actually my dentist. When did you start doing my dentistry? God, was that 20 years ago when I went out there?

David Hornbrook:: Yea, 1995 maybe.

Howard Farran: I'm telling you if you are a dentist and you want to know who my dentist is and you want to have your dentist and remember

David Hornbrook:, when he is a teaching dentist he is DavidHornbrook.com, but if you want him to be your personal dentist in San Diego you got a rocking hot vacation, what is it the Gaslight District?

David Hornbrook:: The Gas Lamp Quarter.

Howard Farran: The Gas Lamp Quarter, what is it Hotel Colorando, Hotel Coronado. The Coronado Hotel, well you are a hotel. People are always asking.

David Hornbrook:: I live right downtown. I live in the Gas Lamp District.

Howard Farran: Really?

David Hornbrook:: Right at the ball park. So if people want to email me privately they can email me at DavidHornbrook.com and if they are coming over here I will tell them where to stay. Living downtown I have lived right downtown for the last 15 years I go out every night and I know all the good places to eat and all of the good places to stay, so it is changing. It is only becoming cooler.

Howard Farran: That is cool. Hotel Coronado?

David Hornbrook:: It is actually Hotel Del Coronado.

Howard Farran: I love that place. What do you think of that place. That was built in the early 1900's without blueprints. An architect said let's build something over there and the builder built it. And they said let's do something here and the builder built it. So it has got an amazing history.

David Hornbrook:: Well, what I like about that place is when you have four kids a lot of these upscale resorts they don't want your business. I always take my four boys there and extremely kid friendly and the breakfast section is very pro-family. If you are going there with four kids and a grandkid and whatever it is all good stuff. Hey, David, obviously you are -- when any dentist on DentalTown or any dentist I talk to talks about cosmetic dentistry you are always the first thing that comes up. I can't think of a bigger name, a bigger brand name in cosmetic dentistry. There are some big names out there, but you are

the biggest name. I am going to start this interview in a totally different way. I have always been in Phoenix, Arizona. A quarter of my practice they don't even speak Spanish. I am right across the street from Guadalupe Indian Reservation, all cash. But I want to ask you since you are the guru of cosmetics I am going to throw you under the bus for one question and see what your response is. It seems to me when I got out of school most fillings were amalgam. And amalgam seems to be more bacterial -- if someone asks me what I do for a living I don't really say I am a dentist. I am really you know, a firefighter fights fire and a policeman fights bad guys. I fight gram negative anaerobes. And for 27 years I have been fighting streptococcus mutans and P. gingivalis it is basically 99% of what I do. And it seems like back in the day in '87 when everything was an amalgam a lot of people that say it is not the mercurys or the silvers or copper, but it is actually the tin ions flying out that is antibacterial. It just seems like those fillings were antibacterial and fought off that streptococcus mutans forever. Then we entered the go-go years, the cosmetic revolution. You were on the forefront of that. You were at Pac live, LVI I mean you couldn't throw a cat without you lecturing somewhere on cosmetics. And the whole world went Heliomolar and ivoclar and Empress and now it is CEREC and cadcam. It seems like now 27 years later it seems like restorations last shorter. It seems like the fastest growing disease on planet earth is dental decay. And the top three are dental decay, obesity and diabetes. This year was morbid for me because this year America for the first time consumed over 51% of its calories by drinking. We have a government that subsidizes high fructose corn syrup, so when you go to McDonalds a Coke is cheaper than bottled water when everybody is fat with dental decay, obesity and diabetes. This year was also morbid for me because I met the first pediatric dentist this year in Hong Kong, Kathmandu, Nepal and New Delhi and all of the older dentists were telling me when they got out of school 25 years that no kid under five had a cavity. And now in Asia and Africa you tell me the age of the kid that is how many cavities he has because they have all switched from drinking water to Coke and Pepsi. And right now the filling of choice is an inert plastic composite and I am wondering in your amazing mind do you see an active ingredient coming up in the future? Are you hearing any scientists saying yea, in the next five years heliomolar or empress or ceramics is going to have an ingredient that -- the Japanese don't they seem to be favoring more glass ionomers that leach calcium and flouride and phosphorus as opposed to just inert plastic composite? What are your thoughts on dental decay?

David Hornbrook:: That is an interesting way to start this interview. You know, whether it is bacterial static the amalgam versus what we see with our resins. I think anything we place is going to be a little bit of a compromise and what compromise can we live with. To answer your last question, Japan is typically resin based. You look at New Zealand and Australia where they do like glass ionomers, the do like resin ionomers and their thought process is that it does leak out the calcium and the flouride is that going to remineralize. There is still controversy on whether that is really happening or whether it is antibacterial. And you can look at that -- these two restorations an amalgam and a composite. You can look at the compromises, the pros and the cons. Even if I was to say amalgam is bacterial static, which I don't know that I would really say that. It is still a compromise. They leak. They are certainly not self sealing like in the old sink days. I think all your listeners if they have been in practice long enough almost every amalgam they have taken out has had decay underneath it. Even if it was slightly bacterial static the fact that the surface is rough, the seal is not there, the bacteria have a place to accumulate and colonize I think that is a huge compromise. Where the composite the advantage to me is it is a much better sealing

restoration if done properly. That is the other side of the coin is you can take a composite if it is not done properly I think it is an inferior restoration to an amalgam. If it's done properly I think it is a superior restoration. It is sealing, it is an instant seal. We also have the ability to see decay. I just took off three crowns we had this conversation before we went on air -- I still practice dentistry. I practice four long days a week. I do more dentistry than probably in my 28 years of practice. I no longer have an associate we have a general practice that does everything. I took off three crowns today and they were PFMs there was a catch on the margin and a little bit of gingival migration so they were unaesthetic. We take it off and there is this black rim right around the margin where there is micro leakage. Those should have been replaced probably a year ago or two years or five years ago, but they weren't because we didn't see that. I look at tooth color restorations and I think if I got a composite that is starting to leak or starting to get recurrent decay I have the ability to go in and repair that restoration or get to it before it becomes catastrophic. You know better than anyone I have heard you say an amalgam is a baby crown. Every amalgam wants to grow up and be a crown some day. When they fail it is typically catastrophic because we don't see micro leakage and we don't see stain or failure until a cusp breaks off. Where I think tooth color dentistry we have that option of being able to see failure before it becomes catastrophic. When we look at longevity of a restoration I think we are also much harder on tooth color dentistry than metal supported dentistry. If we have a composite and four years later we see some darkness around the margin we freak out. Or if we put an Empress crown or an Emax crown all of a sudden we get a little stain at the margin we freak out and say oh, look at that restoration it is a failure it is because it is a bonded restoration or it is resin instead of metal or glass ionomer. Where in fact, if that was metal base it probably has that same stain along the margins, you just don't see it. Again, we can almost throw up all of the values of metal based restoration whether it be amalgam or tooth color restoration whether it be a composite or porcelain. And the things that landed in our hands that were positive I just think tooth color bonded dentistry my hand would be much fuller for all of the reasons we just talked about.

Howard Farran: Okay. My second question and then I will let you take this anywhere you want to go. My second question is this -- 5,000 kids are graduating each year as a dentist in America. You and I have been around the block for 25 years plus. We have seen it all. We have seen the fads, we have seen everything. If your boy Phoenix was just walking out of dental school and he had $300,000 in student loans or maybe just the last five or six years you and I know we have seen some brutal recessions in our lifetime in 1980. We saw another one in 87, but nothing was like that last one in 2008. I mean it seems the 80 recession was a punch in the gut and the 87 was a kick in the crotch, but I think that September 15, 2008 that was a knock out. I think we all were just knocked out. There are a lot of dentists out there Dave for the last five years that are in a town that is going nowhere the town -- it is not shrinking, it is not growing, it is just flat and malaise. Being that since you have been out there 25 years what advice would you give these kids that are in the first five years of their journey as they are approaching and where could they be when they are 25 years down the road like you and me? What advice would you tell your child?

David Hornbrook:: That is a really great question. Again, you look at the average debt service the graduating student today it is anywhere between 250 and $490,000 depending on the school. It is a lot different than when you and I went to school or the dentists that went to school 10 years ago. So they are not going to get out, they are not going to go to Shine or Patterson or Bank of America and say let me have $500 grand to open a practice.

That is out. They really have a couple of options. One is corporate dentistry -- DMSOs they are looking for dentists and that is why they are doing so well because they go to these young dentists and they say listen you owe $300 grand we will pay you $75 to $125,000 which is a huge amount of money you just get out of school. I remember when I first got out of school I paid myself $1200 a month, I thought I was a millionaire because I had been a student forever. Now they are going into these DMSOs these corporate dental organizations and they are getting an income. They are slowly paying back their loan, but there is no growth potential. Ten years from now they would still be making 25 to $50 a crown while the president or the board of the DMOs are buying Leer jets or mansions on the countryside. That would be an option at least they can start to get faster, get better, maybe get some contacts within the community that they can get out of that corporate type practice. That is an option. The second is to try to get involved with an older dentist that is still doing well at fee for service. Maybe insurance based, but not a PPO, HMO type service. Get involved and try to help them grow their practice. I had a good conversation with a friend of mine the other day about where do I think dentistry is going. I think what is going to happen is we are going to lose our middle class. You know, we are going to lose the JC Penney's and the Macys. You look at the Nordstrom's and Ritz Carltons and Four Seasons. You look at the Walmarts. Both of those are doing really well and the middle class is going to be screwed. And dentistry if I am just a middle of the road dentist that takes some insurance plans I see a lot of patients, I don't have great customer service, my fees are higher than the corporate dental organization down the road I think that is a dinosaur that is going to die off. I still think people and there is everyone in our society, there are people within our society that still are willing to pay out of pocket for great service where you can call them at home after an injection and you know their name, you know their family and you are convincing them the value of a better restoration or better dentistry and they value that quality. I still think that is going to be really successful. We see that with dental labs with dental labs that decide they are just doing high end cosmetics. They are doing really well. It is the ones that are trying to be everything to everyone that are screwed. Then we see the dental labs as well that are at the bottom saying everything we have is $69 they are doing well or the Chinese or Philippine laboratories. I think we are going to see dentists at the top are going to do really well because they offer a service that the DMOs cannot, but it is going to cost the patient more. Then we are going to see that low end I am not going to say quality wise, but low-end fees that corporate dental organizations have. They are going to do well because as the economy changes people are looking for low-cost dentistry. My advice is my sons they do not want to go into dentistry by the way -- is probably to start with one of these corporate dental organizations which I hate to say that to get faster, quicker and to meet contacts and then try to find somewhere in the community that you want to practice that is slowly phasing out that has the type of practice that they want to practice.

Howard Farran: And define your practice, Hornbrook.com. Define you practice in the Gas Lamp District of San Diego.

David Hornbrook:: My practice is a fee for service practice and it is -- we are a very high service based practice. We are not a dental spa where we massage your -- you know your hands and paint your toenails during the dental visit, but we certainly treat you special. I see one patient at a time. They are treated as if they are the only patient I have had all day even if they're not. And so we are primarily it is internal referrals because people like the interaction. That would be my practice. My practice is not Manhattan or a Beverly Hills

practice. I still do a single DO composite or a single crown, but we do a lot of big case dentistry. And this isn't on the rich and famous. This is the person down the street that takes a loan with Spring Stone or gets some equity out of their home. And these are just average people that I have created value for quality dentistry as well as aesthetic dentistry or beautiful smile. I know it can be done because it is being done in my practice. And I'm not any better of a dentist than your listeners or you. It is just we have tried to create that atmosphere that yea, you are going to pay a little bit more out of pocket we'll help you with the insurance. We will send photos, we will send letters, we will give you the stamped envelope, but we are not going to take your $25 for a restoration like some of those other organizations.

Howard Farran: And you are still actively teaching this amazing dentistry. I mean I have seen your own shows, you are doing it you have your own group, the

David Hornbrook: group and then you are also doing it with my very good buddy and everybody's favorite guy on Dental Town, Sean Keating who has got to have more personality than probably the next 1,000 dentists combined. You are doing courses with Sean Keating up in Irving over the shoulder.

David Hornbrook:: Yea. We are doing some really fun things. I have never worked with Sean before. I have known him a little bit throughout the years kind of passing in the night and we have done one program about a month ago and we are doing one in two weeks. I am really enjoying him. As you said he is bigger than life. We went out for dinner and he said I feel like lobster, I feel like steak so I'm going to order one of each instead of just the surf and turf. That is the way he lives. He is huge. Not huge in that way, bigger than life and I have really enjoyed his personality. And these courses have been really fun. It is two days. We try to make it really affordable because the economics of these young dentists who come out and they want to learn cosmetics because they are still not teaching and dental school is not where they should be. Or you look at these dentists where their incomes have gone down and they are not going to be able to afford an $8,000 two week course like we used to do when we ran LVI or PAC Live so we are making it very, very affordable. They spend two days with me. Some lecture, but I actually prep a case. I provisionalize a case. We go out to dinner that night and then I seat the case the next day. So we are limiting it to 12 to 15 docs and they get a lot of I will say me time just because they get to spend time right there. We are really having a really good time with that. Then in San Diego I am working with Mark Montgomery who Mark and I taught for 15 years. We took four years off and he is just awesome. For those that haven't' ever seen Mark Montgomery speak if you get a chance to make sure you do. And he and I are doing a three part series on what I call functional aesthetics. Aesthetic dentistry, but everything is functional based from splint therapy to taking the correct bite to equilibration to mounting the case. Pain control. Smile design. Everything. We are doing that in San Diego and hands on. Very, very affordable. We are having a lot of fun.

Howard Farran: So, David, it is kind of funny because when I was a senior in dental school in 1987 my prosthotic teacher told us that there would be no labs within three years because the French were building CEREC. And it was CEREC I. I was so excited I got that thing and it was horrible. Then like five years later they told me no, no CEREC II. So I bought that. It was horrible. CEREC III was horrible. Then finally CEREC III was it blue cam?

David Hornbrook:: III and then 3D the red cam came out --

Howard Farran: The upgraded CEREC III. It is ready now. It is ready for prime time. It was about a 25 year development for the French before it really got here. But now it is the real deal as far as market share. I mean they have sold thousands of units. Some say 12,000 American dentists have one. It is hard to get hard numbers. But tell me your thoughts on CEREC and -- because you obviously when you got out of school it wasn't a revolution. When would you say CEREC really became a revolution? I mean you got out of school in 86, what year do you think it was, 2000?

David Hornbrook:: It became a revolution I would say less than five years ago.

Howard Farran: So you saw dentistry 20 years without it. Now you have been seeing it like a steam engine rolling down the tracks for five years. What are your thoughts from sitting on the moon looking at the cosmetic revolution and the CEREC thing?

David Hornbrook:: What I look at is there are two things which are limiting its use and widespread acceptance. One is the technology itself. The mill was crummy, camera was crummy and so you really couldn't get a good restoration that fit and looked good, so that was the technology. Second was the limitation of materials. You know we didn't have the ability to use Empress initially. We limited basically the serone material and vidamark II and it is like if you like those then maybe that is a good thing. If you don't like those then why would you spend 100 grand on this technology that was mediocre. They improved technology the blue cam and now the omni cam and the cameras there, the software is much more intuitive. If you think about because I went through that evolution CEREC I, CEREC II, CEREC III. I mean it was so non --

Howard Farran: Did you buy all of those too?

David Hornbrook:: I didn't buy them, but I was involved in them in the research of that and working with them. It was -- I always say things either should have a short and steep learning curve, a long and shallow learning curve where the CEREC was a long and steep learning curve and so non intuitive. I think the software now is more intuitive at least now it looks like a tooth you put a tooth on and it looks like a tooth as you draw it. So technology definitely improved and made it easier. Second is now the materials. You look at CEREC and you are not limited by materials anymore. We are using Emax. I think Emax is what made CEREC a major player something that dentists should look at. We were doing these monolithic lithium disilicate Emax restorations from the laboratory where all they would do is wax it, screw it, press it, stain it and they would charge us $200 bucks. Now with CEREC it is like wait a minute what does CEREC do? We scan it, we mill it, it is monolithic and we paint it with a little bit of stain as long as we are halfway decent at that we have the exact same restoration and it costs us $35. And the fact that like in my practice we do a lot of monolithic Emax and the posterior lithium disilicate.

Howard Farran: Are you using CEREC for that or a lab?

David Hornbrook:: I use a lab primarily now. I think CEREC still is limited in the anatomy. I find myself I don't think the margins is a problem. Some people say it doesn't' fit. Well, if it

doesn't fit that is operator error. That is not the technology, it is not the material. Again there are good studies on that I don't think that is the problem. I think the limitation is a little bit it is a two axis milling machine. You have two burs you get this restoration back have you used the CEREC?

Howard Farran: Yea. We use it a lot. I make two or three a day.

David Hornbrook:: So you look at the anatomy of that versus something you get from the laboratory and it is -- in my opinion it is not comparable. I would go ahead and mill my Emax and I would spend the next half hour putting tertiary anatomy in it and then I would put it in the furnace. I found that in order to get the dentistry that I wanted to do that the limitation was I didn't have the time to sit there and grind a bunch of anatomy in it. But that is me. But I think it is definitely a serviceable restoration. I think there is not a compromise where I think in the past it was a huge compromise. You look at these CEREC restorations and you know I have had the benefit of having Rich Masic half a mile down the street from me and he was one of the pioneers.

Howard Farran: He's in San Diego, isn't he in the east coast like New Hampshire or Connecticut?

David Hornbrook:: I don't know. He has been in San Diego right down the street from me.

Howard Farran: The kid with the pony tail?

David Hornbrook:: No. I don't think Rich has a pony tail.

Howard Farran: Didn't he have a pony tail 25 years ago?

David Hornbrook:: I don't know. That is a very good question. He doesn't anymore.

Howard Farran: Can I stop and ask you one question? To me it seems like when we got out of school 25 years ago and did crown and bridge you could do a lot of errors on the prep and the lab man could fix a lot of stuff. Die spacing, reduction copings, all of that kind of stuff. But it seems to me when dentists say that the CEREC doesn't fit or the margins aren't great you have to make a much better prep. I have noticed when getting into CEREC that I mean end cuttings finishing burrs and smoothing I mean it is almost like to nail -- it seems like when I was using like Keating lab I could prep that thing in five minutes. Now that you are doing a CEREC crown it is a 10 minute prep and it looks like you are getting it ready to have its picture taken. I mean would you say that is true to get a really good fit the prep has to be a lot nicer, smoother, no under cuts you know, finishing burrs?

David Hornbrook:: Absolutely. There is two factors about that Howard. One is you do see your prep bigger than life as you mentioned Keating you send your prep to Keating. It can look like you took a chainsaw to it, what they are going to do is fill all of that with ice base. They are going to make a perfect margin that a restoration is going to say wow, I'm a good dentist. With CEREC you are going to see your stuff up on the screen and you are going to see what you thought was smooth now looks like a bunch of volcanoes or the surface of the moon on that. Second is tissue isolation and margin isolation. Again, if you take an

impression and the margin is not there the laboratory will make a margin. They will make it and you will get it back and you will say wow look at this great margination I got. Where CEREC if you don't get great tissue control and margin isolation you're screwed. And so I think it does make you a better dentist. I saw that right from the beginning when I thought well, this is a nice prep. Nice and smooth because you see my preps. I use a finishing burr on all of my margins and actually polish my prep. And I thought this was a great looking prep. I put it up on the CEREC machine it was like holy crap that looks like crap. So you are absolutely right.

Howard Farran: So, David, on that note what do you say to all of these young kids in dental school that say yea, Howard recommends those. He wears those three and a half and four and a half loops because he is a 52 year old man. But I am only 25 years old and I don't need that. Then when you see that prep on that CEREC screen that is what 40X would you believe? I have no idea what that is. I mean you have those perfect prep and you look at it in 40X and you're like, I'm an idiot I shouldn't be allowed to do dentistry. You are back in there cleaning it and fixing it. What do you say to the dental graduates who don't think they need loops because they are only 25?

David Hornbrook:: Well, I think loops are absolutely mandatory. I mean for you and I we need them because we couldn't tell a tooth from a toe if we took off our loops right now. Occasionally I think it is the end of my day and I take off my loops and my hygienist calls me in and says can you just check this one crown I think it is leaking. I think do I really need to go and put back on my loops with the light and all that? I say no and I go back in there and I can't even see if they patient even has a tooth there. I think that as dental students there is two things a start for them is right away they see two to two and a half times magnification of the restorations of their preps, of decay, of disease and success. I think that is a huge benefit. Second it is going to start them on a road to better posture. You know I didn't wear loops and I was hunched over and now it is hard to break that mold even though I wear loops now. So I highly suggest loops. And most of the dental schools now are actually including them in the dental kit, which is very, very cool. I think it is so important. I had a microscope in my practice for a little bit and all of a sudden you are enlarging these things 20 times. I didn't want to see my preps at 22 power. I don't care how good of a dentist that I think I might be I don't want to see my margins at 20 power.

Howard Farran: I think one of the best moves I made in the last five years is buying them for all of the hygienists and assistants. You can't knock your assistant for making a temporary with naked eye. I mean my assistant Jan you met her several times she is the same age I am. I bought them all loops. Now the problem is if someone breaks their loop or something happens to their loop they feel like they can't see patients. I have a hygienist that won't see a patient if there is something wrong with their loops. And three years ago they never had them. It is amazing.

David Hornbrook:: My assistants and hygienists use their loops as well and you know, that is kind of a funny dilemma you mentioned because when I travel around the country with the Hornbrook Group we did these live patient courses at 13 universities across the country. Every once in a while I would check my loops and the bag didn't come and I had to cancel my patients that day because I couldn't prep or I couldn't see and do any dentistry without loops. So I ended up having to buy a second pair just to keep in my office all the time just in case that happened. You are right. Magnification anything that is going

to make us a better dentist. The smoother the preps, the better the margins, the better the lab work and the longer lasting that restoration is going to be.

Howard Farran: The first impact you had on me where I knew this guy was a freak of another level. No, I'm serious. I remember the first time I heard you lecture I don't know who it was I think it was in the late 80s like maybe 89 or something like that. And some guy asked you a question about one bonding agent versus another and you went through every flipping ingredient in each one of the bonding agents. I was sitting there with Mike Natola and we looked at each other and we rolled our eyes like oh my god. So since you have known everything about every ingredient in every bonding agent tell me about adhesive dentistry and the hype with these universal adhesives is really all that it is made out to be and I mean I don't know anybody that has thought more about bonding agents for 25 years than you. What is the state of bonding agents? What do you recommend? Give us a brand name. Is one step all that it is. Go through that for us if you don't mind.

David Hornbrook:: I am going to very quickly go over the generations. We started with Fourth Generation those are the three part systems. That changed dentistry forever. All of a sudden we could bond. The rules for us as restorative dentists changed in the late 80's with Fourth Generation.

Howard Farran: But for the kids that are just coming out tell them the three parts.

David Hornbrook:: Okay that was phosphoric acid we etch the dentin, we rinse, we left it wet. Then we follow through with a hydrophilic primer, a monomer. We applied that. We air dried that then we went with a hydrophobic resin three part system. That is a fourth generation. Examples of that would be scotch bond multipurpose plus, Syntac, All bond II, OptiBond FL. Then it is kind of interesting I had this conversation again with one of the manufacturers this last weekend that literally the conversations the manufacturers had were these dentists are freaking idiots. I mean they can't' figure out if we give them three bottles and they are labeled number one, number two, number three they can't figure out the number two is supposed to go after number one and before number three and they were having all these problems so manufacturers said let's make it easier on these folks. Let's come up with a fifth generation, which still is an acid etch system because acid etch works. We etch with phosphoric acid, we rinse, we left it moist and we followed through with a single bottle that was hydrophobic and hydrophobic. Examples of that Prime Bond NT, OptiBond Solo Plus, One Step, Excite and the list goes on and on and one. Well, sensitivity was becoming an issue because us as dentists we used a rubber dam in dental school and if we got a little bit of saliva underneath an amalgam we just rinsed and put the amalgam in no big deal. We had Copolite for god sakes that saved everything according to our instructor. Then we got out of school, we didn't use the rubber dam because that was like getting out of jail for us that we didn't have to put the rubber dam on. Then we etched the dentin, we exposed the odonto blastic processes which is a live, vital organ. Then we let the saliva with all of the bacteria roll over the prep. We sealed it in and then we wondered why we had sensitivity. So the manufacturers were getting calls every single day multiple times a day about your product causes sensitivity. So the manufacturers said you know what I don't think these dentists are smart enough to be able to open up the dentinal tubules so let's give them something that just modifies the smear layer, it actually doesn't etch the dentin, but modifies it. That is where the self etching primers came in. And the saving grace for us was sensitivity went from a lot to zero.

Howard Farran: And give name brands of those.

David Hornbrook:: You got Clear Fill, SE Bond again the list goes, Adhese from Ivoclar, you got Prelude from Gamble Engineering. There is a zillion of them on the market. Some of them are good. You got simplicity from APEX. I think they were a good alternative for dentists that didn't want to isolate properly. I think it was a compromise. You know, the long-term bonds to enamel was very questionable. The bonds to dentin when you had garbage on your dentin whether it be oil from your hand piece or temporary cement, sempelical layer those are all going to be incorporated into your restoration. I think that is a compromise, but at least we didn't see sensitivity. They were a two bottle system so you actually had some sort of phosphoric esther or a mild acid. You rubbed it on the dentin and enamel. It did modify the smear layer. It kind of etched enamel. You air dried that and you followed through with a hydrophobic resin you light cured that and you restored. Well, then the manufacturers this is where I think that they kind of got greedy and this is where I think they got a little misleading. They said wow, I got a -- all of a sudden there is no sensitivity we are selling a bunch of this six generation this self etcher, but it is two bottles. What if we made it one bottle? Think about how much we would sell. So they came up with the seven generation adhesive. Ibond, Gbond, Zeno and the list goes on and on. They were single bottle systems self etch primers where you had a hydrophilic component and a hydrophobic component. You got acid and you had water in the same bottle, which I think is a problem. And I think these adhesives are going to cause a huge problem in the future. Because studies and Franklin Tay has described most of this where he talks about the hydropholicity. Where even though you apply that and you air dry it and you light cure you create a hydrophilic layer. Where it is actually it is almost like a screen door. We are actually getting pulpal fluids come through that hybrid layer because of its permeability. I think those are not the way we should go. Even though they are easy. As a practicing dentist I like ease of use, reduced cost, technique insensitivity, I like those things. But if they compromise performance there is no way I am going to go that route.

Howard Farran: Is this what you are calling universal adhesives?

David Hornbrook:: I haven't got there. That would be the seventh generation self-etching, single bottle systems. Well, recently about three years ago a patent expired and all of a sudden these universal adhesives and they all contain a monomer called MDP monomer which is a monophosphate ion that is very stable monomer that was actually based from Clear Fill the Success by Clear Fill I think is a good bonding agent because it had this monomer. And 3M their universal bond came out first and we had Visco's universal bond. Kerr has all in one bond. Ivoclar just introduced its Adhese Universal. These may be our saving grace because as dentists, I mean you are a practicing clinician you are training your young dentists to come into your practice you want ease of use. If I could give you one bottle why not. And these new universal adhesives I think -- I think they are going to be great adhesives. I say that because as a clinician I like the monomer. The people that invented and I am a good friend with Byong Su who owns Bisco. He thinks his product is awesome. And I think ALL-BOND 3 is probably the best bonding agent that has ever been since the 80's since adhesion really started for us. He thinks this is as stable and as good as a bonding agent as ALL-BOND 3. These people that have developed this they like the bonding. They think it is stable. As an educator I have to be a little concerned with I haven't seen long-term research. I wouldn't say Howard yea, throw away all your other bonding

agents, use this, I know it is going to work because three years from now I don't know. I think it is going to be.

Howard Farran: Okay, David, when we do these podcasts they are downloaded from iTunes from every country on earth. So for all of those dentists out there who don't even want to fill up our brain with everything you know about this adhesive stuff and there is bleeding edge and stuff coming tell us how you adhesively bond a direct composite today and how do you cement and all porcelain crown today. And walk us through. Give us brand names so we don't have to instead of a multiple choice how would you do it?

David Hornbrook:: Let me just say one thing before I go there. What I am saying now with when people say what bonding agent should I use I always ask them what they are using now. For those that are using fourth generation adhesives those are three part systems I would say stay with it. It is still the best. I can show you 25 year clinicals -- I am getting to the point in my practice that I am replacing stuff that I placed 25 years ago. And I am cutting it off and it is like bad enamel. Even on Cementum, bad enamel. Why? Because I used the fourth generation. I still think they are the best. So if you are using a fourth generation I would say stick with it. If you are using -- my favorite bonding agent is ALL-BOND III. It is an alcohol base. It is a self-cure as well as a light cure. I mean it is a really great system that has chemistry dating back to 1988. The second one would be OptiBond FL. Again, chemistry from the late 80's that we can see has long term stability I mean it is just a really great system. But they are technique system because there is three parts. Those would be my two choices. If you said what do you think are the best I would say OptiBond FL and ALL-BOND 3. That would be my recommendation, but they are more technique sensitive.

Howard Farran: Okay. Can I stop you on the technique sensitive? I was going to say -- finish that then I am going to come back to the technique sensitive.

David Hornbrook:: If you said you were using a fifth, sixth or seventh so that would be the single bottle total etch systems. A self etch or a single bottle self etch I would tell you to go to the universals. I think the fourth generation are best. Fifth, sixth and seventh should disappear in my opinion and the eight generations are really nice because you can use it as a self etch. You can use it as a select etch which means you can etch the enamel only, which I think it should be anyway. Or you can use it as total etch. Now I use them as a total etch, but you have that opportunity to modify your technique not based on the material. The material will do it all.

Howard Farran: And name your favorite universals.

David Hornbrook:: The two that I like they haven't been out long enough to give really long-term data I like Universal Bond from Bisco. I think Byong Su is just ahead of the game on adhesive agents. The new Adhese Universal from Ivoclar they have done their homework. I wasn't a fan of Adhese Universal. They put another monomer in there it looks very stable. It looks very promising. And I think you know, 3M, Scotch Bond Universal is an excellent system. I think you could not go wrong with any of those three.

Howard Farran: Is it also seems like humans always use heuristics, we have too many decisions to make. If you walk into Target and you see two blenders and one is $20 and

one is $40 you just assume the one that is $40 is twice as nice. Prices are usually efficient. It seems like I use a lot of heuristics with companies. There just seems to be a lot of companies that you know if you buy a product from Ivoclar or 3M or Bisco you are not going to get burned. Would you say there are just companies that you can just trust? I mean like Tide and just big brand names like that?

David Hornbrook:: Absolutely. I think it is what I call the big five or six. Those are the companies that are actually doing all of the R&D on the product that they manufacture.

Howard Farran: And who would you say that big five or six is?

David Hornbrook:: I would say Ultradent, Bisco, 3M, Ivoclar, Kerr you know, VOCO is and Pulpdent are doing some very cool things. I just wouldn't put them in the same category. And I may insult some people that they didn't get included. Those would be my big five.

Howard Farran: Ultradent, Dan Fisher, 3M, Bisco, Byung Su, Ivoclar, Bob Ganley, Kerr, I remember back in the day --

David Hornbrook:: Damien McDonald is the head of Kerr now, Kerr dental. They are doing the R&D and they are making it on site. They make chemistry changes because their scientists that work for them are doing the research and are doing the fabrication. It is not a company I am not going to name some of these companies there is one here in California where you know, they will just look for kind of an idea and they will go around and find out who can kind of make that for them and who can give them the best price. And they put it in a fancy bottle and they create an ad with some pretty people on it. And they think they are making us think that they are making it, but they are not making it.

Howard Farran: I am going to drop two little stories. My sister is in a nunnery in Lake Elmo. So when I go visit her to make it a business expense I fly to Minnesota I got to do business for four hours. So I usually always go to 3M. And I go in there from 8 to 12:01 I mean they just I don't know how many PHCs are walking around the lab. Remember that little Indian girl she couldn't have been 5 foot tall, Samitra? Do you remember her name? And you would ask her just a simple question at 3M and she would take you to a grease board until your eyes just rolled back in your head and fell off. Another one was Ivoclar. I will never forget I was in Lichtenstein and I went and saw their headquarters. You went and talked to their PHC people these people are just at a different level. I mean I agree with that list of big five. Ultradent, 3M, Bisco, Ivoclar and Kerr. I mean yea, they sell it I'm sure it works. I got more things to worry about than if 3M didn't do their homework, you know what I mean? I'm going to go back to something you said and I am going to go through this. I had sensitivity when I started doing the cosmetic revolution and I was always asking you about that. I remember you used to write a top 10 things to stop sensitivity. So David, so you are doing these -- you are doing it direct. Do you use a laser to make sure there is no tissue around the margins for oozing? Any tricks or a rubber dam? Talk about proper isolation so that you do get a good bond. And remember back in the day like sometimes you watched Tubulicid red and other cleaning agents? There is a lot of kids today that I see before they do every bonding agent they go through a religious deal of like Peridex and Chlorex and chlorihexidine and they put all of these chemicals on there. Then other dentists are saying well, you know do you know if that bonding agent has been tested on a tooth that has been washed with Chlorahexadine Glutanate which is an

oil or whatever? So go through your actual --if technique sensitivity is an issue go through your technique of how you isolate and clean that prep.

David Hornbrook:: I don't pack cord. I haven't packed cord now in probably 10 years. I am a huge laser user. Diode lasers. If you want to talk about product I'm going to push Alan Miller. I think AMD with Picasso and Picasso Lite. You know, Alan's goal was to create affordable laser that every dentist in the world could afford. Up until the time he brought the Picasso laser was $29,000, which is a lot of money. Then it became $17k and then it dropped down to $12k we thought we were in heaven. Then all of a sudden Alan came and said here is a laser for under $5,000 that works, has disposable tips, touch screen. So when dentists ask me if they were to buy a laser I would recommend the Picasso Lite.

Howard Farran: Isn't he up the street from you now? Isn't he in San Diego now?

David Hornbrook:: No, no. He is actually up in Laguna, Laguna Niguel.

Howard Farran: Is that close to you?

David Hornbrook:: It's an hour, an hour and fifteen minutes. It is close enough that I am going to see him. We are going to Halloween party together on Friday night.

Howard Farran: Tell him I said hi. He is my idol.

David Hornbrook:: Absolutely. He has just done some really cool things. And a lot of people don't know that was his company that he started. And he sold it to Dentsply and he just bought it back. Dentsply wasn't taking that control of you know, personality. It is a relationship based company. And so he just got that back. So things are going to change and become better.

Howard Farran: Will you tell him at the Halloween party tell him to do this podcast with me, because I am want to talk lasers. Do you remember when we got out of school the going laser was it an ADM it was $50,000.

David Hornbrook:: The first one I bought was $49,000 and now it sits in a closet can't get parts for it. It doesn't work and I am like every other dentist, I refuse to throw things away even if they don't work.

Howard Farran: When you do a DO or you do a prep and there is any tissue you are taking the ADM and you are --

David Hornbrook:: AMD.

Howard Farran: AMD. You are taking the AMD laser. I have it too. Tell them how do you use that. I mean are you just tromping around the whole --

David Hornbrook:: I would do it wherever I think there is a gingival concern. Whether tissue is inflamed, whether tissue is you know, take out an old amalgam and the tissue now all of a sudden pops over the base of that floor of that box. Just take the laser and

create a trough and go all the way around the tooth. If I think that is going to be a concern I mean it is so easy. The other nice thing about the diode and that is what we are talking about it actually has unbelievable haemostatic properties. In fact, the more blood the better it works because it is attracted to hemoglobin. I would take it very low energy about one watt and just create a little trough. There is no post-operative sensitivity. That is how I would deal with that.

Howard Farran: Does your hygienist use it?

David Hornbrook:: Oh yea. I personally think the use of a laser is standard of care in periodontic treatment. I mean the data is there. And it is unfortunate that there are so many states across the country that their hygienists cannot use the laser because it will never be incorporated into periodontal therapy. My hygienist uses it on 100% of the patients that she sees. It could be a single pocket. The other thing and I know we are getting a little off track here, but it is the beauty of these is laser bacterial reduction. Think about you as a dentist new patient comes in. You decide that you are going to be a comprehensive dentist so you are going to probe. Patient hasn't been to a dentist in 10 years so you are probing two, three, four with bleeding, seven with puss, two unhealthy, three unhealthy, four with puss. I mean you are moving that infection around the mouth. You don't take that periodontal probe and get a new one and sterilize it. You are just moving it around the mouth. The hygienist is doing the same thing with scalers whether it be ultrasonic or hand scalers. So what studies have shown is the hygienist can do a very low wattage. Just go around every tooth. It takes the hygienist about three minutes. It is called LBR, laser bacterial reduction. Goes around every tooth. Cuts down, again the studies are there, cuts down the concentration of bacteria because it is bactericidal. Then she can go in and she can start doing her normal scaling and root planing or just cleaning. So yes, my hygienist uses it.

Howard Farran: Can I make one comment on what you just said? You know how you said the probe is moving bacteria around? What just fries me is these dentists will see a woman every three months on perio recall and her husband hasn't' seen the dentist in five years and she is making out with him every night in bed. I'm like if you were treating this woman for gonorrhea, syphilis and Chlamydia would it ever dawn on you to bring in her husband and treat them both? I see the research on it you can't treat one party for STDs or gum disease or decay whether making out with someone that hasn't got a tartar bridge. We are so off track.

David Hornbrook:: I am going to take five seconds. I got to plug in my computer otherwise you are going to lose me in the middle of this. Alright. So let's go back to the bonding. You can still hear me?

Howard Farran: Yes. Perfect.

David Hornbrook:: Again, I am a total-etcher there is nothing I have seen yesterday, today or tomorrow I think that is going to make me a self etcher. I just don't believe in that. I think if people say they are having a sensitivity with total etch they should review their technique, don't blame the system. So if I was doing a direct composite at first isolation whether it be a laser, whether it be cord for those that don't have a laser. I am a huge proponent of these KLN puddy materials like Expasyl. I like Centrix it is called Access Edge, because it will fit in a regular CR syringe and it is aluminum chloride with it is a

kaolin puddy some people have seen this. You inject it in the sulcus it actually expands, pushes back the tissue. We use it before we cement any restoration because it just eliminates any sulcular fluids or any of the problem with micro leakage. I would either use something like that Access Edge from Centrix is my favorite or the laser or cord for those that still utilize that. I would total etch. I think if someone wants to take a Consepsis or some kind of chlorahexadine ahead of time I have no problem with that. I don't think it is mandatory, but if we know there is a direct correlation between bacteria on the surface and degree of pulpitis, why not kill as much bacteria as possible. I just I think the etch is doing that and then I am using a rewetting agent that is antibacterial. I would etch the enamel, followed by the dentin. Typically I'll etch the dentin for 10 to 15 seconds. Rinse. Lightly air dry but don't desiccate. Then I do follow through with a rewetting agent and you kind of eluded to these that is where Tubulicid red and Super Seal and GLUMA and all of these products came out of the woodwork. I use that as an antibacterial, plus I think it eliminates what I call immediate reversible pulpitis. I'm a huge fan of a HEMA-water-glutaraldehyde solution and the original one was GLUMA. That was a patent that expired so now we got a zillion others. We got teliodesensitizer, Danville engineering Ray Bertoloti's engineering group they have got Micro Prime G. Some people say I use Micro Prime. If it is the original one that is actually benzathonium chloride, where today you would tell you to use Micro Prime G. Any of the Gluma, HEMA-water-glutaraldehyde solutions place it on dentin, let it sit for 10 to 15 seconds, blot dry the excess. In my practice I would use ALL-BOND 3. That is my go to. I would put the primer on, primer 15 o 20 seconds, air dry that has a photo initiator. I would light cure that. Then I would put the second component which is -- actually the third component: etch, primer, and then the resin. Place the resin. Thin coat. Air thin it. Light cure it. And then I would build up my composite.

Howard Farran: Now are you putting flowables in the boxes and then composite or talk about that.

David Hornbrook:: I do not because I am a sonic fill user. That is a product from Kerr and Kavo. Kerr is now under this big umbrella called Danaher, largest dental company in the world. I like that system. It was developed by Al Kobashigawa and Ron Jackson. For those that haven't' seen it is a composite that is the stiffest, most condensable composite on the market, but you could never get it through a syringe tip unless you change the viscosity. By introducing it to sonic energy through a hand piece, then it basically takes this really stiff composite and makes it a flowable.

Howard Farran: I love that thing.

David Hornbrook:: I love that product too. You know, it's a $1,000 investment, but you get a $1,000 worth of product and to me it is almost like buying a cell phone. They give it away because they want you to buy the minutes, right? So I use SonicFill so I don't use a flowable. For those that do not use SonicFill -- as it comes out of the canula tip or the compule it's like a flowable. For those that are not using the Sonic Fill I do recommend placing a flowable just lining the dentin kind of as a wetting agent, as a buffer, light cure that and then either use a traditional composite in increments of 2mm or less or use one of the new bulk fills probably 4mm or less. You know the new bulk fills they are very promising. Ivoclar just came out with one, 3M just came out with one. We have SureFil that has been on the market for three years now. Heraeus Kulzer just came out with Venus Bulk Fill there are some great products.

Howard Farran: Is the marketing term Bulk Fill just so you can place 4mm at a time instead of 2, place it in bulk? And how does this work chemistry wise I mean how does that work because when you light cure it the light goes deeper or?

David Hornbrook:: Two things happens. One is they made them very translucent and the filler particle will allow the absorption of light and a greater degree of light, so that is one reason. That is why a lot of people would say yea, they don't look as good. They tend to look kind of gray and kind of translucent. Yea, they do. They are not as aesthetic as you are going to build with the dentin and enamel and all of these cool layers. That is one of the reasons. The second is that they change the polymerization shrinkage. Most composites traditionally like Herculite and Hemoceram and things we have used forever, Filtex Supreme you know they shrink typically anywhere between 3 and 7% by volume, which is a lot. The new bulk fill composites only shrink 1.5 to 2%. They doesn't sound like a lot of difference, it's huge. And so now we are not seeing the polymerization shrinkage overcome our dentinal bond. We are not seeing cuspal deflection. The studies are there in my own practice I know this is anecdotal, but certainly in the last three years that I have been utilizing bulk fill I would all of a sudden say oh I am getting sensitivity all of a sudden. It is a totally different composite than we have used in the past. That is how we can get away with it. That's how I would do a direct composite. Now to cement a restoration everything is the same. I am a keep it simple thinking. If I was to do veneers, same thing. I'm going to etch. I'm going to rinse. Lightly air dry. Apply my ALL-BOND 3. Air dry. Cure. I'm sorry. Apply my desensitizer, my glutaride hema water solution desensitizer. Blot that dry. Put my primer. Air dry that. Light cure it. Put my end filled resin and then I would use a light cure only cement. I think the manufacturers have kind of answered our needs and they have created what I call a site specific or restoration specific cement where for the anterior it is light cure only. It has high fluorescents, high luminescence, maybe low radiopacity because I don't need it. But it is very, very color stable. Has no tertiary means so it is not going to change with time. Has a very accurate water soluble try in gel that we can use to try these restorations in. So for veneers and crowns I use a light cure only cement. My favorite because you are asking me for product. I like Veriolink Veneer. Not Veriolink II, not Veriolink. Verilink Veneer from Ivoclar. Rely X veneer cement I liked for a while. NX3 from Kerr I like. So those would be my favorite. So that would be anterior veneers and crowns. In the posterior now we have got a restoration that may be 6 or 7 mm thick or maybe there is a box of an only that is 10mm deep. Everything is the same. As I get up to the cement I am going to etch. I am going to apply my desensitizer. I am going to place my primer, my unfilled resin. Now I am going to choose a dual cure resin cement. Something that will cure in a dark environment. My two favorite Bisco's Dual Link Universal is my favorite. Easy to clean up. Great chemistry. And I like NX 3 from Kerr. Easy to clean up. Great chemistry. Those would be my two favorite. And really that covers all my bonded restorations.

Howard Farran: Well, David I just want to say that was probably the fastest hour of a podcast I have ever done. I want to tell the listeners out there because from here to Kathmandu that I'll make a comparison to the cosmetic lectures vs the Orthodontic lectures there are a lot of people that teach orthodontics to general dentists. And I have measured them for years. Most of them, at least half the classes after they have gone through this 4 or 5,000 curriculum they say you know, I'm not smart enough to do ortho and I'm not going to do it. And then some teachers just have the gift of teaching and

everybody bonds up and starts a class 1 ortho case. I have been watching people teach cosmetics for 25, 26, 27 years and it is not just my opinion, but most of the people in CE say that you are the most naturally gifted teacher whether it is live, hands on, at the deal, no matter what level the student is what question they asked man you just get it into their head. You are just the most natural gifted teacher in all of dentistry. If you are thinking about getting into this and taking your cosmetics to the next level run to an airplane and get out their to Irvine. Go to

David Hornbrook:group.com and David I just want to - DavidHornbrook.com.

David Hornbrook:: First of all, I just want to thank you for saying that. I don't think that is necessarily true. You know, I've worked very hard and people say oh you're famous. It's like I've worked hard. And I've worked hard because I love what I do. I'm very passionate. I mean you can -- I could go another hour easily. I love what I do and I try to transfer that to my students. If people are interested because I still travel a lot. I still do my all day lectures where I cover mostly ceramics model design, lasers, just about everything they can actually go to

David Hornbrook:.com. Go to the calendar and they can find where I am and it will tell you where I am. It will go by area, East Coast, and you can find where I am. And also I do have a lot of hand outs available that are free. They can go to my website. They go up to lectures, click on the button. A drop down menu that says David's handouts. They click on that and all they do is put in their email address and they can download a PDF of multiple handouts step by step or cementation or ceramics. So yea, I consider myself a mentor and I want to transfer that. I want to be accessible to people. I want to make sure that people know I am here for them because dentistry is just going to get better. If people are doing things right and exploring what dentistry what we can offer our patients now.

Howard Farran: Well, David, thank you for all that you do for dentistry. Thank you for all that you have done for Dental Town and thanks for a great hour. Thank you very much, David.

David Hornbrook:: Thank you very much. I enjoyed it. Thanks for all the kind words, Howard.