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Over There

A Report from a Dental Lab in Shenzhen, China



Over



Off-shore dental lab use has recently emerged as one of the most controversial issues in American dentistry today. Curious about the quality and conditions of overseas dental laboratories, Dentaltown Magazine traveled to Shenzhen, China, to tour one of the world's largest labs

by Benjamin Lund, Editor, *Dentaltown Magazine*

It's May 10, 2009, and I'm standing in front of a kiosk in the crowded walkway on the fifth floor of Luohu Commercial City – a bustling enclosed shopping mall in Shenzhen, China, no less than 150 steps from the immigration checkpoint. I'm shoulder to shoulder with Patrick Tessier, president of Modern Dental Laboratory USA and we're mesmerized.

Sitting before us is a diminutive artist in his 40s delicately painting my name onto a shard of porcelain about the size of a grain of rice with nothing more than a tiny paintbrush and a magnifying glass. We marvel at the artist's deliberate strokes, the intricacies of his task, and the fact that he can focus while hundreds of people skitter about, haggling and shopping the deals, while barking storeowners entice visitors to peruse their merchandise. Inevitably, Tessier and I begin discussing precision. He's traveled to this corner of the world several times and is no stranger to this type of artistry, but even on this day Tessier watches with wide-eyed won-

derment and awe as the mall craftsman delicately paints microscopic letters onto his itty-bitty canvas. Tessier tells me, "In all my life, I've never encountered a culture with such a gift for precision and detail as the Chinese." That's one of the reasons Tessier entered into the dental lab business, and is primarily why he's so excited to take me on a tour of Modern Dental Laboratory in Shenzhen.

While Modern Dental Laboratory itself has been in operation since 1976, Tessier started Modern Dental Laboratory USA (formerly known as Northwest Laboratories), currently located in Bellevue, Washington, in 2003, to act as the sole American dealer/distributor for the Chinese lab. Before opening Modern Dental Laboratory USA, Tessier, who holds a BS in Mechanical Engineering and a Masters in Business Administration, was in the paper converting and medical device businesses. "When I was introduced to the idea of dental laboratories, I had no idea they existed," says Tessier.



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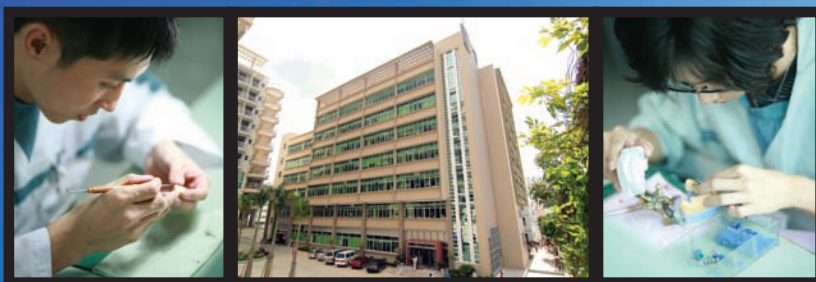
Used to manufacturing facilities, Tessier knew what to look out for when he first visited Modern in China. He was beyond impressed. “Our lab’s everyday quality rivals most other labs’ best day,” says Tessier. Since the lab’s inception (as Northwest Laboratories), it has grown to be one of the Northwest U.S. region’s largest dental labs in a rather short amount of time. All of the work that is sent to Modern’s USA facility is manufactured in China. Earlier this year, Tessier invited me to join him and a group of dentists to tour Modern in Shenzhen, China, meet the lab’s director and CEO Godfrey S.K. Ngai, and get a sense as to how an overseas lab operates.

The thing is, I thought I already knew how they operated – and most of it is nothing any American citizen would tolerate. Two days after our jaunt to the Luohu mall, as our group crosses the border once again from Hong Kong into China to tour Modern, I recall a laundry list of scary stuff usually mentioned in the same breath as “off-shore labs” like: sweat shop, shoddy materials, oppressed workers and armed guards, dirty facilities (even dirt floors), untrained technicians. And lead. Of course, lead. Lead is a big reason for my visit. I am still preoccupied with the case of Faye Lewis, a 73-year-old Ohio woman who, in February 2008,

reported that the bridgework she’d received, which evidently was manufactured in an overseas dental lab, contained lead. I want to find out what processes are in place, if any, Modern has to prevent this kind of thing.

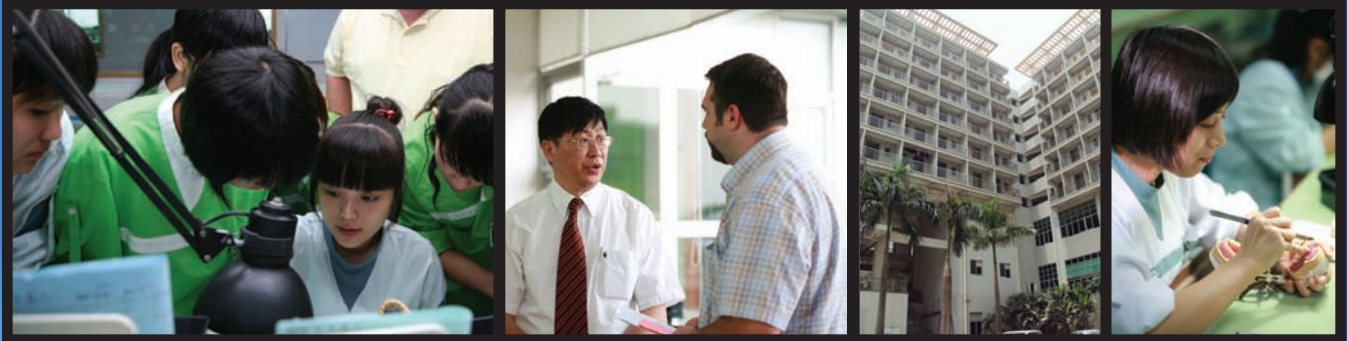
Regardless, Tessier assures me that all of the generalizations I’d heard about off-shore labs are about to be shattered.

Entering Shenzhen by train (which we did earlier in the trip), you get no real sense as to how massive the city really is. Taking the street route into Shenzhen, having not yet arrived at Modern, any preconception I have about touring a sub-par laboratory is scaled back and replaced by Shenzhen’s vast architectural skyline. There is scant evidence that Shenzhen was merely a fishing village as late as March 1979, when Deng Xiaoping designated the area as one of China’s Special Economic Zones (SEZ). Shockwaves from Shenzhen’s new economic



status leveled the area until it became downright unrecognizable – muddy paths became bustling and efficient highways, shanties became monolithic über-urban skyscrapers and the local population went from baiting hooks to trading stock. The skyline tells the tale of the last 30 years – in fact the ninth tallest building in the world resides there. Shenzhen is currently home to more than 13 million people and is still the fastest growing city in China. It also turns out it is the country's leading tech center; if you own an Apple iPod or an iPhone, there's a real good chance it was assembled in Shenzhen.

training center here on the seventh floor is in a school setting. There is a lecture room and all of the equipment required for a medium-sized lab. A normal lab technician requires two years of school, but here they are apprentices. They are paid to study here. That is why we make them productive in a relatively short time." New hires are trained in one particular area of the process and in three to six months are ready to enter the lab's production departments. All new hires are required to have at least graduated from high school, according to Ngai, and in some cases more education is required.



Modern's massive facility is nestled in the heart of Shenzhen. The lab itself is seven stories tall and surrounding buildings house other aspects of the lab, like its call center. Across the lot from the main lab are its dormitories – housing for Modern employees, so large in fact that there are wings for singles and married couples. In some of the lab-related message boards of [DentalTown.com](#), I'd seen the oft-circulated photo of a warehouse as large as a football field, presumably in an Asian country, crammed with oppressed-looking dental lab technicians sitting elbow-to-elbow diligently working on restorations while threatening armed guards roaming the overhead catwalks look on. There is absolutely no evidence of that at Modern (in fact the guard in the lobby wasn't armed at all). Really, the only way you can call Modern a "sweat shop" is if you were to do jumping jacks in its parking lot for 10 minutes in China's soupy tropical humidity. Inside the lab is quite a bit cooler and a lot more comfortable. And for as large and open as the facility and workspaces are, Modern doesn't feel at all like a warehouse. Technicians were free to move about in segmented areas and everything seemed to have a natural flow.

Upon our arrival, we are escorted to the seventh floor, where new hires begin their training, and where the cafeteria is. There we are treated to refreshments and introduced to Godfrey S.K. Ngai, the stately yet unassuming director and CEO of Modern Dental Labs. Ngai explains that every floor houses a specific process. One floor is dedicated to wax-ups, another for dentures, another for porcelain buildup, and so on. "The students work on study models until they are ready to go to the production department for further on-the-job training," says Ngai. "Our

The immense lab is constantly hiring new staff as it continues its expansion and refills the turnover staff, which runs about 10 percent. "When other labs look for technicians, they come to us," says Ngai. "And in China, our employees come from all parts, so the mobility is inevitable. They leave to go back to their home town, they may get married or become a mother, or they may change their occupation. It's hard to avoid. We try to look after our staff by having a safe environment, housing, meals, training, a sense of belonging and opportunities for growth." Lab technicians are paid around \$4 an hour in Shenzhen (were the lab located in Hong Kong, lab techs would be paid \$7 an hour to adjust for cost-of-living expenses). I am initially taken aback by this amount considering \$100 in Chinese currency equals close to \$15 American, but the cost of living in China is quite a bit lower than in America. Four dollars an hour can go a lot farther in China, Ngai tells me. Along with free housing and meals for its staff, Modern is also paying for health-care benefits as well as retirement, which was implemented a few years ago, says Ngai.

Some staff have been with Modern for more than 10 years. We're about ready to head down another floor when Ngai recalls a ceremony that was held for the veteran staff where they received gifts and recognition for the time they've spent at the lab. "There is one moment I will never forget in my life. At the ceremony, there were staff standing on stage that had become so emotional, they cried," says Ngai. "Some were department heads; they'd never dreamed of this result when they came from their home towns to work for us. They grew together with the lab. Imagine, when they first started in

January 1993, there were only 45 people working here.” Now there are thousands.

Every day there are two shifts of eight hours each – 8 a.m. to 5 p.m. and 2 p.m. to 10 p.m. Ngai explains that, by law, all employees are allowed 40 hours a week. “Anything over that is overtime, and we try to avoid that,” says Ngai. “It becomes too expensive.” Because China’s holidays don’t jibe with holidays in other countries, some of Modern’s technicians might work on days like Chinese New Year, and this also takes its toll on Modern’s payroll. However, if you’re handling more than 2,000

like we’re not even there. I’m reminded of the artist who painted my name on the grain of porcelain at Luohu Commercial City.

“Our lab is a process-based manufacturing organization,” adds Ngai. “We start with our technical training institute centered around an academic foundation and the ISO 13485 quality management system. This school provides our employees with both a theoretical and practice understanding of dental technology. We are able to also build the culture of ‘patient-centered’ work. When we apply the quality management system

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*– Patrick Tessier,
president, Modern Dental Laboratory USA*



cases each day like Modern does, sometimes that overtime work pays for itself. It takes about two weeks for reappointment, says Tessier. “Our lab works on cases six to eight times longer than other labs, not because we’re sending cases overseas, but because a slower pace means higher and more consistent quality.”

As we walk through the dental lab, I ask Ngai about material contamination – like lead – and how his lab ensures that restorations that are assembled at his lab don’t contain harmful elements. He explains that Modern receives its raw materials from many of the same suppliers American and European labs use. Every single case is overseen by the lab’s computerized quality management system. Modern hangs onto the purchasing invoices for all the material it obtains. Material is recorded by batch numbers, which can be traced back to where it was purchased and where it was used. “If the manufacturer notifies us of a problem, we can trace that material to individual cases and take action,” says Ngai. All cases are bar coded and scanned as they move from department to department. When I ask if there’s ever been a mix-up, Ngai says, “Not really. There is a computer in each room. Everything that comes in has to be scanned. If there is a problem it will be found in that room.” If a problem is ever found, the case can be traced back to all of the technicians who worked on it. The lab treats anything like this as a learning experience for everyone involved.

We stop in front of a couple female technicians working on some porcelain buildups. Tessier nudges me and says, “Check this out. Watch them work.” There are more than 15 of us surrounding these two technicians, but to them it’s

to this educational skill foundation, we are able to grow our company and achieve economies of scale previously unattainable. The end result is high quality, very consistent products that can be offered at economical prices.”

But what happens when a remake needs to be done? Tessier explains that no matter where the fault lies, Modern has always done the remake. “Remakes are part of doing business,” says Tessier. “We’re not emotionally tied to the crowns we produce. If the dentist needs a remake, we do it.” Any small adjustments are handled at Modern Dental Laboratory USA in Bellevue, which can be turned around in about three days.

For as proud as Tessier is about the lab’s consistent quality and customer relations, he’s even more jazzed about its ISO 13485 classification. The International Organization for Standardization (ISO), a network of national standards institutes of more than 150 countries, has published more than 16,000 international standards, including ISO 13485. This particular quality management standard requires manufacturers to provide medical devices and related services that consistently meet end-user requirements and regulatory requirements applicable to medical devices and related services. According to Tessier, the quality processes applied to the materials leaving Modern Dental Laboratory exceed FDA requirements.

When the tour ends, I pull one of the dentists who was on our tour aside and ask him why he’s so keen on using the services of Modern Dental Laboratory. “Compared to other dental labs I’ve used in the past, their consistency is unmatched. I don’t even bring a handpiece into the operatory for seating.”

“In every country and every economy there’s a bell curve. There are some lousy labs and there are some of the best labs in the world. We’re not trying to offer the best restorations in the U.S. – we’re trying to offer the best in the world,” says Tessier. “But we’re not for everyone. If dentists are concerned about price, yes, we are competitive in that aspect, but they could probably do better if that’s all they’re concerned about. When it comes to overseas operations, we’re more on the high end of cost. Our concern is about quality, not price.”

Later on Tessier and I discuss the stigma of overseas dental lab work, how it’s impacting American labs and dentists, and why Modern Dental Laboratory hasn’t tried to cover up the fact that all of the restorations it produces are from China. “We can’t base our business on a lie, which we wouldn’t want to do anyhow. The world is getting smaller and the economies are globalizing – just read Thomas Friedman’s *The World is Flat*. We’re proud that our restora-

tions are made in China. We’re proud of the high quality and consistency we offer.”

I cannot vouch for all Chinese dental labs, as I only toured Modern, but the tour and meeting with Ngai and Tessier certainly made me think twice about sweeping generalizations about overseas lab work as a whole. For dentists who outsource their labwork, you already know you have hundreds upon hundreds of dental labs to choose from. However, from the local lab guy down the street who has been in business for decades to the American dental lab giants to the new wrinkle of off-shore labs, dentists know (or should know) that it all comes down to due diligence, according to Tessier. “Doctors should make sure the labs they’re using are reputable,” says Tessier. “They should check to make sure their labs use quality materials and have systems in place to make sure the restorations they’re producing are the best they can produce.” ■



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