



From Ann Arbor to Bauru, the Universal Language of Dentistry

Brazil 2015: Teddy & David

Day 1:

Traveling from Ann Arbor, Michigan to Bauru, Sao Paulo, Brazil, we had the goal of collaborating about models of oral health care delivery. As students from the US, we were excited to embark on a journey to see what dentistry is like in Brazil. The following story will elaborate on the lessons we've learned on our externship to Brazil. After about a 10 hour flight, we arrived in Sao Paulo, Brazil. We then took a connecting flight from Sao Paulo to Bauru airport where we were picked up by our host Dr. Adilson Furuse who drove us to the dental school about 30 km away from the airport. On our way to the school, we learned that Bauru is a college town much like Ann Arbor, as the city is composed of several universities. As we arrived at the dental school, we came upon their iconic blue security gates. From there we were escorted by school security guards and Dr. Furuse to our dorms where we lived with 8 other students.

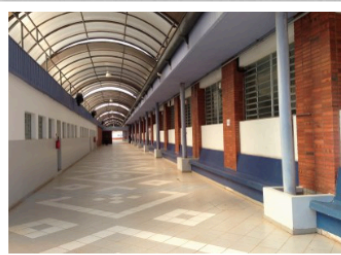
Day 2:

At 9 am, we met with our host Dr. Furuse. We spent the morning touring the library, operative dentistry clinic, biochemistry department, the clinic for special needs and medically compromised patients, the endo department, simlab and other departments. We met various faculty and students, many of whom were great English speakers. They made us feel very welcome and took time to get to know us. We learned that we would be integrated/enrolled at the school as regular students, getting student IDs, getting access to gyms/cafeterias/libraries etc. We even were given our own reusable cups, which was part of the school initiative to recycle and be environmentally friendly. We learned that the water is very clean in Bauru, even more so with their fancy filtration systems. We then had lunch at their cafeteria with **Fabio Antonio, a PhD student who visited Univ of Mich in 2012** as part of the very same exchange program we are partaking in today. The cafeteria was amazing, it served nutritious, full meals for only \$0.50 US.



Things we learned about the dental school:

- Education is free for students, while treatment is free for patients
- Students are required to purchase their own instruments
- It is rare for students to buy loupes (according to a student I talked to, only about 5% of students buy loupes).
- Dental class is predominantly female at about a 3-4:1 ratio.
- Students in the school's postgraduate/speciality programs come from various countries in South America, including Bolivia, Dominican Republic, Peru, and Ecuador among others.
- This Bauru campus is only comprised of dental students (~50 per graduating class) and Speech pathology students.
- Dentistry is a Bachelor's degree here, with students coming directly out of high school.
- USP-Bauru is a 4 year program, while most dental schools in Brazil are 5 year programs.
- Clinic staff and technicians in addition to doctors are also referred to as professors as a sign of respect
- All professors are referred to by their first name.
- Undergraduate students are paired together for each clinic they are in, such that they always have a partner to work with.
- Since treatment is free for patients, the treatment plan is not dictated by finances. Therefore, students regularly perform highly aesthetic and complex cases.
- Operative dentistry is considered a specialty in Brazil. Students enter dental school directly from high school. They take an entrance exam called the "Vestibular" or in translation: "Entrance". Each dental school has their own entrance exam, so students wanting to apply to 10 dental schools need to take 10 entrance exams.



Area where patients wait for treatment



Clinic operatory



Clinic operatory



Picture of campus



Teddy and David in the style of clothing for dental students (white from head to toe)

We then spent the afternoon in the postgraduate operative clinic observing many anterior 6 composite veneers, bleaching and other aesthetic procedures. The dentists in this specific clinic were already working dentists, who took this continuing education course, where they stayed at USP for one week a month for two years. The dentists in the post-grad program are from various countries throughout South America, such as Peru, Dominican Republic, etc.

At night, two of our dorm-mates took us to the mall to buy dinner and get some last minute supplies. We compared prices of clothing, food, etc. We found out some things such as electric cars are cheaper in the US, and other things like food, clothing are cheaper in Brazil. Back at our dorm, we continued talking, comparing our way of lives, school experience, etc. We learned that the students here give themselves nicknames and actually refer to themselves by such throughout dental school and for the rest of their dental careers. The nicknames ranged from Katy Perry, Guetta, Majin Buu, Johnnie Walker, etc.

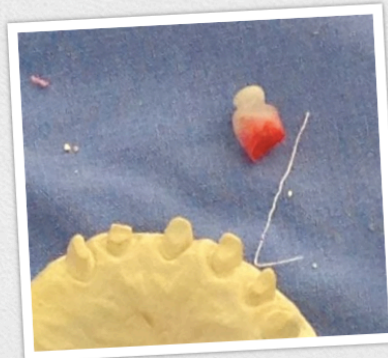
Day 3:

In the morning, we were in prophylaxis clinic with 2nd year students doing their first prophylaxis on each other. We observed as the instructors went over infection control. We noted that USP, FOB (University of Sao Paulo, Faculdade de Odontologia, Bauru) really minimizes its use of disposables by using covers that can be sterilized and reused. There is almost no plastic or paper use here in the dental school. Another interesting thing is that students are made to purchase their own equipment, masks, and gloves. When these students graduate, they can take their purchased instruments to wherever they will eventually work.



We then went to lunch at the nearby mall. We tried some Alcatra - steak, salad, and rice. There is a flour spice called "farofa" that is used as a topping over beans and meat. It is a toasted cassava flour mixture. Very good!

In the afternoon, we were in prosthodontics class with 3rd year undergraduate dental students. We observed two very cool techniques. The first one is called the "casquette" technique. It is a technique to get impressions for a single tooth. From a dental cast, dental triad material is used to shape the top 2/3rds of the contraption that would take the single tooth impression. The last 1/3 was the red acrylic material. They specifically used Duralay for the acrylic material. After applying vaseline, red acrylic in a more liquid state would be poured over the tooth. Before the acrylic sets, the impression contraption is placed onto the tooth, so that the acrylic extends subgingivally and forces the liquid, setting acrylic to push the gingiva outward. The contraption was kept there until the acrylic set and hardened. The technique has minimal bleeding, exposes margins nicely, and replaces the cord. The second cool procedure we observed was how they took their bite splint impressions. The instructor placed a coldpak acrylic on the front anterior teeth to create open space of 5mm in the anterior, and 2mm in the posterior. Then they used red wax to create the bite registration. The bite splint would then be fabricated to fill space given by the wax/acrylic.



Day 4:

In the morning, we attended the simlab to observe their 3rd year students prepare and restore central incisors with composite veneers on their typodonts. The labs are very nice, and have cameras and tvs to show what the teacher is doing. However, today the instructor just used the chalkboard to explain the material. We talked with Masters in operative dentistry students who were also instructors in this class. We found out many of them are very young since the dental education system is different in Brazil (you enter dental school out of high school), one first year masters student we met was only 20 years old. After this, we went with Dr. Furuse to the Dean's office to have a meeting with the Vice Dean, Dr. Carlos Ferreira dos Santos. We had a great conversation where we spoke to him about our education in Michigan, our impression of the education in Bauru, and his and our experiences in the field of dentistry.

At lunch, we ate with a **3rd year master's student who also participated in the Michigan exchange program 3 years ago**, as well as Speech pathology students. We learned a little bit about speech pathology, and we found out about 95% of speech pathology students are female.

In the afternoon, we went to the mixed Perio-Prosth clinics to observe the undergraduate dental students. It was such a wonderful experience where we saw many procedures for the first time. We saw a frenectomy done by a 4th year student. We then saw another 4th year student work on a crown prep with crown lengthening. We also saw multiple implants placed by professors or perio residents, since in Bauru students are allowed to plan and restore, but not place implants (Just like at UofM). The most interesting technique we learned was the use of natural tooth as a temporary restoration. For areas planned for possible or eventual implant placement, whether it was immediate implant placement or extract/allow healing, the crown of tooth was first bonded to adjacent tooth just like a Maryland Bridge, then the crown was sectioned off from root, and root extracted. Then after adequate healing, and when either the area was ready for implant seating, or immediate implant was healed, the crown would be removed, and impressions would be taken. In the evening we had a wonderful time at dinner with our roommates. We shared photos of University of Michigan to our dorm-mates who were impressed by the beauty of the dental school, Ann Arbor and winter. Brazil is an extremely tropical country. While we were there, it was just the end of their winter. Even during this time, it averages 85 degrees during our two-week stay. The students generally hang out in t-shirts and sandals in their off time. They say that it can get as hot as 110 degrees in the summer.

Day 5:

Today we started our morning at operative clinic with the 4th year dental students. We watched as students did restorative, endo, whatever patients needed. One thing of note was when a student spent the whole appointment making temporary restorations of the anterior 6, so that patient could go home to his wife and show his restorations before doing final restorations. This really showed what patient care was about, because it allowed the patient to sort of test drive his newly fixed teeth and then come back a week later to give his feedback. Another interesting procedure we saw was a patient who had an amelogenesis/dentinogenesis defect that would be diagnosed by the end of the day. In order to help the patient deal with sensitivity, the student used a dental laser in order to repolarize the fibers. We also spoke with and met Masters/PhD students from Ecuador and Peru. We found out some of these students had done work/travel programs in the United States during their summer vacations in California, Florida and Virginia. We talked about their experiences of eating at Seven-Eleven, taco bell, In N Out, TJ Maxx, etc.

In the afternoon we went to the speech therapy/audiology clinic where we were given a tour by speech therapy and audiology doctors. Here they took us through their building to where patients were examined and treated. They even took us through a comprehensive hearing test, where they placed us in a soundproof room and put headphones on us to test how our ears would react at different sound frequencies. We even were asked to listen to and repeat, portuguese words back to our testers. Afterwards we were given tips on how to protect our hearing as dentists are at danger of losing high frequency hearing due to the sound of the high speed drill. Solutions included, soundproofed walls that prevented sound from bouncing back, wearing ear plugs, or using handpieces that do not emit such a loud noise. This experience really exemplified intra-professional collaboration.



Teddy enjoying his listening exam!



David listening intently on the instructions beforehand

For dinner, we had a pizza party at our dorm. We accompanied our dorm-mate to the supermarket where we helped him purchase ingredients for the pizzas he would make from scratch. It was fun to go through basically a South American version of Kroger. We stocked up on many snacks we do not have here in the US. Tonight represented the hospitality we had been receiving during our whole trip. The friendliness, kindness of our trip was exemplified through the Brazilian card games we played, pizza we ate, the guarana that we drank, and finally, the selfie we all took together.



Making us feel like family



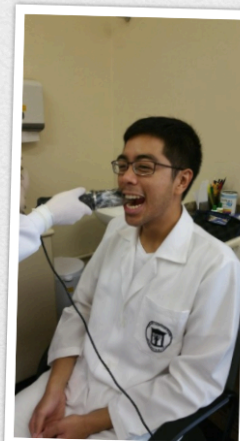
Good times and good memories

Day 6:

Today we started our morning in the Speech therapy and oral myofascial therapy clinic. This was a clinic in the Audiology department that dealt with treating patients who had TMD, dysphasia, muscle weaknesses and imbalances of the mouth, bruxism, mouth breathers, etc. In this clinic they had many fancy tools to measure the force of a bite, the function of one's muscles, the function of one's breathing and swallowing, etc. We even let them use the fancy tools on us in order to give us a closer look at the process.



Different technologies for measuring occlusal force and muscle stimulation.



Bite down hard, Teddy

The funniest moment was when David had throat stimulators on him, and was told to swallow. His throat muscles were stimulated to make it harder to swallow, thus swallowing a cup of water was a much more difficult task



"GULP"

We accompanied a PhD student who was studying dentistry/audiology as she saw a patient to gather data for her research on the effect of hawley appliance on a patient's speech. It was great to see collaboration between Dentistry and Audiology/Speech Therapy students. She used programs to measure his vocal frequency, amplitude, etc as the patient went through a vocal script. Some patients we see in clinic or dental hospital, whether they are given full dentures, obturators, etc will have speech difficulties, thus it is important to give patients resources/help that can be given via speech therapists. We then went to the pediatric clinic, where we watched the D3 students treat children up to age 14. Their pediatric clinic reminded me much of the one we have at University of Michigan, they really emphasized the do-show-tell technique known here as mostrar-faller-fazer. I saw this effectively used technique various times throughout the clinic, taking a kid who couldn't stop crying, to a point where he or she could be treated. Another great addition to their pediatric department was a clinic primarily for babies. In this clinic, exams were performed, and parents were educated on how to maintain their children's oral health. This highlights the use of prevention as a necessary dental treatment.

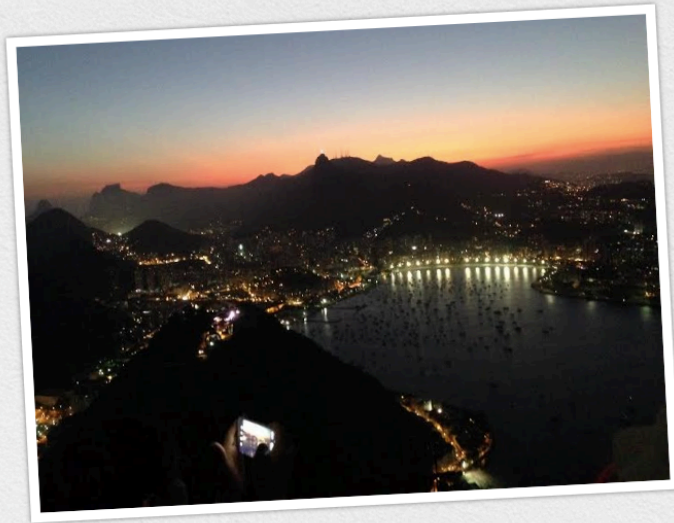
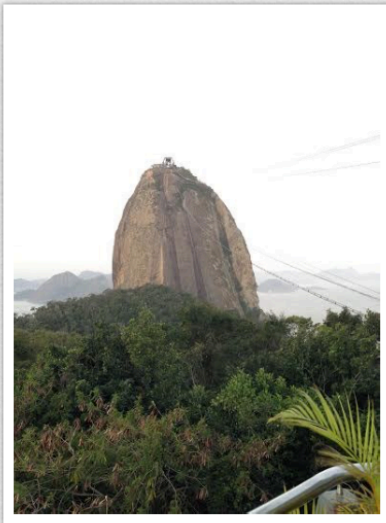


In the afternoon we were taken to their anatomy department where we got to observe their implant masters program being taught about facial anatomy. We were taken into their anatomy museum which had an impressive collection of plastinated nerves, structures, etc. The most impressive piece of equipment was a large digital device that was the size of a cadaver table. A digital HD screen covered the whole surface of the table. A digital copy of a human being was shown, and the instructor could use this touch screen surface to remove layers of fascia, muscle, bones. He could flip and manipulate the digital body and spin it in any direction he wanted. It was such an impressive piece of equipment that was used to teach their dental students about human anatomy. We were also taken to their cadaver room which was much like the one we had at University of Michigan.

Day 7 & 8: Visit to Rio de Janeiro

During our weekend between our two week stay in Barau, we decided to use our own funds to travel to Rio De Janeiro!

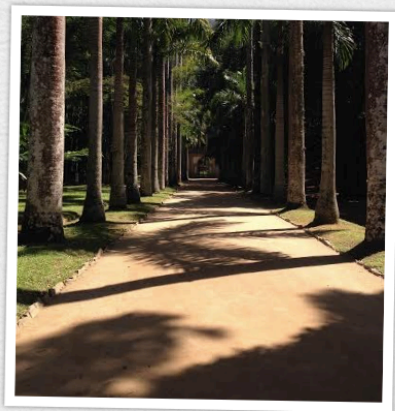
We were able to visit the beautiful city of Rio De Janeiro. Highlights of our visit included a trip to the breathtaking views of Cristo Redentor and Pao de Acucar. On our visit to Pao De Acucar (Translated in English to Sugar Loaf Mountain), we took sky trolleys that took us between the two picturesque mountains. At the peaks of both Cristo Redentor and Pao de Acucar, we saw a bird's eye view of Rio.



We also paid a visit to Maracana (biggest soccer stadium in world) where we took pictures of the stadium known for it's world cup fame and next year will be used for the 2016 Olympics.



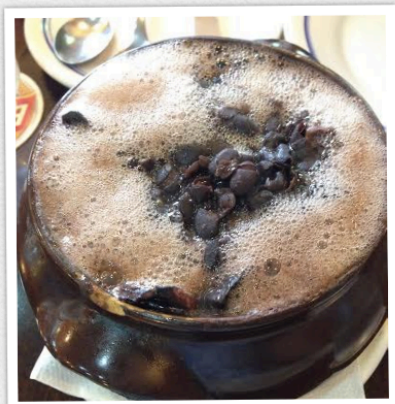
We also took a walk through the beautiful Jardim Botânico, a botanical garden in the heart of Rio De Janeiro.



And of course since we were in Rio, we visited the famous beaches Ipanema, Leblon Beach and Copacabana beach. We spent a whole afternoon relaxing in beach chairs on Copacabana beach where we kicked off our shoes, read books, listened to music and took in the atmosphere.



Our trip to Rio was made complete with amazing foods such as feijoada (a black bean dish mixed with different cuts of pork), coxinha (a fried dough filled with meat and cheese), pao de queijo (a bread made from a cheese/dough mix).



Day 9:

We spent the morning in grad prosth, where we observed their post-graduate student programs deal with complex prosth cases. One case we saw was a combined perio/prosth case. A periodontist performed a crown lengthening for a prosthodontist who then did a post core crown. Another case we saw was a student who created 4 temporary anterior crowns for a patient who had some previous implants and additional planned implants. Some interesting things I talked about today, included talking about Brazilian vs Dental student education. In Brazil, there are about 200 dental schools, creating a fierce competitive market. Thus dentists in Brazil do not make as good a living as dentists in United States. Additionally, a doctor was telling us that although there are so many dentists in Brazil, there is still an access to care issue. That many dentists still congregate in certain cities, leaving more rural areas with less access to care. The dentist also spoke about how it's still a cultural problem that some patients still don't value their oral health, turning down some dental treatment options for financial reasons even though they have money for materialistic things like an expensive handbags or a fancy smartphone.



Just one of many in Bauru

After school we walked to the famous Copacabana bakery, on our way to the bakery, we noticed the several dental stores that lined the streets we walked on. These dental stores sold things ranging from simple instruments, to bigger equipment like patient chairs. These dental stores were all over Bauru. One doctor even joked to me that if she ever forgot an instrument, instead of going home, she could just buy a new one at the dental store.

Day 10:

In the morning, we went back to Grad Prosth. Today we learned more about the impression taking technique we saw earlier, in which you take a final impression of a prepared tooth using triad and a red resin material. This was said to be used in lieu of cord for either financial reasons or for cases where multiple teeth across an arch were prepared. We also got to speak with Dr. Perigado, the former dean of the school, who is now a prosth faculty (Deans here are only allowed to serve until 70 years old, after which they are removed from their post, but can remain at school as faculty). He is a big name in prosth and has written the prosth books used by many South American schools. Another famous faculty we got the chance to meet was Dr. Mondelli, another big name in restorative dentistry who wrote the books used by many dental schools in South America. Dr. Mondelli really exemplified passion in dentistry, as he would stay at the school late into the night. We shared in his passion one night when we stayed with him to watch a video discussing certain dental techniques.

In the afternoon, we went to grad restorative clinic where masters and PhD students took on difficult cases. One case I saw was a gingivoplasty to create symmetry as well as a frenectomy to help alleviate a diastema. Other interesting cases included the use of resin to create a post, core and temporary crown for an very young patient. In this clinic, as in others, we noticed the post-grad students take many pictures. In fact they usually take pictures of every step of event procedure they do for all their patients. It was explained to us that the students are taking materials to accumulate materials to make powerpoints in future for the tests one has to take here in South America in order to become a professor (given a topic, then you have 24 hours to prepare a lecture on that topic. Another main requirement of a grad student at USP are taking an english exam (english is important for publication).

Day 11:

In the morning, we were given a tour of Centrinho Hospital. Bauru was known to have a high prevalence of cleft lip/palate patients, so in response, a hospital to treat those patients was created. What's unique about this hospital is the attention to detail in treating the whole patient. First of all, the hospital looks like a resort, with a zen garden at the center where patients can relax. From there patients undergo a comprehensive treatment that includes not only their surgery, but social services, psychology, genetic counseling, sign language, play therapy, etc. This intra-professional collaboration to treating cleft lip patients was something that really impressed us. Furthermore, the hospital was littered with playrooms and tvs to keep children engaged. Additionally, the hospital provides a cafeteria where patients and their families can eat for free. Other highlights of the hospital include housing for the patients and their families. Another aspect I liked about Centrinho was that former patients (up until about 2 years ago, due to government job testing), were employed by the hospital. It is also a major teaching hospital that has 100s of residents and masters students in dental, surgical fields.



Centrinho-USP Hospital



Patient garden at Centrinho

At lunch, we met **Gabriela Chicrala, a masters student in oral medicine who once visited UM** as part of our exchange program 2 years ago. It was nice to be able to hear about her experiences in Ann Arbor!

In the afternoon, we went back to D4 prost/perio clinic, where we continued to see the students engage in many surgeries ranging from extractions, bone grafts, gingival relocation, stage 2 implants, and a procedure I've never seen before, an aesthetic alveoplasty. This clinic is by far my favorite undergraduate clinic to watch as these students do complex surgeries. We spoke to several masters students who taught us more about implants and the surgeries we saw today, and realized many of the post-grad students were excited to find an English speaking person to practice English with. I also spoke with students about their Amazon Rain Forest mission trip, where they travel by Air Force plane and boat, with mobile equipment, deep in the forest to treat a certain community multiple times a year.

In the evening, we participated in the USP 8K, where students, faculty and staff ran. It was a fun time, with music, friends, and hard running.



Day 12:

Today was spent at Centrinho Hospital, in which patients of the cleft lip/palate variety are treated in various specialties of dentistry. Our morning was spent mostly in pediatric dentistry, with a little bit of time in endodontic dentistry. In pediatric dentistry we spoke to residents about what their experiences were like. We learned that to use nitrous sedation, one had to have an actual certification. Furthermore, we saw the pediatric dentists use the mostrar-faller-fazer technique to communicate with patients, or as we call it in the states, tell-show-do. A major part of the pediatric clinic is the preventative/babe clinic, in which oral health/toothbrush technique is emphasized/taught and young infants are screened. Again, this really highlights the importance of prevention through education and information in treating one's oral health. I learned many useful pediatric techniques like "Tok aqui" - high five, and "joya" Thumbs up. In endodontic clinic, we saw the end of a root canal cleaning and shaping. We learned that many of their patients are referred to them by dentists who are afraid to treat patients with cleft lip/palate, even though the Centrinho endodontists tell us that those dentists should be able to treat those patients.

In the afternoon, we split our time between pediatric dentistry and orthodontic dentistry. In pediatric dentistry, we observed a patient being treated under nitrous sedation. The dentists utilized techniques such as voice control, music, and videos in order to successfully treat the patient. The fun music and videos the children watched really helped distract them for the procedure. Afterwards, in ortho clinic, we got to see how many of the cleft lip/palate patients are treated. Many of them are missing teeth congenitally, thus the orthodontists have to figure out a plan of treatment, such as using canines as laterals, etc. We learned that ortho in this case, has more emphasis on making sure the face/appearance of patient looks good with optimal occlusal function, and not stressing out about if a patient is not in perfect class 1. Many of the patients need a combination of surgery, orthodontics, and even prosthodontics as part of their treatment plan. The treatment usually lasts years, commonly going all the way until the patients are fully grown adults. We could tell the patients were very grateful for the treatment and care that they received from the hospital. The attention to detail and warm-heartedness of the hospital providers was evident in the hospital. Their kindness, coupled with the peaceful resort-like feel of the hospital, really made an impact on the patient's experience.

Day 13:

In the morning, we returned to Centrinho Hospital where we split our time between operative dentistry and periodontics. In operative dentistry we watched as the dentists did treatments ranging from class 2s, 3s, diastema closures, and treatments as complex as what they called re-anatomization, in which they took abnormal looking teeth such as peg laterals, and built them up to look more anatomically correct. We noticed that all the dentists use rubber dams in order to protect patients with openings in their palate. Later on, we went to periodontics clinic, where the residents did prophys/SRPs in one room, and periodontal/implant surgery in another room. Because treatment is free, the patient suffering from cleft lip/able are able to get the needed grafts/implants they need.

In the afternoon we split time between Prosthetic and Bucco Maxillofacial surgery. In Prosthetic clinic, they made prosthesis that were utilized by the patients to cover their openings. The prosthetic appliances made were very unique and had unique designs. One unique appliance we saw was an overdenture that went over a patient's teeth/covered her palate. The patient had a really retrognathic maxilla, and because patient could not have jaw surgery due to health reasons, a overdenture was made. In other cases, a patient received both a fixed prosth appliance to replace one or several teeth, and a removable appliance obturator to cover the holes in their palate.

What we learned was that treatment was dictated by the ortho and prosthetic departments, and operative, surgical, restorative, endo, etc all played parts in making sure the ortho and prosthetic treatments were carried through.

One thing of note was the cultural difference between Brazil and the United States. We noticed that in Brazil, many students, staff, patients and professors would consistently exchange hugs/kisses between each other. The closeness between the faculty, students, staff and patients was very apparent. One amazing example was exemplified by the day we were talking to clinic and could hear very awesome sounding drum rhythms and singing. We followed the sound to find the 4th year dental students marching, drumming and singing their way to their favorite lab technician to let him know that he would be selected as the honorary faculty of their graduating class. The dental lab technician humbly stepped out to accept this honor and give his own thanks to the cheering students.

This Brazil experience was very enjoyable, from all the food we ate, the friends we made, and the places we visited. But most importantly, we were able to learn lessons there in Brazil, that we take back to University of Michigan. We have enjoyed teaching others about the importance of inter-professional care in Brazil, the friendly relationships between faculty, staff, students, patients, and the overall effort to providing patients excellent care.



Left to right: Guetta, Cheetah, MajinBuu, Ever, Perdigao, Povilho



David, holding up the line in clinic.



University of Michigan and USP Clothing exchange



University of Michigan and USP Clothing exchange



Acknowledgements:

We are very thankful to those that made this trip possible.

First off, we would like to thank those on the University of Michigan side, Mrs. Cindi Hartmann, Dr. Carlos Gonzalez, and Dr. Christiane Squarize for selecting us to partake in this wonderful experience, and for taking all the time it took to organize the trip, help us with our paperwork, and make the necessary arrangements to help us have an amazing experience.

We would also like to thank the faculty of University of Sao Paulo, Bauru for taking us in and making us feel welcome! Of all the faculty, we'd like to give our biggest thanks goes to Dr. Adilson Furuse, who hosted our trip and made all the necessary arrangements on the Brazil side for us. More thanks goes to the wonderful students, and now our friends, who helped make our time in Brazil a memorable one.

And our most heartfelt thanks goes to the International College of Dentists, as if it were not for their sponsoring and funding of our trip, we would not have had the amazing experience nor learned the valuable lessons from our experiences in Brazil.

Thank you to all!