

COURSE READINGS

Course Title: Introduction to Careers in Dentistry



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Course Description: This course introduces students to the exciting and varied career opportunities in the dentistry profession, from dental assistant all the way up through oral surgeon. Students will review the history of dentistry globally and in the U.S. and will learn key dental terminology. The course will introduce the roles and tasks done as well as skills and education required of nearly every member of the dental staff. Students will gain an understanding of what it takes to perform each position, and how they work together.

Note: The below readings are simply the reading texts for each module/unit, but do not include images, embedded videos, podcast, other multimedia, interactive activities, discussion prompts, and assessments that are part of the full online course. Please email contact@pointfuleducation.com to get access to the full course demo in your organization's LMS.

Module 1: Paths to Dentistry

<p>Module Description</p>	<p>You probably don't look forward to going to a dental appointment with the same excitement you look forward to summer vacation. In fact, you may even have some anxiety about seeing the dentist. A trip to the dentist usually includes some poking, prodding, and occasionally, drilling. None of which are particularly comfortable experiences. But the truth of the matter is, it's a whole lot more comfortable to go to the dentist today than it ever has been in history.</p> <p>In this module, we are going to look at the painful history of dentistry both across the world and in the United States. We'll identify prominent historical figures who made strides in the dental field. Then we'll look at the dental team today. We'll discuss the roles of each member of the dental team and look at the skills and traits needed to be successful in each role.</p>
<p>Reading #1</p>	<p><u>A Long History</u></p> <p>The history of dentistry is long, painful, and even dangerous. Although we could write an entire course on just the history of dentistry, we are going to try and hit the key milestones in this module. In particular, we will pay attention to the history of dental procedures, dental appliances, and preventative care in oral health.</p> <p><u>Ancient Tooth Drilling</u></p> <p>Dental problems are not just a modern-day issue. People's teeth have been giving them trouble for thousands of years. Based on archaeological evidence, it would appear that people have also been trying to alleviate those dental problems for thousands of years.</p> <p>Based on finding holes drilled in the molars of teeth of some individuals buried in what is now Pakistan, it seems that teeth drilling dates back to 7000-3500 B.C. ⁽¹⁾ Researchers have noted that the only teeth drilled are the molars, which indicates that teeth drilling was not done for cosmetic purposes.</p> <p><u>Ancient Root Canals</u></p>

Going back even farther, archaeologists discovered two human teeth from about 13,000 years ago show signs of a crude sort of root canal. ⁽²⁾ The diseased pulp from each tooth appears to have been extracted and the teeth filled with a bitumen, vegetable fiber, and hair mixture.

First Dentures

The Etruscan civilization, which was located in present-day Italy, are credited with creating the first dentures. ⁽³⁾ They put gold rings around what was left of teeth and then teeth from another person or from an ox were inserted into the gold rings and bound to the original teeth with a pin. Only the wealthy could afford this sort of procedure.

Tooth Extraction

The Etruscans were conquered by the Romans. In 1987, 86 individual teeth were discovered in the floor drain of a shop in Rome. ⁽⁴⁾ These teeth are believed to have been extracted around the first century AD. What is particularly remarkable about these teeth is that they all seem to have been skillfully removed. There were no breaks or scrapes on the teeth from the procedure. Based on writings from the time, tooth extraction was done by wiggling the tooth in its socket and cutting the gums.

Middle Ages

Like many other sciences, dentistry took a bit of a step back during The Middle Ages. During this time, bloodletting, leaching, laxatives, and using red-hot iron to destroy the tooth's nerve were all used in an attempt to alleviate dental problems. The source of the problem was widely believed to be caused by "worms of the mouth." The attempts to alleviate the dental problems were actually attempts to draw out the worms. Since sanitation was questionable at best during this time, a dental procedure could easily have led to infection and death.

Fillings

The first evidence of fillings date back thousands of years ago. Archaeologists discovered a tooth filling made out of beeswax dating back 6500 years ago. ⁽⁵⁾

Other historical filling materials have included metals such as gold, silver, and tin. Amalgams, which is a mixture of metals, were introduced to the western civilization in the 19th century. ⁽⁵⁾ Amalgams consisted of tin, silver, mercury, and copper. Originally, the amount of mercury in fillings was potentially dangerous to patients because it could seep into the body's system and cause health problems.

Today, the amount of mercury, if used, is much less. Furthermore, it is bound to the other materials to minimize the absorption. Other available fillings include gold, silver, composite resin, or porcelain. The material used depends on the unique needs of the patient.

Preventative Care

Although there were strides made in educating and specializing in dentistry, little progress was made in preventing dental issues in the first place. A gritty diet wore teeth down and the more affordable sugar became, the more common tooth decay became. Even the advent of the toothbrush did little to help prevent tooth decay.

	<p>Around 1900, fluoride began to be used to help prevent tooth decay in the United States.⁽²⁾ Today, municipal water contains fluoride in most places through the US.</p> <p>A healthy diet, regular flossing, twice daily brushing with fluoridated toothpaste, and yearly to biyearly dental checkups are the most common forms preventative dental care.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Kenoyer, J. M. (1991). Ornament Styles of the Indus Valley Tradition: Evidence from Recent Excavations at Harappa, Pakistan. <i>Paléorient</i>,17(2), 79-98. doi:10.3406/paleo.1991.4553 2. K. (2017, December 14). The Painful History of Dentistry. Retrieved January 19, 2018, from https://hubpages.com/health/A-Short-Painful-History-of-Dentistry 3. Science Museum. Brought to Life: Exploring the History of Medicine. (n.d.). Retrieved January 19, 2018, from http://broughttolife.sciencemuseum.org.uk/broughttolife/objects/display?id=4320 4. Killgrove, K. (2015, June 19). Roman Forum Yields Stash Of Teeth Extracted By Ancient Dentist. Retrieved January 19, 2018, from https://www.forbes.com/sites/kristinakilgrove/2015/05/21/roman-forum-stash-teeth-extracted-ancient-dentist/#70c92b985ed0 5. Dentist, 123. (2016, March 03). The History of Dental Fillings. Retrieved January 19, 2018, from https://www.123dentist.com/the-history-of-dental-fillings/
<p>Reading #2</p>	<p>Like the history of dentistry, we could spend an entire course just talking about the contributions of individuals to dentistry. To keep the topic manageable, we will focus on just a few individuals who made scientific discoveries that advanced the field, and a few who were the first in their respective groups to enter the field of dentistry.</p> <p><u>The First Dentist</u></p> <p>Around 2600 BC, an Egyptian physician named Hesy-Re died.⁽¹⁾ On his tomb was inscribed, “the greatest of those who deal with teeth, and of physicians.”⁽¹⁾ Because of the acknowledgment of his work with teeth, Hesy-Re is considered the first dentist.</p> <p><u>Ancient Greece and Rome</u></p> <p>Aristotle and Hippocrates were some of the greatest scientists, physicians, and thinkers of their time, and arguably some of the greatest thinkers in history. Between 500 and 300 BC, they wrote about dentistry, in addition to their other works.⁽¹⁾ Some of the topics they covered in dentistry included the eruption pattern of teeth, how to treat issues like decay and gum disease, tooth extraction, and how to use wires to stabilize teeth in the event of a broken jaw. Celsus, a Roman also wrote extensively on oral health around 100 BC.⁽¹⁾</p> <p><u>Bartolomeo Eustachius</u></p> <p>Credit for the first accurate book on dental anatomy goes to Bartolomeo Eustachius in 1563.⁽¹⁾ You will recall from our earlier section that there was a lot of superstitions and wrong ideas about dental health around that time. Eustachius, on the other hand, was remarkably</p>

accurate in his description of the dental anatomy. Because of that, many consider him, “the father of dental anatomy.” ⁽²⁾

Antony van Leeuwenhoek

Until the invention of the microscope, there was no real knowledge about the microscopic organisms inside our mouths. In 1683, Antony van Leeuwenhoek took a sample from the plaque on his teeth and examined the sample under a microscope. ⁽³⁾ He called the microbes, “animalcules” and wrote to the Royal Society of London about the appearance and liveliness of the animalcules.

Pierre Fauchard

Pierre Fauchard published, “The Surgeon Dentist, A Treatise on Teeth” in 1723. ⁽¹⁾ The book was notable because it provided a comprehensive system for practicing dentistry. Not only that, but Fauchard also noted that acids derived from sugars cause dental decay. Of course today, even young children know that sugar is bad for the teeth, but at the time, it was a new breakthrough. His book earned Fauchard the title of “the father of modern dentistry.”

Baker, Revere, and Addis

During the 1700s, advancements in dentistry seemed to happen rapidly. In 1760 John Baker immigrated to the US and became the medically trained dentist to begin practicing in America. ⁽¹⁾ In 1776, Paul Revere correctly confirmed the identity of a fallen soldier by identifying a dental bridge Revere had placed in his friend's mouth. ⁽¹⁾ This is the first known case of post-mortem identification. Toothbrushes became mass-produced thanks to William Addis in 1780 who created his toothbrush while serving a jail sentence. ^(1,4)

Freeman and Nelson

With the exception of Hesy-Re in Egypt, the majority of people we have mentioned up to this point have been European males. It wasn't until after the Civil War, that African-Americans were able to make strides in dentistry.

In 1869, Robert Tanner Freeman graduated from Harvard University Dental School. Dr. Freeman was the first African-American dentist. In 1890, Ida Gray Nelson earned her DDS and became the first African-American woman dentist. ⁽⁵⁾

Lucy Beaman Hobbs

Not satisfied with the typical career options available to women, Lucy Beaman Hobbs applied to dental school in Ohio. Initially, she was rejected. But the dean, Jonathan Taft, began to train her out of his office. Soon after, she started her own practice in Iowa. Eventually, the Iowa State Dental Society pressured the Ohio College to admit her as a student. Thanks to her years of practice at this point, the college awarded only required one session of attendance for her before they awarded her a Doctorate of Dental Science degree in 1865. ⁽⁶⁾

Alfred C. Fones

Although there are many figures we have not mentioned, we will mention just one more. Dr. Alfred C. Fones noticed that those who had routine teeth cleanings tended to have fewer dental

	<p>issues. He began training his assistant on how to remove plaque and stains. Seeing such positive results with his patients, he opened up the first oral hygiene school in 1913.⁽¹⁾</p> <p>Many of the graduates of his program were hired by the Bridgeport Board of Education to clean the teeth of school children. Not surprisingly, the children who received the treatment had fewer incidents of cavities in decay. This created momentum in the field of oral hygiene. Dr. Alfred C. Fones is now known as “the father of dental hygiene.”</p> <p>References</p> <ol style="list-style-type: none"> 1. Association, N. D. (n.d.). Retrieved January 20, 2018, from http://www.namibiadent.com/the-history-of-dentistry.html 2. (n.d.). Retrieved January 20, 2018, from https://clinanat.com/mtd/595-bartolomeo-eustachius 3. H. (2014, September 15). Discovery of bacteria in humans: Sept. 17, 1683 HealthCentral. Retrieved January 20, 2018, from https://www.healthcentral.com/article/discovery_of_bacteria_in_humans_sept_17_1683 4. Nix, E. (2012, August 22). Who invented the toothbrush? Retrieved January 20, 2018, from http://www.history.com/news/ask-history/who-invented-the-toothbrush 5. Ida Gray Nelson Rollins. (2014, June 25). Retrieved January 20, 2018, from http://dent.umich.edu/about-school/sindecuse-museum/ida-gray-nelson-rollins 6. Timeline: Women Dentists. (2014, May 28). Retrieved January 20, 2018, from http://dent.umich.edu/about-school/sindecuse-museum/timeline-women-dentists
<p>Reading #3</p>	<p><u>American Dentistry Progression</u></p> <p>In this section, we will highlight some of the dates and events that have helped shaped American dentistry. Rather than trying to memorize names and dates, pay attention to how dentistry progressed and improved over time. What were the biggest contributions or steps forward?⁽¹⁾</p> <p>1760- John Baker sets up his office in America and becomes the first medically trained dentist in the country</p> <p>1776- First known case of dental forensics when Paul Revere identifies a fallen friend by a bridge in his teeth</p> <p>1790- First chair designed for dental patients</p> <p>1801- Richard C. Skinner writes, <i>Treatise on the Human Teeth</i>, the first dental book published in the US</p> <p>1840- The first dental school, the Baltimore College of Dental Surgery is established</p> <p>1841- First dental practice act was established in Alabama to regulate dentistry. However, the act was never enforced</p>

	<p>1859- Formation of the American Dental Association. They continue to be an influential organization to this day.</p> <p>1867- The Harvard University Dental School is founded. It calls its degree (in Latin) <i>Dentariae Medicinae Doctorae</i> (DMD). Thus instigating a continuous controversy over whether the correct acronym for a dentist is DMD vs. DDS (Doctor of Dental Surgery)</p> <p>1880s- Collapsible tubes revolutionize the toothpaste industry. In 20 years, it becomes the norm</p> <p>1883- The National Association of Dental Examiners is formed to establish uniform standards in qualifications.</p> <p>1885- First female dental assistant</p> <p>1890- Microbial basis of dental decay noted which leads to more interest in oral hygiene</p> <p>1895- First dental x-ray of a living person</p> <p>1908- Greene Vardiman Black publishes his two-volume treatise <i>Operative Dentistry</i></p> <p>1913- Fones Clinic for Dental Hygienists opens</p> <p>1930- American Board of Orthodontics is formed, the first dental specialty board</p> <p>1938- Nylon toothbrush appears on the market</p> <p>1945- Water fluoridation begins in Newburgh, NY and Grand Rapids, MI</p> <p>1948- National Institute of Dental Research formally established</p> <p>1950- Fluoride toothpaste on the market</p> <p>1990- Era of esthetic dentistry thanks to tooth-colored restorative materials, increase of teeth bleaching, veneers, and implants</p> <p>1997- FDA approves the YAG laser for use on dentin to treat decay</p> <p>This is by no means an exhaustive rundown of all the technology and advancements in dentistry in the U.S.. But hopefully it gives you a good idea of what has happened over the past couple hundred years to bring dentistry to where it is today.</p> <p>References</p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved January 22, 2018, from http://www.ada.org/en/about-the-ada/ada-history-and-presidents-of-the-ada/ada-history-of-dentistry-timeline
<p>Reading #4</p>	<p><u>The Dental Team</u></p> <p>As people become more educated about oral health, they seek out treatment and routine care for their teeth. In order to best serve patients, it is crucial that a dental team works harmoniously and efficiently. In this section, we will take a quick look at each member of the dental team and their contribution to patient oral healthcare. Subsequent modules in this</p>

course will take a much closer look at their roles and responsibilities, educational requirements, and lifestyle and pay.

Dental Assistants

Dental assistants are critical to a dentist's practice. Their exact duties and responsibilities may differ depending on state regulations as well as the requirements of the individual dentist. Regardless of regulations and preferences, however, the center of their work is always patient care. Assistants often prepare patients for exams and work along side the dentists during exams.

Dental assistants may handle a variety of administrative responsibilities as well, such as scheduling, updating records, and ordering supplies. In some states, dental assistants can take x-rays and dental impressions. A **dental impression** is a mold of an individuals' mouth. The impressions are then used to make individual dental appliances to fit the patient's mouth and teeth.

Dental Hygienists

Depending on the setup of the individual dental practice, the role of a **dental hygienist** may overlap with that of an assistant such as charting a patient's history, taking x-rays, or taking dental impressions. However, hygienist go through more extensive training and generally have higher salaries as a result.

Dental assistants must work under the direct supervision of a licensed dentist. Hygienists, however, have more independence. A key component of hygienist's job is to remove build up and stains from patients' teeth. Not only is this important for oral healthcare, but it also frees up the dentist's time to be able to focus on more advanced procedures.

Dental Laboratory Technician

If you love making things, then you might find the role of a dental laboratory technician interesting. **Dental laboratory technicians** create devices and replacements for natural teeth. Since no two mouths are exactly alike, the lab technician must make appliances perfectly suited for an individual's oral needs. Unlike dental assistants and hygienists who work in the dental office directly with patients, technicians often work in commercial dental laboratories.

Dentist

Out of all the members of the dental team, the dentist has the most formal training. Dentists complete four years of dental school. Even more years if they wish to specialize. Dentists are also ultimately responsible for the overall quality and function of the dental team with which they work.

The dentist examines, diagnoses, and treats oral diseases and problems. They prescribe necessary antibiotics and other medication. They also remove decay and fill cavities.

Proposed Positions

The American Dental Association has proposed two more positions to add to the dental team. One position is the **Community Dental Health Coordinator**. The key function of the community dental health coordinator is outreach and education to under served communities. These

	<p>communities some of the highest risks of oral diseases and problems, so educating members is crucial. Often, the coordinator comes from the very communities in which they serve. This helps eliminate cultural boundaries that may prevent the community dental health coordinator from being successful.</p> <p>The other proposed position is the oral preventative assistant. The oral preventative assistant provides a variety of preventative services as well as oral education. An oral preventative assistant may go to schools or community health centers to educate and raise awareness about oral healthcare.</p> <p>With a variety of options to choose from, if you have a big interest in oral healthcare, there is likely a perfect position for you as a member of the dental team.</p>
<p>Reading #5</p>	<p><u>Dental Assistant Technical Skills</u></p> <p>After attending a dental assistant program, it is expected that a dental assistant can do the following:</p> <ul style="list-style-type: none"> • Take x-rays • Take blood pressure readings • Take dental impressions • Prepare dental materials (and know what they are called and what they do) • Maintain equipment • Keep the room and equipment sanitary • Be CPR certified • Recognize the signs of an emergency situation • Familiarity with dental medicine and dental terminology <p><u>Dental Assistant Administrative Skills</u></p> <p>Depending on the set up of the office, the assistant may have many office responsibilities as well. Those responsibilities may include:</p> <ul style="list-style-type: none"> • Interviewing patients and conducting intake • Scheduling appointments • Maintaining records • Ordering supplies • Familiarity with dental software • Basic computer skills <p><u>Dental Assistant Professional Traits</u></p> <p>Since a dental assistant works with people, there are certain interpersonal skills and personality traits that a good assistant should have or develop. These include:</p> <ul style="list-style-type: none"> • Ability to follow protocols • Attention to detail • Effective written and oral communication • Ability to respond to a patient's needs • Excellent listening skills • Ethical behavior

- Work well as part of a team

Dental Assistant Physical Skills

Being a dental assistant is particularly physically challenging, but there are some expectations that a dental assistant can physically do such as:

- Have the stamina to remain on task
- Excellent hand-eye coordination
- Good vision
- Small motor skills

Dental Hygienist Technical Skills

After completing a training program and obtaining either an associate's degree, certificate, bachelor's degree, or master's degree in dental hygiene, a dental hygienist must also obtain a license. The license has both a written and a clinical part to it. After successfully passing both components, it's expected that a dental hygienist will be able to do the following:

- Complete patients' preliminary examines
- Take and develop x-rays
- Educate patients on procedures and treatments
- Clean deposits and stains from teeth and gums
- Evaluate overall oral health
- Examine mouth for signs of disease or other problems
- Chart patients' conditions and treatment plans
- Possibly (depending on what is allowed by the state) administer local anesthetics

Dental Hygienist Soft Skills

In addition to being full qualified and skilled at the technical responsibilities of the job, there are certain personality characteristics a good dental hygienist should have as well. These are known as soft skills. The soft skills of a dental hygienist include:

- Desire to help people and a sense of compassion
- Interpersonal skills such as being relatable, personable, and recognizing when someone is distressed
- Attention to detail
- Self-motivated and able to work with minimal supervision

Dental Hygienist Physical Skills

Like the role of a dental assistant, the dental hygienist doesn't have too many physical requirements, but there are some patient expectations such as:

- Ability to remain bent over patients for extended amounts of time
- Excellent vision
- Good hearing
- Manual dexterity to be able to hold and use small instruments

Dentist Technical Skills

Dental school takes on average, four years to complete. Like the hygienist, after completing, there is also a licensing component. A dentist must pass the National Board Dental Examination Parts I and II both the written and clinical parts. A fully licensed dentist can do the following:

- Examine and diagnose teeth and mouth tissue
- Remove tooth decay
- Fill cavities
- Repair damaged teeth
- Extract teeth when necessary
- Prescribe medication and antibiotics if needed
- Interpret X-rays

Dentist Soft Skills

As qualified as a dentist may be, there are certain soft skills that an excellent dentist must have as well and include:

- Critical thinking
- Excellent judgment
- Good decision making
- Patient oriented
- Good listening and communication skills
- Good time management
- Leadership skills to manage the dental team

Dentist Physical Skills

Here is a list of important physical skills a dentist should have

- Excellent vision (either naturally or corrected)
- Good hearing
- Ability to bend over patients for extended amounts of time
- Manual dexterity
- Small motor control

Dental Laboratory Technician Skills

Unlike the other members of the dental team, the dental laboratory technician often learns on-the-job. The skills are typically learned incrementally until eventually a dental laboratory technician can do the following:

- Pour plaster into dental impressions
- Manufacture bridges, crowns, and dentures
- Create orthodontic appliances

Dental Laboratory Technician Soft Skills

Like all positions within a dental team, the dental laboratory technician needs to have or develop certain traits as well. These include things like:

- Attention to detail
- Ability to recognize differences in color and shape
- Interest in material science
- Interest in emerging technology
- Ability to follow written and oral instructions
- Good time management

Dental Laboratory Technician Physical Skills

Dental laboratory technicians perform intricate work. Therefore, it's important they have the following physical abilities:

- Excellent hand-eye coordination
- Manual dexterity
- Steady arms and hands
- Excellent vision

These lists are by no mean exhaustive. Different offices may have different needs and therefore require additional skills. However, this should give you a starting point so you can start to evaluate where you might be a good fit as a member of a dental team.

Module 2: Dental Assistant

<p>Module Description</p>	<p>This module will familiarize students with the roles and responsibilities of a dental assistant. Students will learn what a typical day is like for a dental assistant and what their expectations are. They will also be introduced to some dental terminology, the universal dental numbering system, and basic chairside assisting. Finally, the requirements and educational requirements to become a dental assistant will be reviewed. All students will gain an appreciation for this essential piece of the dental team.</p>
<p>Reading #1</p>	<p>In this first section, we are going to look at some of the roles and requirements of a dental assistant.</p> <p><u>Sterilization</u></p> <p>Today, we don't walk into a dental office totally healthy and walk out with cold sores. But before the days of sanitation, that was exactly the sort of thing that could happen. If that happened today, it would destroy the reputation of a dental practice, not to mention warrant a visit from the health inspector.</p> <p>That is why the dental assistant's role as infection control officer is so crucial. Also important to the dental clinic is staying on schedule. Stopping to clean each instrument individually every single time would slow down the flow of the office. The dental assistant develops protocols to ensure that any equipment used during the exam is properly sterilized in the most efficient way possible. This may mean sterilizing right after the patient, or storing the instruments in a designated spot until there are enough used instruments to be sterilized as a group.</p> <p>Luckily, today there are machines that make sterilization more efficient than it has ever been. A dental assistant must know how to operate each type of machine, what instruments and equipment go in it, and how to load it properly.</p> <p>The assistant prepares dental equipment trays with all the sterilized equipment needed for the dentist to conduct an exam. Having the tray ready to go before the dentist enters the exam room saves time. An efficient exam helps the office keep to the schedule. Keeping to the schedule, in turn, keeps the patients happy.</p> <p>Dental exam rooms are called operatories. Keeping the operatory clean and organized is another important job of the dental assistant.</p> <p><u>Patient Care</u></p> <p>Patient care is crucial to dental assisting. If a dental assistant is stressed or having a bad day, the patient shouldn't be able to tell. That is how patient-oriented a good dental assistant should be.</p> <p>Dental assistants bring patients back to the exam rooms. This means that dental assistants are often the first person a patient interacts with significantly. Dental assistants set the mood and tone of the exam for the patient.</p> <p>Imagine being nervous about going to the dentist and then receiving no warm smile or greeting. For most of us, that would raise our stress levels even more! Dental assistants should be able to</p>

make all patients feel welcome. Being comfortable talking to people who are older, younger, of a different race or nationality shouldn't be a problem for a good dental assistant.

Good patient care doesn't end when the dentist enters the room. The dental assistant should check in with the patient throughout the exam. She should also try to notice signs of patient distress that the dentist might not notice.

The dental assistant might also educate the patient after the exam. She should feel comfortable explaining and teaching things like teeth brushing and flossing. She also might give the patient any special instructions on oral care after a procedure.

Chairside Assisting

One of the most interesting and also challenging responsibilities of a dental assistant is **chairside assisting**. That is when the assistant sits alongside the dentist during an exam or procedure to assist as needed.⁽¹⁾ The assistant will hand instruments to the dentist. It's not enough to hand the dentist a piece of equipment like you would hand someone a pencil. There is a special technique involved in handing equipment to the dentist. We will talk about that more in a later section.

There are times when a dental assistant will use certain equipment herself. Some of the instruments an assistant handles are suctioning devices and air-water syringes.

Preparation before the procedure is important. Assistants should be familiar with what is needed for a particular procedure and have it ready to go. As an assistant becomes more familiar with each type of procedure, she will naturally become more comfortable and able to predict the needs of both the dentist and the patient.

X-rays

Dentists use x-rays to better evaluate a patient's oral health. Often, the dentist will want the x-ray done before he starts examining the patient. This means a dental assistant is often the one performing the x-ray.

There are 5 common types of dental x-rays⁽²⁾:

- Bitewing
- Occlusal
- Palatal
- Panoramic
- Periapical

Dental assistants must know the differences between each type and how to correctly execute each one.

Dental Impression

If a dentist needs to put an appliance or something like a crown or bridge in the mouth, she will first need a **dental impression**. A dental impression is an exact mold of a patient's teeth.⁽³⁾ The mold is then used to create the device so that it fits as perfectly as possible in the individual's mouth.

	<p>A dental assistant often does takes the impression. First, she figures out which size tray the patient needs. Trying the tray before filling it with material also gives the patient a chance to figure out what to expect.</p> <p>Once the tray size is selected, the assistant fills it with the impression material. The material is soft and almost putty-like. The dental assistant than carefully places the tray inside the patient's mouth. The patient bites down on the soft material. Then the assistant waits a few minutes to allow the material to set. Once the material sets, the assistant removes it. She might also examine it herself before giving it to the dentist to make sure it appears to her to be an accurate mold.</p> <p><u>Office Tasks</u></p> <p>The amount of desk work that a dental assistant performs depends on the set up of the practice. Some dental offices have a large office staff who handle the scheduling, billing, and other paper work. At other offices, such tasks might fall to the assistant to do. Even if the dental assistant's responsibilities at the desk are minimal, she should still have some familiarity with the software and set up of the office.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. School, H. (2015, June 02). What does a Dental Assistant do during Chairside Assisting? Retrieved February 09, 2018, from https://www.harrisschool.edu/what-does-a-dental-assistant-do-during-chairside-assisting/#.Wn4OIkinGUL 2. Dental X-Rays: Purpose, Procedure & Risks. (n.d.). Retrieved February 03, 2018, from https://www.healthline.com/health/dental-x-rays#types 3. Dental impression. (2018, January 23). Retrieved February 09, 2018, from https://en.wikipedia.org/wiki/Dental_impression
<p>Reading #2</p>	<p>There are many key terms associated with the role of a dental assistant that are important to know. While there are more than we can cover in this module or this course, familiarizing yourself with the words below will allow you to be that much more prepared when beginning a formal dental program.</p> <p><u>Key Vocabulary Terms</u>⁽¹⁾⁽²⁾⁽³⁾</p> <ul style="list-style-type: none"> • Abscess - infection in the tooth, bones, or soft tissue. Caused by tooth decay. • Bicuspid - the 4th and 5th teeth from the center on both sides and top and bottom. They are called bicuspids because they have two bumps. • Calculus - hardened plaque on teeth. Can cause receding gums, bad breath, and tooth loss. • Cap/Crown - device used to cover and protect a tooth. • Cusps - bumps on the teeth • Extraction - removing a tooth either whole or in parts • Gingivitis - gum tissue infection • Group practice - a dental practice with two or more dentists • Impacted tooth - a tooth that cannot break through the gum's surface on its own and requires surgical removal

	<ul style="list-style-type: none"> • Mandible - lower jaw • Maxilla - upper jaw • Night guard - appliance used while the patient sleeps at night to prevent teeth grinding • Nitrous oxide - also known as “laughing gas.” A gas a patient inhales during a procedure to feel less pain and more relaxed. • Radiograph - images produced by x-rays • Scaling - removing plaque, stains, and calculus • Solo practice - a dental practice with one dentist • Suture - stitching cuts and wounds <p>References</p> <ol style="list-style-type: none"> 1. Dental Assisting Terminology You Need to Know. (2016, June 01). Retrieved February 03, 2018, from https://www.rosseducation.edu/blog/dental-assisting-terminology-you-need-to-know/ 2. Dental Assistant Terminology Learn Some Career Terms. (n.d.). Retrieved February 03, 2018, from https://www.allalliedhealthschools.com/dental-assisting/dental-assistant-terminology/ 3. (n.d.). Retrieved February 03, 2018, from https://www.ecpi.edu/blog/medical-terminology-for-dental-assistants
<p>Reading #3</p>	<p>This reading will cover the three types of teeth numbering systems used in dentistry.</p> <p>Universal or ADA System</p> <p>To make things more efficient, teeth are designated by number. There are three main numbering systems. One is the Universal or ADA Numbering System. In this system, each tooth is given an individual number 1-32. ⁽¹⁾ Tooth number one is the upper third molar on the right side (right side of the patient's mouth). This is the farthest back molar on the right side. The second molar back is tooth number 2 and the system continues following the arch of the maxilla until tooth 16.</p> <p>The numbering then drops down to the mandible. Tooth number 17 is the lower third molar on the left side. Tooth number 18 is the second molar on the lower left side and so on. The final tooth is the third molar back on the right side. It's tooth 32.</p> <p>Keep in mind, each tooth is assigned a specific number even if the patient is missing a tooth. Most adults have their wisdom teeth extracted. ⁽¹⁾ Nevertheless, the system stays the same. In this case, the first tooth visible is tooth number 2.</p> <p>The Palmer System</p> <p>The Palmer System divides the teeth into four sections or quadrants. Two quadrants are on top and two on bottom. Each quadrant corresponds to a unique symbol. ⁽²⁾</p> <p>Maxillary (top) left = L shape</p> <p>Maxillary (top) right = backward L shape</p>

	<p>Mandibular (bottom) left = upside down L</p> <p>Mandibular (bottom) right = upside down, backward L</p> <p>Each tooth is designated a number 1-8 within the quadrant. The first tooth in each quadrant is the central (middle) incisor. The numbers go from front to back. Each tooth is first identified by the quadrant and then the number. So the left cuspid (canine) tooth would be designated first with the L shape. Then it's designated with the number 3 because it is the third tooth back from the central incisor.</p> <p><u>Federation Dentaire Interationale (FDI) Numbering System</u></p> <p>For the Federation Dentaire Interationale (FDI) Numbering System, once again, the mouth is divided into four quadrants ⁽³⁾:</p> <p>Quadrant 1 = Maxillary (top) right</p> <p>Quadrant 2 = Maxillary (top) left</p> <p>Quadrant 3 = Mandibular (bottom) left</p> <p>Quadrant 4 = Mandibular (bottom) left</p> <p>As with the Palmer system, each tooth within the quadrant is given a number 1-8. The numbering begins with the incisors (front teeth) and moves back to the molars. Each tooth is specified by two numbers. The first states the quadrant number, and the second number is the tooth number within that quadrant. So, the top right incisor is 11 (said one, one- not eleven) and the last molar in the quadrant is 18. The system then moves on to the second quadrant. The top left incisor is 21 (said two, one- not twenty one). Two because it is in the second quadrant and one because it is the central incisor. After tooth 28, the system moves to the bottom left quadrant. The left mandibular central incisor is therefore tooth 31. The very last tooth is tooth 48. It is the eight tooth (back most molar) in the fourth quadrant.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Tooth Numbering. (n.d.). Retrieved February 09, 2018, from https://perioimplants.us/tooth-numbering/ 2. Dental Numbering Systems . (2003, September). Retrieved February 5, 2018, from http://www.americantooth.com/downloads/instructions/Dental_Sys_Permanent_Teeth.pdf 3. Tooth Numbering Systems . (n.d.). Retrieved February 5, 2018, from http://www.stedmanonline.com/webFiles/Dict-Dental2/14_med_dent_tooth_numbering.pdf
<p>Reading #4</p>	<p>One of the most crucial skills a good dental assistant needs is proper instrument passing. When a dentist and an assistant pass instruments back and forth working as a team, it is called “4 Handed Dentistry.” ⁽¹⁾</p> <p><u>Transfer Zone</u></p>

	<p>During a typical office visit or procedure, the patient is seated face up on a reclined chair. The dentist sits on a chair next to one side of the patient's head. The dental assistant sits with the instruments on the opposite side of the dentist. The space between the dentist and the assistant and above the patient's chest is called the “transfer zone.”⁽¹⁾ This is the area where instruments are passed back and forth between the dentist and the assistant.</p> <p><u>Pen Grasp</u></p> <p>There are certain holds or grasps used to make transferring equipment easier for the dentist and the assistant. One of those grasps is called the pen grasp. Like the name implies, the instrument is held like a pen. This means the instrument is held between the thumb and index finger. A modification of this grasp is to use the middle finger instead of the index finger. Holding it this way may provide more stability for the assistant.</p> <p><u>Palm Grasp and Palm-Thumb Grasp</u></p> <p>For the Palm Grasp, the assistant holds the instrument in a balled fist. It is the technique used for bulky instruments like air/water syringes.</p> <p>The Palm-Thumb Grasp is just like the Palm Grasp except the thumb is extended. This creates more stability. The high-volume evacuator (a suctioning device) is held with this grasp.</p> <p><u>One-Handed Transfer</u></p> <p>The most common transfer technique is the one-handed transfer. The dental assistant holds the air/water syringe or evacuator with one hand and transfers equipment with the other. To make this even more efficient, the assistant receives the instrument from the dentist with her pinky and passes the new instrument in one motion.</p> <p><u>Two-Handed Transfer</u></p> <p>If the assistant does not need to hold the evacuator or air/water syringe, the two-handed transfer is used. It is also used for bulky instruments. The assistant receives the instrument from the dentist with one hand. Then she passes the next instrument with the other hand.</p> <p><u>Mirror and Explorer Transfer</u></p> <p>At the beginning of an exam, the dentist uses a mirror and an explorer to initially examine the patient's teeth. The assistant delivers both instruments to the dentist, one in each hand, at the same time.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Zones-of-activity. (n.d.). Retrieved February 09, 2018, from https://www.dentalcare.com/en-us/professional-education/ce-courses/ce428/zones-of-activity 2. Dental Assistant Instrument Transfer Basics. (n.d.). Retrieved February 05, 2018, from http://www.dentalassistant.net/blog/dental-assistant-instrument-transfer-basics/
<p>Reading #5</p>	<p><u>While in High School</u></p>

If you're excited about becoming a dental assistant, there are some things you can do right now while in high school to prepare for your career. The first is to take applicable classes. Anatomy, chemistry, and biology will all help prepare you for your training coursework.

The second thing you could do is get job shadow. Ask your dentist or another dental office if you can come and observe or volunteer. The tasks they may assign you might not be as glamorous as they would be if you were an employee, but it will give you more experience in the dental environment. It will also allow you to ask any dental assistants there any questions you may have.

Post-High School

Did you know in some states you don't have to graduate from an accredited program to become a dental assistant? ⁽¹⁾ Instead, you can receive on-the-job training. If that's the case in your state, you can be trained by an experienced dental assistant, dental hygienist, or dentist. They will teach you all the necessary terminology, skills, and procedures to work at their office.

However, gaining a formal education in the field is still a great idea, even if your state doesn't require it. Obtaining a formal certificate or diploma may help you position yourself for career advancements in the future. Many community colleges offer dental assistant programs.

Dental Assistant Programs

Before applying to a program, make sure you thoroughly investigate it. Some questions you might want to investigate are do they have a variety of class time options? How long does the program take? Does graduation result in an associates degree? What hands-on experiences do they offer? You will probably want to make sure the program is accredited. An accredited program means that it meets all the requirements of the Commission on Dental Accreditation. ⁽¹⁾ This is particularly important if you live in a state that requires completion from an accredited program.

An essential aspect to consider is the cost of any program. What is the total cost, including books and fees? While financial aid can be helpful in covering the cost, keep in mind that if you take out a loan to pay for the program, then you will need to pay it back, with interest! So if that is a route you choose, make sure that your future earnings from being a dental assistant will cover your loan payments (as well as all of your other living expenses).

Dental assistant program admission requirements vary program to program. However, most will require a copy of your high school transcript. Some will also require documentation of dental office observation. This is done to encourage applicants to make sure dental assisting is what they really want to do. They might also ask for a personal statement. This is your chance to explain why you want to be a dental assistant and let them know anything you feel is important for them to know about you.

Dental Assistant Salaries

According to the Bureau of Labor Statistics (BLS), a government organization, the median salary for a full-time dental assistant in 2016 was about \$37,000, which is around \$17.75 per hour. ⁽¹⁾ However, keep in mind that this is the median, and entry-level salaries will likely be lower. Other factors such as the state you work in and the demand for dental assistants can also

affect salary levels. The BLS also notes that one-third of people employed as dental assistants work part-time, which means that many people choose this path because of its flexibility.⁽¹⁾

Length of Program and Certification Exam

Most dental assistant programs take about a year to complete.⁽¹⁾ Of course, that amount could be longer or shorter depending on how the program is scheduled.

The material covered in the program is designed to prepare you for the certification exam. The Certified Dental Assistant Exam is a 4 hour (approximately) test with 320 questions.⁽²⁾ Those questions are divided into three sections:

1. General Chairside Test (120 questions)
2. Radiation Health and Safety (100 questions)
3. Infection Control Test (100 questions)

The test is scored on a scale of 100 to 900. A passing score is 400 or better.⁽²⁾

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Module 3: Dental Hygienist

<p>Module Description</p>	<p>Dental hygienists are in high demand! This module will introduce you to the field of dental hygiene. First, we will outline the roles and requirements of a dental hygienist. We will go over the basic anatomy of teeth and their functions. We will also discuss preventative dental care explaining what it is and why it's so important. This module will also provide an overview of some of the basic instruments used by dental hygienists. Finally, we will end the module with a more in depth look at what is required to become a registered dental hygienist.</p>
<p>Reading #1</p>	<p>This reading describes the key responsibilities of a dental hygienist.</p> <p><u>Teeth Cleaning</u></p> <p>In order to maintain optimal oral health, patients should get the teeth cleaned and examined every 6 months. ⁽¹⁾ One of the main responsibilities of a dental hygienist is to clean patients' teeth. Here is what a hygienist will do during the cleaning portion of the visit:</p> <ol style="list-style-type: none"> 1. Remove large pieces of plaque and tarter using an ultrasonic instrument. Plaque is a soft, sticky film containing millions of bacteria. ⁽¹⁾ Tarter, also known as dental calculus, is a hardened deposit of plaque. The ultrasonic instrument emits mild vibrations that break up large pieces of tarter. 2. Remove smaller pieces of plaque and tarter using hand-held instruments. These finer instruments allow the hygienist to get into spots that are hard to reach with the ultrasonic instrument. 3. Polish the patient's teeth. To do this, the hygienist uses a handpiece with a spinning, soft rubber cup on it. The cup holds prophylaxis paste. This gritty toothpaste-like substance and the spinning handpiece make the teeth smooth and shiny. 4. Finally, the dental hygienist may apply fluoride. Fluoride strengthens the teeth and helps protect them from the reemergence of plaque and tartar.⁽²⁾ <p><u>Educating</u></p> <p>Another major component of the dental hygienist's job is educating patients. The dental hygienist has a unique ability to cater explanations to the unique needs of the patient. For example, while cleaning the teeth, she may notice some spots that the patient isn't reaching with the toothbrush. She can then show the patient with the dental mirror exactly where that spot is and how to reach it.</p> <p>The hygienist educates patients on proper brushing, flossing, which type of toothbrush is best, and what supplemental actions a patient can take such as rinsing with a mouthwash. The hygienist also educates the patient as the exam goes along. She lets him know what she is doing and what she will be doing next.</p> <p><u>Other Responsibilities</u></p> <p>Depending on the office set up, the hygienist may have other responsibilities as well. Some of these responsibilities may include:</p>

	<ul style="list-style-type: none"> • Initial oral examination of gums, teeth, jaw, mouth tissue, and tongue • Taking and developing x-rays • Documenting health history and dental charting • Taking blood pressure • Making dental impressions • Office management <p><u>Personality Traits</u></p> <p>Interpersonal skills are a major must-have for dental hygienists because they work with people all day. They see a variety of people; old, young, rich, poor, and everything in between. Some of those people may have fear or anxiety about the visit. A good hygienist will be sensitive and responsive to that, doing what she can to ease the anxiety.</p> <p>Being detail-oriented is important as well. No one wants to come home and discover that the hygienist missed a huge plaque deposit! Furthermore, no dentist wants to try and figure out a blurry x-ray.</p> <p>These traits do not magically appear along with a dental hygienist's license. Cultivating these and other traits takes time and practice. By working on these skills now, you will set yourself up for success as dental hygienist.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. The Dentist's Guide to a Basic Teeth Cleaning. (n.d.). Retrieved February 07, 2018, from https://www.dentalone-va.com/the-dentists-guide-to-a-basic-teeth-cleaning/ 2. The dental diet: 10 nutrition strategies for healthy teeth. (2016, September 20). Retrieved February 09, 2018, from https://www.precisionnutrition.com/nutrition-teeth-dental-health
<p>Reading #2</p>	<p><u>Structure of the Teeth</u></p> <p>Many of us take our teeth for granted. But teeth play an important role. Not only do they help us chew our food, they also impact our speech and impact our health. Our teeth are not just one consistent material all the way through. Dental hygienists remove harmful buildup that destroys the layers of our teeth. Here are the layers of our teeth⁽¹⁾:</p> <ol style="list-style-type: none"> 1. Enamel- the protective barrier surrounding the visible part of the tooth. Enamel is composed of minerals like calcium phosphate. Healthy enamel is resistant to bacteria that causes cavities and decay. 2. Dentin- makes up the majority of the tooth's structure. Dentin is composed of living cellular material and tissue. It also contains microscopic tubes that lead to the pulp. 3. Pulp- the soft tissue found in the center of the tooth. Nerves and blood vessels are located here. Blood and nutrients flow through the pulp. 4. Cementum- the protective barrier around the root of the tooth. Cementum helps anchor the tooth to the jawbone by attaching fibers to the jawbone.

	<p><u>Types of Teeth</u></p> <p>A typical adult has 32 teeth. You will notice when you look in your mouth that your teeth are not all identical. The shape and structure of the tooth depends on its function in breaking down food.</p> <ul style="list-style-type: none"> • Incisors- these are the eight center teeth in the mouth. There are four on top and four on bottom. The incisors are used to bite off parts of your food, like when you bite into a sandwich, for example. Incisors are generally the first teeth to break through a baby's gums. They are also typically the first permanent teeth to come in as well. • Canines/cuspids- these are the four teeth (two on top and two on bottom) that are comparatively long and pointed. They are also called cuspids. They are used to tear and rip apart food. This was particularly important in prehistoric times when people spent most of their time hunting and scavenging for food. • Premolars/bicuspids- these four teeth have two bumps on them. This is how they got the name bicuspid. Cuspid means bump and bi means two. They are used for chewing and grinding food. Premolars are only permanent teeth. ⁽¹⁾ In other words, they do not break through when we are little and then fall out, being replaced by permanent ones. Premolars typically come in around age 10. They replace the first set of molars babies/toddlers get. • Molars- these eight teeth (four on top and four on bottom) are also used primarily for grinding and chewing food. Permanent molars do not replace any primary (baby) teeth. ⁽²⁾ Instead, they grow right behind all the other teeth. • Third molars/wisdom teeth- These four teeth are the last to develop. Most people do not get their third molars until 18-20 years old. Often, they cause overcrowding so they are removed. Sometimes third molars do not fully break through the surface. These teeth are called impacted teeth. Surgery is done to remove impacted teeth as well. <p><u>References</u></p> <ol style="list-style-type: none"> 1. Hoffman, M. (n.d.). Picture of the Teeth. Retrieved February 09, 2018, from https://www.webmd.com/oral-health/picture-of-the-teeth#1 2. Brichford, C. (2017, August 28). The 4 Types of Teeth and How They Function. Retrieved February 08, 2018, from https://www.everydayhealth.com/dental-health/basics/types-teeth-how-they-function/
<p>Reading #3</p>	<p><u>What is Preventative Dental Care</u></p> <p>Like the name implies, preventative dental care helps prevent dental problems. It also helps keep problems that do arise from becoming bigger problems. Dental hygienists play a big role in preventative dental care and can make a big impact in patients' life by explaining its importance to them. Children in particular benefit from preventative dental care. ⁽¹⁾ It helps ensure their permanent teeth come in healthy and strong. For adults and adolescents, it helps them keep those permanent teeth. In this section we will look more closely at 5 components of preventive dental care:</p> <ol style="list-style-type: none"> 1. Brushing and flossing 2. Healthy diet

3. Fluoride use
4. Dental visits
5. Injury protection

Brushing and Flossing

Currently, the ADA recommends brushing your teeth for two minutes, twice daily.⁽²⁾ They also recommend replacing your toothbrush every three to four months. Of course, that might need to happen more often if the bristles are frayed.

Flossing is also highly important. Flossing gets the bacteria between your teeth that a toothbrush cannot reach. Teaching proper brushing and flossing techniques is an important part of a dental hygienist's job.

Healthy Diet

You probably know that eating sugary food and soda is not good for your teeth. But did you know there are other foods and drinks that are harmful to teeth? Here are other foods and drinks to avoid:⁽³⁾

- Ice is great for cooling down a drink. It's not so great for chewing. Ice and other hard substances can lead to a dental emergency like a cracked or chipped tooth. It can also wear down the enamel.
- Even though citrus fruits are high in vitamins like vitamin C, acidic foods erode enamel. To enjoy the health benefits of vitamins and limit the amount of damage, make sure to rinse your mouth with water or a mouth rinse after eating them.
- Coffee and tea. The problem with these drinks is that most people feel the need to add sugar. Sugar feeds the harmful bacteria that causes tooth decay. This is especially a problem if the beverage is sipped over the course of an hour or entire morning. Doing so repeatedly sends sugar to the mouth without giving the mouth time to recover.
- Dried fruit. When people think of healthy snacks, dried fruit is one of the top go-tos on their list. Unfortunately, sticky foods tend to stick to the teeth. That means their sugary substance sits on the teeth longer than other foods.
- Starchy foods. Acid-producing bacteria that causes tooth decay feeds on carbohydrates.⁽³⁾ Starchy foods also tend to get stuck in the teeth.
- Sports drinks. They may seem healthy, but in fact, sugar or its evil twin high fructose corn syrup is usually one of the top ingredients in sports drinks.⁽²⁾

So what foods ARE good to eat? Here are 5 good foods and drinks for dental health:⁽⁴⁾

- Water helps rinse away food debris. Furthermore, fluoridated water is even more optimal.
- Dairy is a good source of protein and calcium which helps strengthen teeth.
- Lean protein. Lean proteins also help strengthen teeth. Lean proteins include meat, poultry, fish, and eggs.
- Not only are they full of vitamins, chewing veggies helps stimulate saliva. Saliva helps wash away harmful bacteria.

- These also help stimulate saliva and contain helpful minerals. They are also low in carbohydrates which means cause as much acid-producing bacteria.

As a dental hygienist, you could educate your patients on what diet habits they can change to encourage optimal oral health.

Fluoride Use

If you haven't had the healthiest diet in the past, and your teeth are paying the price, the good news is you can strengthen your enamel. Strengthening your enamel will help protect the more sensitive dentin from bacteria.

Fluoride is one of the ways we can strengthen our teeth. When tooth decay begins, our teeth lose minerals. This is called demineralization.⁽⁴⁾ Fluoride applied to the teeth increases the rate of growth and size of enamel crystal. Fluoride ingested in small, safe amounts via water, helps strengthen teeth while they grow.

Dental hygienists often apply fluoride to patient's teeth during their routine visits.

Dental Visits

Which brings us to dental visits. Some dental problems do not have distressing symptoms until their advanced stage.⁽⁵⁾ Routine dental checkups provide an opportunity for dentists to detect problems in the early stages. Hygienists too can help detect early problems and advise patients on how to care for those problems.

Injury Protection

Ask an MMA fighter how it feels to be hit in the jaw. Chances are they don't care for the experience! Not only are injuries to the jaw and teeth painful, they can interfere with overall health. It is very hard to get a proper diet when you can't chew. Wearing helmets and mouth guards during certain sports and activities can help protect your mouth from serious injuries.

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<p>Reading #4</p>	<p><u>Equipment</u></p> <p>Just like any other professional in the dentistry field, hygienists use specific tools to perform their job. In this section, we will take a look at some of those instruments and what they do. Although they may look painful and scary, understanding what they do can help ease anxiety.</p> <p><u>Hand-Held Instruments</u> ⁽¹⁾</p> <p>Hand-held tools enable hygienists and dentist to have total control over the instrument. These are some of the most common hand-held instruments:</p> <ul style="list-style-type: none"> • Mouth mirror- round, small, angled mirrors attached to a handle used to get a better look at hard to view areas. • Dental explorer- small, pointed hook at the end of a long handle used to examine the surface of teeth. • Dental scaler- hook-shaped instrument with a pointed end used to remove plaque and tartar above the gum line. • Dental curette- similar to a scaler, but has a more rounded end and is used to remove plaque and tartar below the gum line. <p><u>Electric Instruments</u> ⁽²⁾⁽³⁾</p> <p>Electric instruments save the hygienist time by doing the work faster than the hygienist could do by hand. Here are some of the most common electric instruments:</p> <ul style="list-style-type: none"> • Ultrasonic Scaler- emit low frequency vibrations that break up big pieces of plaque and tartar. This is used to break up large pieces of tarter and plaque so it does not all have to be done by hand. Also sprays a cool mist to flush out buildup and debris. • Polisher- slow-speed rotary instruments with a rubber cup on the end containing polishing toothpaste. Used to buff and polish teeth to make them smooth and shiny. • Suction device- small, hose instruments used to suck out saliva and debris that accumulates during cleanings and procedures. <p>This is not an extensive list of all the tools a dental hygienist uses, but rather an overview of some of the common, basic tools used during cleanings and exams.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Get to Know the Different Types of Dental Instruments With Dakota Dental. (2015, September 25). Retrieved February 12, 2018, from http://www.dakotadental.com/get-to-know-the-different-types-of-dental-instruments-with-dakota-dental/ 2. Timmons, B. (n.d.). What Tools Does a Dental Hygienist Use? Retrieved February 12, 2018, from https://woman.thenest.com/tools-dental-hygienist-use-13703.html

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<p>Reading #5</p>	<p><u>Outlook and Pay</u></p> <p>If you are interested in a career as a dental hygienist, there is great news! The Bureau of Labor Statistics estimates that the field will grow by 20% in the next ten years.⁽¹⁾ That's 3 times faster than the average growth for all occupations.⁽¹⁾ That means those who successfully complete their training and licensure should not have much of a problem finding a job. This is due in large part to the widespread education efforts of people like dental hygienists and other professionals who educate the public on the importance of oral health.</p> <p>A full-time dental hygienist can expect to make approximately \$72,000 per year.⁽²⁾ That works out to about \$35 per hour. You might not make that much when you start, however. The state where you work can make a big difference in pay as well. For example, a dental hygienist in Alaska makes an average of just over \$100,000.⁽³⁾ Nevertheless, pay is generally good for all dental hygienists.</p> <p><u>Education</u></p> <p>All states require dental hygienists to be licensed. To be licensed, first you must complete an accredited dental hygiene program. Most are approximately 2-3 years and result in an Associates degree in Dental Hygiene.⁽¹⁾ Currently, the only agency that can accredit dental hygiene programs is The Commission on Dental Accreditation (CODA).⁽³⁾ Since candidates must complete an accredited program before taking the exam, if you are considering enrolling in a dental hygiene program, first make sure it's accredited by CODA.</p> <p>During your training, you can expect to take a variety of classes. A few of the classes you might take are subjects like anatomy, microbiology, radiology, and chemistry- just to name a few.⁽³⁾ Some of those classes you will be required to take before you can apply to the program, others you will take during the program.</p> <p>A big component of your education will be your clinical experience. This will give you the chance to practice things like teeth cleaning under the supervision of your teacher. This will help you gain the technical skills you need so that you feel comfortable and professional when you begin working with the public.</p> <p><u>Licensure</u></p> <p>Once you complete your training, you are eligible to complete your state's licensure exam. However, before you can do that, most states require you to take and pass the National Board Dental Hygiene Exam.⁽³⁾ This exam is designed to test basic dental hygiene knowledge and includes biomedical, dental, and dental hygiene sciences.⁽⁴⁾ There is also a case-study component. This part is designed to test the candidate's ability to problem-solve and ability to apply dental hygiene concepts.</p> <p>Successful completion of the National Board Dental Hygiene Exam means the candidate is able to take the state licensing test. Test vary from state to state. However, all tests are designed to</p>

assess the candidate's clinical skills.⁽³⁾ There will likely also be a component to test the candidate's general knowledge on dental hygiene and applicable subjects as well.

Once the candidate has completed an accredited program, passed the National Board Dental Hygiene Exam, and passed the state licensure exam, she then becomes a registered dental hygienist. Registered dental hygienist are then eligible to apply for dental hygienist positions. It may seem like a big undertaking to become a registered dental hygienist, but for the right person, it is definitely worth it.

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Module 4: Dental Laboratory Technicians

<p>Module Description</p>	<p>Dental laboratory technicians get to work with their hands to build all kinds of interesting dental appliances. In this module, students will learn more about what it is a dental laboratory technician does every day. The module will also cover basic terminology related to the industry. To help students get farther along the path to having a career as a dental laboratory technician, the module will include information about the education and licensure required. Finally, it will look at current opportunities in the industry, and students will practice applying for such positions.</p>
<p>Reading #1</p>	<p><u>Dental Laboratory Technician</u></p> <p>The member of the dental team you may never meet, yet plays an important role in helping people smile their best, is the dental laboratory technician. The job of a dental lab tech is to create dental appliances and restorative devices to help patients preserve their teeth or create new prosthetic teeth.</p> <p>Dental lab techs work with metals, porcelain, plasters, and ceramics- just to name a few materials. They use computers, blowtorches, paintbrushes, and all kinds of other tools and equipment. It is both an art and a science. It is an art because the techs create something that must be aesthetically pleasing. They must be careful about details like the shade and color. It is a science because they must have an understanding of things like tooth anatomy and an understanding of the properties of the materials they work with. ⁽¹⁾</p> <p><u>What they Make</u></p> <p>Like we stated above, dental laboratory technicians make dental appliances and restorative devices. Here are some of the things a dental laboratory technician would be expected to know how to make ⁽²⁾:</p> <ul style="list-style-type: none"> • full dentures • partial dentures • dental bridges • dental crowns • veneers • orthodontic appliances <p>We will define these devices and appliances in the next section.</p> <p><u>Day in the Life</u> ⁽³⁾</p> <p>To give you an idea of what her day is like, Here's an example of a schedule a dental lab tech might follow:</p> <p>6:30 am- Wake up! Of course the exact wake up time will depend on what the tech needs to get done at home before work and how long the commute takes. The nice thing about being a dental lab tech is that where ever there are dentists, there are probably dental labs not too far away. So it's pretty easy to find a place to work that is not too far from where the lab tech lives.</p> <p>9:00 am- Even though lab techs usually work with other techs, they have their own workstations and their own assignments. So once a dental lab tech arrives to work, she can</p>

	<p>review the cases she needs to get done for the day. At this point, she must be able to prioritize and plan the day knowing which cases will take the full day, which cases have the fastest approaching deadline, and assessing the progress already made on bigger cases. It takes a lot of organization and time management to be a good dental laboratory technician.</p> <p>9:15 am- Start working on the first case. If working on a crown, for example, this would likely take the full day. The morning portion would consist of filling the mold the dentist provided with the appropriate material for the crown. Once the material is chosen, it is fired to become molten or liquid. Then it will be set aside to cool.</p> <p>12:30 pm- Lunch break!</p> <p>1:00 pm- Back to work on the crown. Because a crown has to fit perfectly into the patient's mouth, this will likely take the remainder of the day or even longer. Once it is cool enough to work with and is solidly set, the tech has to grind and contour it to make it fit smoothly over the patient's tooth. If it doesn't, it could result in pain and sensitivity for the patient, which would require additional adjustments by the dentist, or a complete redo! If the crown is going to match the color of the patient's other teeth, the lab tech has to stain the crown to make it look as natural as possible.</p> <p>5:30 pm- Prepare for the next day. This means cleaning up her workstation, looking over what cases are coming up the next day, and preparing tools and materials that will be needed. This is also a good time for a lab tech to go over the materials she has to see if there are any that are running low. Then report any needs to the manager or order them herself if that's part of her job.</p> <p>One of the nice things about being a dental laboratory technician is the 8-hour work schedule. When the day is done, the dental lab tech is free to enjoy the evening as she pleases. There is no work to take home.</p> <p>References</p> <ol style="list-style-type: none"> 1. Dental Laboratory Technician. (n.d.). Retrieved February 16, 2018, from https://explorehealthcareers.org/career/dentistry/dental-laboratory-technician/ 2. Dental Laboratory Technology. (n.d.). Retrieved February 16, 2018, from https://www.ada.org/en/education-careers/careers-in-dentistry/dental-team-careers/dental-laboratory-technology 3. A Dental Lab Technician's Daily Routine. (2015, May 22). Retrieved February 16, 2018, from https://www.ameritech.edu/blog/dental-lab-technician-daily-routine/
<p>Reading #2</p>	<p><u>What a Lab Tech Makes</u></p> <p>When a dentist needs something artificial to fit into a patient's unique mouth, the dental laboratory technician is the one responsible for creating the device. Here's an explanation of some of the devices and appliances dental lab techs may be required to create.</p> <p>Full Dentures- a complete set of artificial teeth. Full dentures are used when all the teeth have been removed. The artificial teeth sit on a removable frame designed to look like human gums. The patient can take the dentures in and out of his mouth. There are also two sub-types of full dentures. ⁽¹⁾ There are immediate dentures which are made before the teeth are removed and</p>

	<p>are put in the mouth as soon as the teeth are removed. This allows the patient to have teeth immediately. However, after the teeth are removed, the mouth undergoes a healing process. This process results in gum and bone shrinkage. So immediate dentures may not fit long-term. Conventional dentures, on the other hand, are placed 8-12 weeks after the teeth have been removed. They are a more long-term solution than immediate dentures.</p> <p>Partial Dentures- one or more artificial teeth attached to a gum-colored removable frame. If the patient still has one or more of his natural teeth, partial dentures allow the patient to keep the tooth/teeth and use artificial ones to fill in the missing teeth.</p> <p>Fixed dental bridges- crowns are placed on the two teeth on either side of the missing tooth/teeth and a false tooth/teeth are placed in between the two anchoring teeth. The anchoring teeth which have the crowns placed on them, are called abutment teeth. ⁽²⁾ This is a fixed option for remedying missing teeth where partial dentures are usually removable.</p> <p>Crowns- caps for teeth designed to restore the original shape and size of a tooth. People get crowns for reasons like needing a large filling, after a root canal, when a cusp (bump on the tooth) breaks, or for excessive wear on the teeth. ⁽³⁾</p> <p>Veneers- thin, custom shells of porcelain or resin composite covering the front of the tooth or teeth. Veneers are often used for cosmetic reasons. Veneers can change the look of a tooth/teeth's color, size, shape, or length. Veneers generally last for seven to 15 years. ⁽⁴⁾</p> <p>Orthodontic appliances- used to help straighten teeth. Some of the orthodontic appliances a lab tech might make are metal braces, ceramic braces, Invisalign® plastic aligners, and retainers. Lab techs might even specialize in orthodontic appliances and make them all day every day.</p> <p>References</p> <ol style="list-style-type: none"> 1. Dental Health and Dentures. (n.d.). Retrieved February 19, 2018, from https://www.webmd.com/oral-health/dental-health-dentures#1 2. Dental Health and Bridges. (n.d.). Retrieved February 19, 2018, from https://www.webmd.com/oral-health/guide/dental-health-bridges#1 3. Horne, D. S. (n.d.). Dental Crowns: Get Facts on the Common Dental Procedure. Retrieved February 19, 2018, from https://www.medicinenet.com/dental_crowns/article.htm 4. How long do dental veneers last? (n.d.). Retrieved February 19, 2018, from https://www.webmd.com/oral-health/qa/how-long-do-dental-veneers-last
<p>Reading #3</p>	<p>CAD</p> <p>Technology is revolutionizing nearly every industry, and dentistry is no exception. CAD stands for computer-aided design. In dentistry, CAD is used to create 3D models of the mouth. A dentist uses a special digital camera that takes a series of pictures. These pictures are then used by the CAD software to create a 3D model of the mouth. Using the 3D model of the mouth, the dentist or lab technician can create a custom device.</p> <p>Today, CAD can be used to design crowns, veneers, fixed bridges, orthodontic appliances, and just about everything else a lab technician creates. ⁽¹⁾</p>

CAM

Once the design process is complete, the software sends the data to a milling machine to begin the CAM process. **CAM** stands for computer-aided manufacturing. The milling machine carves the device or appliance out of a solid block of material that has been selected by the patient and/or dentist. Once the milling machine finishes creating the device, the dentist can bond it to the patient's mouth.

Drawbacks

CAD/CAM has come a long way in the 30 years since it was first introduced. ⁽²⁾ However, they are not quite perfect yet. Perhaps the biggest drawback to CAD/CAM is in the aesthetics. Machine-produced parts rely mostly on superficial staining to give the piece a natural look. Hand-crafted pieces, on the other hand, have a deep-set coloration because the lab tech uses multiple layers of staining.

Another issue is that the accuracy varies from software to software and user to user. ⁽¹⁾ Just like a lab tech who uses traditional means of creating restorative pieces must be highly skilled and precise, so must a technician using CAD/CAM technology.

3D Printing

3D printing is still in its infant stage as far as its applications for dentistry. However, applications and uses are ever-growing.

Whereas patients use to have to wait for days and get a gooey dental impression done in order to get something like a night-guard, that process is changing. Like we discussed in the section on CAD, a dentist can use a special camera to take precise pictures of a patient's mouth instead of using a dental impression. Those digital files can then be emailed to a lab with a 3D printer or even done in-office if the dentist has one in office. The 3D printer can then use FDA approved materials to produce a night-guard. Instead of taking days, it could take less than an hour. ⁽³⁾

Besides night-guards, here are some other dental lab uses for that are being produced by 3D printers ⁽⁴⁾:

- castable crowns, bridges, and partial dental framework
- indirect bonding trays for orthodontic brackets
- flexible gingiva masks
- full denture base

3D printing is growing rapidly and its applications to dental offices and dental labs will only grow in the future. As part of this section, read the following [article](#) which discusses 3D printing in dentistry in greater detail.

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<p>Reading #4</p>	<p><u>Dental Lab Tech Requirements</u></p> <p>Unlike most of the careers in dentistry, dental lab techs are not required to hold a certification or licensure. In fact, many receive on-the-job training and are paid as trainees when they first start. As they become more confident and competent, they are entrusted with more responsibilities and move up in the field.</p> <p>There are, however, formal training options. There are a variety of two-year programs that give graduates an Associates in Dental Technology. There are even some four-year bachelor degree options. ⁽¹⁾ A formal education provides a broad overview of a variety of skills and specialties.</p> <p><u>Optional Certification</u></p> <p>Certification is not required. However, there are organizations that offer certifications. Becoming certified may show a potential employer that a candidate is taking this career seriously. It also shows a degree of mastery in the field.</p> <p>The National Board of Certification in Dental Laboratory Technology offers certification in a few specialties. Three separate exams must be passed successfully in order to earn the certification. ⁽²⁾</p> <ul style="list-style-type: none"> • A written comprehensive examination • Written specialty examination (specialties include ceramics, complete dentures, crown & bridge, orthodontics, partial dentures & implants) • The practical examination in the same area as the specialty examination <p><u>Earning Potential</u></p> <p>The average salary for a dental lab tech is \$37,680. ⁽³⁾ However, the National Association of Dental Laboratories provides further insight. Two critical components to earning potential are the years of experience and the size of the lab. At larger labs, the more experienced dental techs have the opportunity to move on to supervisor and training positions which results in a higher wage.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. N. (n.d.). Retrieved February 20, 2018, from https://nabl.org/certification/dental-lab-career.cfm 2. CDT Application & Exam Process - National Board for Certification in Dental Laboratory Technology. (n.d.). Retrieved February 20, 2018, from https://nbccert.org/certificants/certified-dental-technician/cdt-application.cfm

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<p>Reading #5</p>	<p><u>Career Outlook</u></p> <p>Between 2016 and 2017, growth for dental laboratory technicians is projected to grow 13% which is faster than the average for all occupations. ⁽¹⁾ That means this is a great career as far as being able to find employment fairly easily. As dental appliances become less expensive, there is likely to be a greater demand for them. More demand means more need for people to create dental appliances.</p> <p><u>Applying for a Job</u></p> <p>As we discussed in the previous section, certification as a dental laboratory technician is not required. You may choose to do on-the-job training instead of going through a formal program.</p> <p>If that is the case, you could be applying for a position right after graduating from high school. Job posting websites such as indeed.com ⁽²⁾ may have listings you can investigate. Type in “dental lab technician” and the area where you would like to work to see what you can find. There are other names for similar positions such as “orthodontic lab technician” and “ceramist.” So look at postings with those in the title as well.</p> <p><u>What to Expect in an Interview</u></p> <p>Interviews can be stressful. However, knowing what to expect beforehand can help relieve some of the stress. Here are some of the most common questions asked in an interview for dental lab technology positions ⁽³⁾:</p> <ul style="list-style-type: none"> • Why do you want to pursue a career as a dental lab tech? • Why do you want to work for us? • What experience do you have? • Why should we hire you? • What questions do you have for me (the interviewer)? • How do you manage your time on busy days? • Where do you see yourself in 5 years? <p>Think about your answers. You may be thinking “I don’t have any experience!” However, there is a good chance you have taken some applicable classes. This course, for example, is extremely applicable and worth mentioning in an interview. Other classes and experiences you might want to highlight are classes in art, biology, chemistry, and anatomy. Think about special art projects you've worked on, particularly ones that required dexterity, color matching, attention to detail, and working with various materials.</p> <p><u>Conclusion</u></p> <p>A career as a dental laboratory technician is a fantastic option. Not only do you get to work with your hands and have a career that overlaps both the art and science fields, but at the end of the day you can feel satisfied knowing that you helped someone feel better about their smile and</p>

appearance. Though we may not always see them, dental lab techs are an extremely important member of the dental team.

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Module 5: Dental Products

<p>Module Description</p>	<p>Robots, 3D printing, and virtual reality are just some of the technologies that are changing countless industries and field. The dental field is no exception. In this module, students will learn about the products in dentistry, including up-and-coming technologies. Students will get a closer look at some of the companies leading the revolution in changing the industry with their products. Finally, the module will provide an overview of some of the careers related to developing and selling dental products.</p>
<p>Reading #1</p>	<p><u>10 Categories</u></p> <p>The American Dental Association organizes dental products into 10 categories:⁽¹⁾</p> <ol style="list-style-type: none"> 1. Diagnostics 2. Drugs and Pharmaceuticals 3. Equipment 4. Imaging and Photography Systems 5. Infection Controls 6. Laboratory Equipment and Services 7. Materials 8. Practice Management 9. Supplies and Instruments 10. Whitening Products <p>In this section, we are going to look at a few examples of the products available in each category.</p> <p><u>Diagnostics</u></p> <p>To diagnose means to identify the nature of an illness or other problem by examination of the symptoms. Products in this category contain devices used to detect or identify dental caries, dental calculus, and oral cancer, to name a few things dentists frequently screen for. The Canary System, for example, uses laser technology to detect cavities not visible on x-rays. ⁽²⁾ This helps catch them very early so that the dentist and patient can develop a treatment plan to keep the cavity from growing.</p> <p><u>Drugs and Pharmaceuticals</u></p> <p>One of the marvelous things about modern dentistry is that we have anesthetics which help reduce sensitivity to pain. One product available in this category is Gelato Topical Anesthetic gel is 20% benzocaine which helps relieve pain during dental procedures. ⁽³⁾</p> <p>Anesthetics are not the only drugs and pharmaceuticals dentists use. Other products in this category include products to help relieve dry mouth and prescription-strength fluoride products.</p> <p><u>Equipment</u></p>

This is a broad category encompassing computer-aided design and computer-aided manufacturing (CAD/CAM) products, dental chairs, electrosurgical equipment, lasers, laboratory equipment, and so much more.

Lasers are often used for periodontal treatments. Periodontists work to treat problems of the structures surrounding teeth. When periodontists have to cut gums, lasers can be used and are often more comfortable for the patient. One such laser is the LightScapel LS-2010 used for laser surgery procedures in the mouth. ⁽⁴⁾

Imaging and Photography Systems

One of the most incredible advancements in the dentistry profession is the advancement in imaging. We have gone from only being able to see what the eyes can see to being able to see with x-rays, **intraoral cameras** (in mouth cameras), and 3d systems.

One 3D system is i-Cat Cone Beam system. This provides full scans of the entire skull. The 3d imaging programs help for restorative planning. ⁽⁵⁾

Infection Control

In the world of medicine, sanitation and infection control are crucial. All equipment must be properly sterilized and conditions appropriately sanitary. In order for this to happen, there are certain things oral health professional must wear like masks and gloves. You'll find those products in this infection control category. Also in this category are disinfectant solutions and products. The Defend+Plus Pouches provide indicators that let the dental team know when the optimal temperature for sanitation is reached. ⁽⁶⁾

Laboratory Equipment and Services

Dental laboratories create devices and appliances for patients. While some products, like crowns and bridges, must be custom made to fit the individual, other products can fit a variety of patients. The Ultra Comfort Dental Guard is one such product. Often, night guards are custom made and require boiling to mold or require taking a dental impression of the patient's teeth. This product, however, has a self-adjust technology that allows two bite pads to fit comfortably between the upper and lower molar teeth. ⁽⁷⁾

Materials

Dentists and other dental team members work with lots of materials. There are materials for fillings, such as Vitrebond, bonding agents, sealants, crown materials, and so much more. ⁽¹⁾

Practice Management

For a dentist to treat as many patients effectively as possible, the office component of the practice must run smoothly. The practice management systems category provides business systems, books, computer hardware, insurance, dental software and more. The computer program called CS WinOMS Cloud, for example, helps offices with scheduling, billing, and organizing with its cloud-based software. ⁽⁸⁾

Supplies and Instruments

	<p>If a dentist is looking for something in particular and can't find it in any of the other categories, there's a good chance she'll find it in the supplies and instruments category. This is another broad category covering products like cotton products, uniforms, office décor, operating instruments, and emergency kits are all in this category. If you wanted to find, say an instrument tray, this is where you would look. ⁽¹⁾</p> <p><u>Whitening Products</u></p> <p>Teeth whitening has become a popular in-office treatment over the last couple decades. To find a whitening gel and pastes like LumaWhite, or a product that helps protect sensitive parts of the mouth from exposure to the gel, this is where the dentist would check. ⁽⁹⁾</p> <p>Whether you are an assistant, dentist, or office manager, knowing the categories, details, and uses of these products is essential to being a good dental professional!</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide 2. The Canary System®. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=1364&catid=28 3. Gelato Topical Anesthetic Gel. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=110&catid=9 4. LightScalpel LS-2010. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=1498&catid=74 5. I-CAT. (n.d.). Retrieved February 26, 2018, from https://www.i-cat.com/ 6. DEFEND PLUS Pouches – with Built-in Internal Indicator. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=389&catid=104 7. Ultra-Comfort Rx - No-Boil Dental Guard. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=1511&catid=124 8. CS WinOMS Cloud. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=1326&catid=95 9. LumaWhite Bleaching Paste. (n.d.). Retrieved February 26, 2018, from https://www.ada.org/en/publications/ada-dental-product-guide/product-category/product-profile?productid=493&catid=110
<p>Reading #2</p>	<p><u>Dental Product Development</u></p> <p>Walk down the oral care aisle at your grocery store and you will have plenty of toothbrushes, toothpastes, mouthwashes, and dental gadgets to choose from. It might lead you to think that producing a dental product is as simple as coming up with a great design and then getting</p>

stores to carry it or dentists to purchase it. The truth is, there is a lot more work that goes into getting a dental product developed.

First, a team of professionals from different backgrounds comes together. For example, engineers, scientists, and dental team members all might come together with the end goal to create a brand-new product or to improve on the design of an already existing product- like a toothbrush.

Once there is a prototype of a product, the testing phase can begin. This stage is much more involved than simply handing out the product and saying, “hey, let us know what you think about this product.” Studies must be approved by the Institutional Review Board in order to test on human subjects. ⁽¹⁾ A process must be put in place to make sure testing is done correctly.

Data captured during clinical tests and pilot testing provide feedback to the design team. Once there is a good working product, there are still more steps to take. For example, to earn the ADA's seal of approval the following criteria must be met: ⁽²⁾

- An acceptable name; the name should not be misleading
- Product information provided; should provide a statement of all the ingredients and/or materials of the product.
- Manufacturing information; must show that the product is manufactured in a facility under the supervision of qualified people
- Must comply with existing rules
- Must submit evidence of safety and efficacy, objective data, supplemental evidence, disclosures, and any evidence/data that becomes relevant after the product has been submitted.
- Must conform to laws and regulations
- ADA encourages materials to be biodegradable and/or recyclable where possible
- Generic name must be visible on packaging as well as any claims. Packaging must be approved and advertising must follow certain guidelines.

This is just a brief overview of the process. The process is very thorough and detailed, as it should be since dental products directly affect the health of the public.

Getting the Product to the User

It's not enough for companies to develop a great product and then hope that customers find them. There is still more work to be done in getting products into the hands of the intended user.

Important in this process is to remember that not all dental products have the same customer. For example, an intraoral camera is intended to be used by the dentist, not the patient. Toothbrushes, on the other hand, are intended to be used by literally everyone. That's why you will see toothbrush commercials but not intraoral camera commercials- the audience is too narrow to justify a commercial for an intraoral camera. While it might seem like it would be more profitable to make a product used by everyone rather than just dental professionals, there is also quite a bit of competition for products used by the masses.

So how does a company go about getting their product into the hands of the right customer? That is where product sales come into play. We will get into this more in the final section, but

	<p>for now, it is important to understand that sales is a crucial component in the success of dental products.</p> <p><u>Dental Product Companies</u></p> <p>There are a wide variety of companies selling dental products. Most have a niche within the industry. In other words, a company that sells dental software is not likely to also make toothbrushes and vice versa. Here are a few companies that sell dental products and the types of products they sell:</p> <ul style="list-style-type: none"> • Patterson Dental- equipment, software, and technology. ⁽³⁾ • Dental EZ- equipment, lab workstations, utility vacuums, and instruments. ⁽⁴⁾ • Microdental Laboratories- dental lab products such as restorative pieces, sleep devices, and mouth guards. ⁽⁵⁾ • Dr. Fresh- personal care products such as toothbrushes, mouthwashes, and whitening pens. ⁽⁶⁾ • Young Innovations- has brands in the preventative, restorative, orthodontic, endodontic, and diagnostic systems. ⁽⁷⁾ • Purelife Dental- dental products for dental practices. ⁽⁸⁾ <p>Creating a dental product is more than simply having a good idea. It takes a lot of effort and an entire dedicated company to make those dental products successful.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved February 27, 2018, from http://www.rdhmag.com/articles/print/volume-27/issue-10/feature/new-product-development-the-role-of-the-dental-hygienist.html 2. (n.d.). Retrieved February 27, 2018, from https://www.ada.org/en/science-research/ada-seal-of-acceptance/how-to-earn-the-ada-seal/general-criteria-for-acceptance 3. (n.d.). Retrieved February 27, 2018, from http://www.pattersoncompanies.com/Dental?_ga=2.155802043.1093211477.1519746300-2009365432.1518453446 4. DentalEZ. (n.d.). Products . Retrieved February 27, 2018, from http://www.dentalez.com/ 5. Product Catalog. (n.d.). Retrieved February 27, 2018, from http://www.microdental.com/product-catalog/ 6. About us. (n.d.). Retrieved February 27, 2018, from https://www.drfresh.com/about-us/ 7. Creating Possibilities. (n.d.). Retrieved February 27, 2018, from http://www.ydnt.com/ 8. (n.d.). Retrieved February 27, 2018, from https://www.purelifedental.com/AboutUs.aspx
<p>Reading #3</p>	<p><u>Technology Impacting Dentistry</u></p> <p>As technology develops, it often carries over into fields other than the field it was designed to impact. This is the case with dentistry. Many of the technologies currently used were not originally intended for use in the dental field, but were rather adapted to such use. Today,</p>

technology continues to spill over into dentistry. Here are some technologies that are likely to impact the dental field in big ways in the future.

- **Ultrasound technology**- ultrasounds use sound waves to generate images of organs that are otherwise hard to see. As the resolution improves, it could be that ultrasounds are used more regularly in dental diagnostics such as detecting dental caries.
- **3D printing**- nightguards are already being produced by 3D printers. It's likely that as other developments, such as biomaterials, continue to improve that implants and other dental lab products could one day be 3D printed. It is important that these implants are **biocompatible**, which means they do not harm the living tissue in the mouth.
- Robotics- researchers are experimenting with robotics in dental surgery. This helps increase precision and decrease how invasive procedures are for the patient.
- Artificial intelligence- one day, artificial intelligence could be used to help suggest treatment options and analyze proposed treatment plans to detect any overlooked impacting factors.
- Virtual reality- training could be improved as dental students are given the chance to practice via virtual reality. Patient experience could also be improved as they are given the chance to “escape” using virtual reality during an office visit or procedure.⁽¹⁾

Dental Products for the 21st Century

One of the technologies that are being used to create better dental products are apps and smart phones. Philips Sonicare has an electric toothbrush that users can connect to an app via bluetooth.⁽²⁾ The app helps track brushing habits, provide reminders, and provides visual cues on how to brush better. It even tracks brushing effectiveness over time to help users see their progress.

The Smile Lite MDP can turn a smartphone into a specialized dental camera.⁽²⁾ Thanks to its external lights and diffusers for macro photography, a dentist's phone can double as a dental camera.

Running an organized practice is extremely important for a successful dental practice. Simplifeye is software that allows dental team members to look at their smartphones, smartwatches, and/or tablets to access the schedule, updates, notes, and other important information to help all team members stay coordinated.⁽²⁾

Cutting Edge Products

The Cellerant “Best of Class” Technology Award is the most prestigious award a dental manufacturer can receive.⁽³⁾ Some of the products that received the award in 2017 we have already mentioned. However, there are a few more worth bringing to your attention:

- VELscope VX- scanner that uses a blue light fluorescence to scan a patient for oral cancer in real time. It can help spot problematic lesions not visible to the eye meaning this product could literally be a lifesaver.⁽²⁾
- Q-Optics- dentists wear special glasses called **loupes** that help magnify the tiny areas they work with in the mouth. Q-Optics uses True-Fit measurement system that captures the unique facial features of the wearer so each pair is designed to perfectly fit. It also customizes the magnification for the user.⁽²⁾

	<ul style="list-style-type: none"> • CariVu- this is a dental caries (cavities) detection system. Its transillumination technology helps spot dental caries. The images produced by the product look similar to those of an x-ray which means this is a product that is easy for the typical dental office to adopt. <p>While this is not an exhaustive list of all the latest and greatest products, hopefully it gives you an idea of how dentistry is improving today. More importantly, hopefully it has given you some ideas as to how you may one day contribute to improving dental products.</p> <p>References</p> <ol style="list-style-type: none"> 1. Hamm, R. (2017, July 28). 6 emerging technologies that will change dentistry forever. Retrieved February 28, 2018, from http://www.dentalproductsreport.com/dental/article/6-coming-technologies-will-change-dentistry-forever?page=0%2C2 2. Levine, N. (2017, August 22). The Cutting Edge Dental Technologies Ready to Disrupt the Industry. Retrieved February 28, 2018, from https://www.dentalcompare.com/Featured-Articles/341471-The-Cutting-Edge-Dental-Technologies-Ready-to-Disrupt-the-Industry/ 3. Best of Class Winners 2017. (n.d.). Retrieved February 28, 2018, from http://www.cellerantconsulting.com/index.asp?N=dental-consulting-Best-of-Class-2017&C=772&P=25576
<p>Reading #4</p>	<p>Digital Dentistry</p> <p>Digital dentistry is the use of digital or computer-based dental technologies or products instead of electrical or mechanical ones.⁽¹⁾ The end goal of digital dentistry is to increase efficiency in the dental field. Digital dentistry impacts dental practices from the front office to the diagnoses.</p> <p>Front Office</p> <p>Incorporating digital dentistry in the front office is about increasing efficiency. Sending forms to patients online before their appointments, for example, allows them to chance to fill it out before the appointment. This saves time because waiting for a patient to fill out extensive paperwork can bog down time. Getting email reminders before appointments is convenient for the patient and reduces no-shows. According to Dental Products Report, “the most underutilized asset in the dental office is practice management software.”⁽²⁾ Before you begin a career in dentistry, familiarizing yourself with some of the common dental software will make you a valuable asset to any practice.</p> <p>Patient Records</p> <p>Many dental practices have computers throughout the office. From the front office to exam rooms, this makes accessing digital records much easier. Rather than looking up charts, writing notes, and passing files along to the dentist, all the patient information and records can be accessed on any computer throughout the building.</p>

The computers are likely to become more advanced and helpful in the future. Features like voice-activation, touch screen, live video, and online consultations are some of the technologies available in other industries that will likely influence dentistry as well in years to come.

Digital Radiography

Digital radiography is likely to see an increase in years to come as well. More competition and reduced prices for digital radiography products has lead to greater adoption of this technology. Currently, over 80% of offices have gone with digital radiography.⁽²⁾ Benefits of digital radiography include lower radiation, time reduction, easier to store and organize, and image enhancements.⁽³⁾

CAD/CAM

CAD stands for “computer-aided design” and CAM stands for “computer-aided manufacturing.” CAD/CAM has greatly impacted dental laboratories. A series of intraoral (in the mouth) scans are sent to a computer program which can take the scans and create a 3D representation of the patient's mouth. Custom appliance such as dental crowns can be designed, and then the designs sent to a milling machine which manufactures the crown.

CAD/CAM is “faster, more economical, predictable, consistent, and relatively accurate” than traditional impressions and hand-crafting.⁽³⁾ Since intraoral imaging is so much more convenient, faster, and accurate for the dentist and more comfortable for the patient than gooey impressions, it is likely that intraoral imaging and CAD/CAM is likely to continue to grow.

Lasers

Many products in digital dentistry are expensive. Thanks to the decrease in prices over the past few years, lasers are becoming more common in dentistry and are one of the easier-to-adopt digital dentistry tools.⁽³⁾ Periodontics, endodontics, oral surgery, and general dentistry are all finding excellent results with lasers. One of the major benefits is the need for less anesthesia. Lasers also result in less bleeding after soft tissue procedures.⁽⁴⁾

Conclusion

Digital dentistry is here to stay. The benefits of a smoother practice and a better experience for the patient make digital dentistry the way of the future.

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Reading #5

Dental Sales Representative

Dental sales representatives are responsible for making sure current and prospective clients know about the products offered by the company the representative works for. Dental sales reps may schedule meetings to demonstrate new products to clients, so they must be very familiar with the products they are selling.

While there are no licensing requirements for dental sales representatives, many companies prefer to hire candidates with a four-year degree.⁽¹⁾ Many sales companies also look for people familiar with business-to-business sales. However, any sales background is likely to serve a candidate well. Some come from a science background such as biology, others from a business or marketing background.⁽²⁾

Dental sales representatives can be very lucrative for some. Generally, the rep earns a base salary and then earns commission and/or other compensation on top of that base salary. Many representatives start their career around \$50,000 a year with the potential to earn a total of around \$75-100K+.⁽¹⁾ Sometimes a company vehicle or vehicle reimbursement might be provided too since dental sales representatives often have to drive to meet clients.

As technology continues to increase and awareness about the importance of oral health continues to grow, the occupation of dental sales representative is likely to grow as well. That means there will likely be many job opportunities for qualified candidates in the future.

Product Development Technician

Product development technicians assist with creating and producing medical devices.⁽³⁾ This includes dental products as well. They assist the product development team within a company by implementing new processes, technologies, or tooling to manufacture products. They also work with engineers to make sure the manufacturing process meets the necessary requirements and the schedule, helps identify manufacturing improvements for current products, determines necessary manufacturing equipment and protocols, and help with testing products as well.

To start a career in dental product development, you will need a strong background in biology and related sciences. Some applicable degrees and certificates are biomedical technology and medical device.⁽³⁾ Some positions require a 2-year degree, and others require a 4-year degree or beyond.⁽³⁾

To work with teams of people, successful product development technicians need to have great communication skills. Problem-solving is another important quality since an important component of the job is improving products.

Conclusion

With the growing field of dentistry comes the growing field of dental products. Companies are going to be looking for top candidates to create, develop, manufacture, and sell dental products. By familiarizing yourself with what products are out there today, you will be better prepared for a career in dental products industry- no matter which facet of the industry you choose.

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Module 6: Community Dental Health

<p>Module Description</p>	<p>Millions of Americans do not have access to good dental care.⁽¹⁾ That is where a community dental health coordinator comes in to play. This module will look at this new and emerging role in the dentistry. Students will learn what the position entails and some of the must-know terminology. The module will also look at some of the ethical issues in dentistry.</p> <p>References:</p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved February 15, 2018, from https://www.ada.org/en/public-programs/action-for-dental-health/community-dental-health-coordinators
<p>Reading #1</p>	<p><u>Community Dental Health Coordinator</u></p> <p>A community dental health coordinator (CDHC) is a member of the dental team who performs clinical preventative services and community- based outreach duties.⁽¹⁾ They serve in communities that often do not have proper access to adequate dental care such as urban, rural, and Native American communities.⁽²⁾</p> <p>Often, a community dental health coordinator works in the same community in which they live or grew up.⁽²⁾ This helps eliminate any language or cultural barriers that are preventing community members from receiving adequate dental care. Another reason this set up is beneficial is that a CDHC who is personally familiar with the community may know some of the struggles that community members may face that are not obvious to an outsider such as childcare or transportation.</p> <p><u>History of CDHC Programs</u></p> <p>The CDHC program was developed because the American Dental Association recognized that tens of millions of Americans do not have proper access to dental services. In response to this issue, the ADA developed the Community Dental Health Pilot program in 2006.⁽²⁾</p> <p>The ADA invested over \$7 million in the pilot program.⁽²⁾ Further funding was provided by the Henry Schein Cares, a charitable organization that donated nearly \$860,000 to the program.⁽²⁾</p> <p>The first class of graduates completed their program in 2010 and began working in tribal clinics, urban and rural Federally Qualified Health Centers, and Indian Health Service Facilities.⁽²⁾ When the educational component of the CDHC pilot program was completed, the ADA conducted an evaluation to determine if the CDHCs were effective and if they were helping increase access to dental services in the communities in which they served. According to the ADA, “Results are meeting and exceeding expectations.”⁽²⁾</p> <p><u>Services Provided</u></p> <p>A good CDHC must tailor their services to the unique needs of the community and populations they serve. Since no two communities are exactly alike, no two CDHCs will have exactly the same daily duties. However, their responsibilities generally include⁽³⁾:</p>

	<ul style="list-style-type: none"> • Work in clinics, schools, private practices, and public health settings as needed or allowed by state law • Collect patient information to assist dentists in treating patients • Address social, environmental, and health literacy issues • Provide dental health education • Coordinate patient care in accordance with a dentist’s instructions • Help patients navigate the complexities of the healthcare system • Provide limited clinical services under the supervision of a qualified dentist such as: <ul style="list-style-type: none"> ○ Screenings ○ Fluoride treatments ○ Placement of sealants ○ X-rays <p><u>Education and Training</u></p> <p>CDHCs often provide clinical services under the supervision of a dentist. For that reason, programs like the CDHC program at Rio Salado College require applicants to be registered dental hygienists or certified dental assistants.⁽⁴⁾ Training for those programs ensures that a CDHC knows how to properly provide services such as fluoride application, sealant application, x-rays, and screenings.</p> <p>The additional training to become a CDHC takes about a year.⁽¹⁾ Potential courses you might take in the program include: dental health advocacy and outreach, oral health communication, interviewing skills for dental health advocate, dental health legal and ethical issues, dental care finance, community dental health coordinator internship.⁽⁴⁾</p> <p>To finish this reading section, read through this brochure on information on Rio Salado's online program for CDHC coordinators.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. American Dental Association. (n.d.). Community Dental Health Coordinator . Retrieved March 5, 2018, from https://www.ada.org/~media/ADA/Public%20Programs/Files/CDHC_Overview.pdf?la=en 2. (n.d.). Retrieved March 05, 2018, from https://www.ada.org/en/public-programs/action-for-dental-health/community-dental-health-coordinators 3. American Dental Association. (n.d.). Retrieved March 5, 2018, from https://www.ada.org/~media/ADA/Public%20Programs/Files/CDHC_Brochure.pdf?la=en 4. CCL in Community Dental Health Coordination. (n.d.). Retrieved March 05, 2018, from http://www.riosalado.edu/programs/Pages/CCL-Community-Dental-Health-Coordination.aspx
<p>Reading #2</p>	<p><u>General Vocabulary</u></p>

There are a variety of keywords and terminology associated with community health. In this section, we will cover some of the terms that a community dental health coordinator may need to know.

- Community- people and the relationships that are formed as they develop and use in common some agencies, institutions, and the physical environment.⁽¹⁾
- Medically underserved areas- regions that have little or no healthcare sources.⁽²⁾
- Medically underserved populations- cultural groups or ethnic groups that have inadequate access to healthcare services.⁽²⁾
- Health insurance- a type of coverage that one receives that is designed to pay some of the costs associated with healthcare expenses. Dental insurance is a type of health insurance that specifically covers dental-related costs.⁽²⁾
- Insurance premiums- a fee that insurance users pay to an insurance company to provide insurance coverage.⁽²⁾
- Navigate- to steer, direct, or help an someone make his/her way. CDHC helps individuals navigate or guide them through the dental healthcare system.⁽²⁾
- **Advocate**- Someone who speaks or writes in defense of a person or cause.⁽³⁾
- Motivational Interviewing- a technique that is client-centered and works to activate a patient's own motivation for changing his/her behavior.⁽²⁾

Vocabulary dealing with Cultures

One of the reasons the CDHC approach is so successful is that it takes into account the culture of a community. The following are important terms relating to working with cultures.

- Culture- learned ways of behavior from a social, ethnic, or age group.⁽⁴⁾
- Cultural awareness- appreciation of and sensitivity to an individual's values, beliefs, lifestyle, and practices.⁽¹⁾
- Cultural accommodation- negotiating with an individual to include aspects of his/her cultural practices with the traditional healthcare system in order to implement necessary treatments.⁽¹⁾
- Cultural brokering- advocating, mediating, negotiating, and intervening between the individual's culture and the healthcare culture on behalf of the individual.⁽¹⁾

Understanding these terms and how they relate to the career of a community dental health provider is important.

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<p>Reading #3</p>	<p><u>Barriers to dental care</u></p> <p>If you've always had dental insurance, you've probably never thought much about how fortunate you are to have of those yearly visits to the dentist. Maybe you've just thought of them as a necessary nuisance. The truth is, more than 47 million Americans face barriers to obtaining proper dental care.⁽¹⁾ The following are some of the most common barriers to dental care:</p> <ul style="list-style-type: none"> • Financial difficulties and poverty- many Americans lack the financial resources to pay for dental expenses and do not have dental insurance to help offset those costs. Most dentists do not accept Medicaid patients because reimbursements are so low.⁽²⁾ • Geographical location- people living in very rural, remote areas and lack adequate transportation may have a hard time physically getting to a dentist or clinic. There may be a lack of services offered in their area. • Pressing health concerns- if a patient is facing severe health problems, oral health may be put on hold due to the time, financial, and resource constraints created by the health issue. • Lack of oral education- not understanding how oral health affects well-being and/or not understanding preventative measures may prohibit people from seeking the dental healthcare they need. <p>The above barriers may be further compounded by factors such as</p> <ul style="list-style-type: none"> • Language • Culture and ethnicity • Illiteracy/lack of education <p><u>How Community Dental Health Coordinator Can Help</u></p> <p>The ADA has acknowledged the problems these millions of Americans have in accessing dental care.⁽³⁾ To help remedy the situation, the community dental health coordinator program was created. Here is how a CDHC might help alleviate some of the problems listed above.</p> <ul style="list-style-type: none"> • Finances- there are resources such as The Marshfield Clinic in Wisconsin which is a federally qualified health center which serves low-income and Medicaid patients.⁽¹⁾ A CDHC will make sure that members of the underserved communities know about such institutions. Furthermore, CDHCs may provide screenings through the clinics and organizations they work for at little or no cost to members of the community. • Geography- A CDHC may organize transportation from a convenient location to a place where members of the community can receive dental care. • Pressing health concerns- a CDHC may coordinate with other medical professionals on behalf of a patient to find a way for the patient to receive dental care in tandem with the care he/she is receiving for health problems. A CDHC may also arrange special

	<p>accommodations for the patient's health problems, such as arranging wheelchair accessibility, for example.</p> <ul style="list-style-type: none"> • Oral education- one of the key components of a CDHC's job is to educate members of the community. A CDHC may visit schools, community centers, Head Start programs, and other places where members of the community gather in order to teach about the importance of oral wellness. • Language- since CDHCs typically work in the communities they come from, they often speak the same language or know where/how to find translating services. • Illiteracy/lack of education- again, being from the community, the CDHC knows where and how to best educate the members of the community and will adapt the presentation methods in order to influence as many community members as possible. <p>Community dental health coordinators are just one of the possible solutions to the problem millions face in lacking adequate dental care. In the next section, we will look at a slightly different approach taken by a couple states as well as many first-world countries around the world.</p> <p>References</p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved March 07, 2018, from https://www.asdanet.org/index/get-involved/advocate/issues-and-legislative-priorities/Barriers-to-Care 2. Conner, E. A. (n.d.). More Than a Tooth Ache: The Need for Comprehensive Dental Care. Retrieved March 07, 2018, from https://www.healthify.us/healthify-insights/more_than_a_tooth_ache 3. (n.d.). Retrieved March 07, 2018, from https://www.ada.org/en/public-programs/action-for-dental-health/community-dental-health-coordinators
<p>Reading #4</p>	<p><u>Dental Therapists</u></p> <p>There is another proposed solution to the lack of adequate dental care millions of Americans face. That solution is to implement dental therapists into the current system. Dental therapists are midlevel providers with two years of intensive technical training.⁽¹⁾ Dental therapists are trained to provide a variety of preventative and restorative treatments that currently only dentists are able to do such as filling cavities, simple tooth extractions, and recementing of permanent crowns.⁽²⁾</p> <p>In 2000, 28 countries utilized dental therapists.⁽³⁾ Many dental therapists are public health employees working in school-based programs. This system provides dental care to children who may not have access to it otherwise.</p> <p><u>States and Dental Therapists</u></p> <p>Most states in the United States do not allow dental therapists to practice. The states that do allow dental therapists are Vermont, Maine, Minnesota, and the Native tribes of Alaska. Tribal access is also authorized in Oregon and Washington with statewide authorization under consideration.</p>

A handful of states are actively exploring using dental therapists. Those states are Arizona, New Mexico, Kansas, North Dakota, Wisconsin, Michigan, Ohio, Florida, Hawaii, and Massachusetts.⁽⁴⁾

Pros

As discussed in the previous section, there are many who lack access to the dental care they need. Supporters of dental therapists cite the following as benefits for using dental therapists:

- Dental therapists could work in rural satellite clinics so that members of those communities do not have to travel long distances to receive care.
- They perform routine care and restorative procedures, opening the dentist's schedule to receive more patients with complex procedures. This has the added benefit of benefiting the practice financially because complex procedures tend to make more money for the practice.
- Lower cost of treatment compared to seeing a dentist.
- Many studies document the competence of dental therapists and their work quality.⁽⁵⁾

Cons

There are organizations such as the American Dental Association that oppose the use of midlevel providers such as dental therapists. Instead, the ADA supports their community dental health coordinator program. Here are some of the reasons people do not feel dental therapists are the best solution:

- It is Medicaid and other government insurance programs that need to be changed, not the dental system. Because reimbursement for these programs is so low, many practitioners do not see such patients. Increasing reimbursement would increase the number of dentists willing to see Medicaid patients.
- There is no guarantee that dental therapists will work in underserved locations and would just make more competition in areas that are doing fine.
- Dentists do not want their profession's quality to be questioned because dental therapists are less educated in the field.
- Publicly funded programs would increase taxes and/or decrease funding in other areas.

With more states considering dental therapists, it is up to you to get educated on the pros and cons of such an issue and make an informed opinion about whether you think the pros outweigh the cons or not. This will allow you to help teach and educate others on the matter. This is an example of how YOU can have a tremendous impact on how dental healthcare will look in the future.

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<p>Reading #5</p>	<p><u>Ethical Dilemma</u></p> <p>Sometimes in dentistry, the answers to problems are straightforward. For example, if a patient comes in for routine teeth cleaning, and there is plaque buildup, the solution is to remove the plaque. Other problems are not so straightforward. In fact, with some problems, the possible solutions all cause some amount of conflict or wrongdoing. These are known as ethical dilemmas.⁽¹⁾</p> <p>Here are some examples of ethical dilemmas that a dental professional may encounter:</p> <ul style="list-style-type: none"> • Dental hygienist discovers that a coworker has repeatedly failed to report significant details on a patient's chart • Adolescent confides to a dentist that he/she struggles with an eating disorder and requests that the dentist not tell his/her parent. • Instruments have not been properly sanitized, and the clinic is already running late • A patient wants the whitest dentures possible, even though the dentist advises it will not look natural <p>These are just a few ethical dilemmas. There are countless situations that could and have occurred for dentists throughout history and today. Understanding what obligations the dentist has to a patient will help you understand the most ethical solution to the problems.</p> <p><u>ADA Code of Ethics</u></p> <p>The American Dental Association has developed a code of ethics which can be used by dentists to govern their professional behavior in a variety of situations. The code is broken up into three components: The Principles of Ethics, Code of Professional Conduct, and Advisory Opinions.⁽²⁾</p> <p><u>The Principles of Ethics</u></p> <p>There are five principles of ethics that comprise the ADA Code of Ethics. They are patient autonomy, nonmaleficence, beneficence, justice, and veracity.⁽²⁾</p> <ul style="list-style-type: none"> • Patient Autonomy- the dentist should respect the patient's confidentiality and rights to self-determination (control of his/her own life). • Nonmaleficence- the dentist should not harm the patient. • Beneficence- the dentist should promote the patient's welfare. • Justice- the dentist should treat people fairly. • Veracity- the dentist should be truthful in communication. <p><u>Code of Professional Conduct</u></p>

The Code of Professional Conduct articulates specific types of behavior that should be observed or prohibited.⁽²⁾ There are behaviors associated with each of the five principles. For example, the Code of Professional Conduct outlines that dentists should keep their education and skill current. The code is binding for members of the ADA.

Advisory Opinions

Advisory Opinions is a series of interpretations that apply to the Professional Code of Conduct in specific situations.⁽²⁾ This section helps clarify the principles and Code of Professional Conduct even further.

Here is a link to the entire ADA Code of Ethics. While it is a bit long and technical (and not required reading), it will be something important to study and understand before becoming a dental

professional. https://www.ada.org/~media/ADA/Member%20Center/Files/2016_ADA_Code_of_Ethics.pdf?la=en

Hippocratic Oath

Medical professionals such as doctors and dentists take what is called the **Hippocratic Oath** before they begin their medical career. The Hippocratic Oath is an oath that states the obligations and expectations of proper behavior for a medical professional. Here is the Hippocratic Oath taken by dentists⁽³⁾:

I swear to fulfill, to the best of my ability and judgment, this covenant:

- *I will respect the hard-won scientific gains of those dental professionals in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.*
- *I will apply, for the benefit of the sick, all measures which are required, avoiding those twin traps of overtreatment and therapeutic nihilism.*
- *I will remember that there is art to dentistry as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.*
- *I will not be ashamed to say "I know not"; nor will I fail to call in my colleagues when the skills of another are needed for a patient's well-being.*
- *I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humility and awareness of my own frailty. Above all, I must not play at God.*
- *I will remember that I do not treat a fever chart or a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.*
- *I will prevent disease whenever I can, for prevention is preferable to cure.*
- *I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm.*
- *If I do not violate this oath, may I enjoy life and art, respected while I live an remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.*

Conclusion

Facing an ethical dilemma is never easy. But understanding the expectations of dental professionals helps put ethical dilemmas into proper context.

There are millions of Americans who are unable to get the dental treatment they need. The emerging role of the community dental health coordinator may help many of those individuals find and access necessary dental professionals. Another emerging role, the dental therapist, may also play a role in helping those individuals in the future as well. Now is the perfect time to learn about these professions as they emerge.

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Module 7: Dental Administration

<p>Module Description</p>	<p>It takes more than a dentist and some assistants to make a dental office a success. In this module, students will look at the importance of dental administration. It will provide an overview of office management. Then students will get a better idea of how insurance factors into dentistry. This portion will include understanding the American Dental Association's codes with dental insurance and the cost of private dental insurance plans vs. government-issued plan. Students will also understand what HIPPA is and why it matters. Finally, the module will go over various electronic medical record software systems.</p>
<p>Reading #1</p>	<p><u>Dental Office Manager/Office Administrator</u></p> <p>Some dental practices are group practices with two or more dentists working with their own patients and have their own schedules. Since such offices are often busier than solo practices, they often require a dental office manager. Dental office managers are responsible for the day-to-day operations related to financial planning, record keeping and billing, personnel, marketing, and scheduling.⁽¹⁾ That doesn't necessarily mean that the dental office manager does every one of those tasks by himself. For example, the practice may use an accountant to handle the money, but the office manager is the one that will handle most of the communication with the accountant and make sure the office is up-to-date on where it stands financially.</p> <p>A big component of the dental office manager's job is leading the office staff. There might be receptionists, billing coordinators, and schedule coordinators within the office. The office manager makes sure everyone is performing their responsibilities appropriately, mediates any troubles between the staff, holds staff meetings, disciplines as necessary, and makes sure everyone knows what is going on in the office.</p> <p>Dental office administrators hold similar responsibilities to that of an office manager. They are responsible for things like financial planning and tracking, record keeping, billing, and scheduling. However, they do not typically have the leadership responsibilities of an office manager.⁽²⁾ They may work under an office manager as part of the office staff or, especially in smaller practices, they may work mostly alone. However, they too are responsible for the day-to-day activities beyond patient care that are part of the dental business.</p> <p><u>Education and Training</u></p> <p>Some dental offices may hire dental office administrators with just a high school diploma.⁽²⁾ However, to secure a position as an office manager, a certificate program, associate's degree or bachelor's degree in business administration or related field may be advantageous.</p> <p>In other cases, dental offices may choose to fill the position by a dental assistant who aspires to become a dental manager.⁽³⁾ This allows them to learn about things like dental software, billing, and coding while on the job.</p> <p><u>Personality Traits and Skills</u></p> <p>Like any job, certain people are going to naturally have skills and personality traits that will serve them well as dental office managers. Here are some of those skills and traits:</p> <ul style="list-style-type: none"> • People skills

	<ul style="list-style-type: none"> • Organizational skills • Excellent communication • Time management skills • Trustworthy • Leadership <p>While some of these traits may come naturally to you, the ones that don't can always be learned and developed.</p> <p>References</p> <ol style="list-style-type: none"> 1. (n.d.). Retrieved March 19, 2018, from https://study.com/articles/Dental_Office_Manager_Job_Duties_and_Information_About_a_Career_in_Dental_Mgmt.html 2. The Difference Between Office Manager and Office Administrator. (n.d.). Retrieved March 19, 2018, from https://careertrend.com/info-12055944-difference-between-office-manager-office-administrator.html 3. (n.d.). Retrieved March 20, 2018, from https://study.com/articles/Dental_Office_Manager_Associates_Degree_Program_Information.html
<p>Reading #2</p>	<p><u>Dental Insurance</u></p> <p>Medical services and procedures are expensive, and dental services are no exception. To help cover the cost of dental procedures and services, many people get dental insurance. Dental insurance is designed to pay part of the costs associated with receiving dental care.⁽¹⁾ People either purchase insurance on their own, or receive it through their employer. There are private companies that provide insurance as well as government programs that offer it too.</p> <p>Dental plans normally cover seven basic areas of dental care⁽²⁾:</p> <ol style="list-style-type: none"> 1. preventive care- teeth cleanings, 1-2 annual office visits 2. restorative care- cavity fillings and crowns 3. endodontics- procedures such as root canals 4. oral surgery - tooth removal and minor surgical procedures 5. orthodontics--retainers, braces, palate expanders, and other teeth straightening appliances 6. periodontics - scaling, root planning and management of infections or lesions 7. prosthodontics--dentures and dental bridges <p><u>Claims</u></p> <p>When a patient receives dental care, the dental office sends the insurance company a claim.⁽³⁾ An insurance claim is a request for payment from the insurance company. How much the insurance company will pay and how much the patient will pay depends on the insurance plan the patient is enrolled in. Some services, often preventative care, may be covered</p>

completely by the insurance company. Other, more expensive procedures often require more payment from the patient.

What are CDT Codes?

The American Dental Association has an extensive list of what is known as Current Dental Terminology (CDT) Codes. The CDT codes exist to achieve uniformity, consistency, and specificity when dentists and other oral healthcare workers document dental treatment.⁽⁴⁾ The codes are frequently reviewed and updated by the ADA.

CDP Breakdown

The CDT Code is broken down into 12 categories. Each category has its own series of alphanumeric codes. In other words, all of the codes have the letter D followed by four numbers. Each service or treatment has a unique code. The breakdown is as follows⁽⁵⁾:

Category of Service	Code Series
Diagnostic	D0100-D0999
Preventative	D1000-D1999
Restorative	D2000-D2999
Endodontics	D3000-D3999
Periodontics	D4000-D4999
Removable Prosthetics	D5000-D5899
Maxillofacial Prosthetics	D5900-D5999
Implant Services	D6000-D6199

	<table border="1"> <tr> <td>Fixed Prosthodontics</td> <td>D6200-D6999</td> </tr> <tr> <td>Oral and Maxillofacial Surgery</td> <td>D7000-D7999</td> </tr> <tr> <td>Orthodontics</td> <td>D8000-D8999</td> </tr> <tr> <td>Adjunctive General Services</td> <td>D9000-D9999</td> </tr> </table> <p>So if, for example, you went to the dentist to have a specific tooth looked at that was giving you trouble, that would likely be coded as D0140 limited oral evaluation- problem focused.⁽⁵⁾ It falls in the diagnostic category because the goal is to make a diagnosis in order to make a treatment plan for the tooth. To find the specific codes needed, the ADA publishes a yearly book with all the up-to-date codes.</p> <p>References</p> <ol style="list-style-type: none"> 1. Dental insurance. (2018, February 28). Retrieved March 20, 2018, from https://en.wikipedia.org/wiki/Dental_insurance 2. (n.d.). Retrieved March 20, 2018, from http://www.nadp.org/Dental_Benefits_Basics/Dental_BB_2.aspx 3. Claim. (n.d.). Retrieved March 20, 2018, from http://www.dictionary.com/browse/claim 4. Code on Dental Procedures and Nomenclature (CDT Code). (n.d.). Retrieved March 20, 2018, from https://www.ada.org/en/publications/cdt 5. American Dental Association. (2015). CDT 2016 Dental Procedure Codes . Retrieved March 20, 2018, from https://www.smartpractice.com/Images/Products/ASI/PhotoLg/101460_Sample.pdf 	Fixed Prosthodontics	D6200-D6999	Oral and Maxillofacial Surgery	D7000-D7999	Orthodontics	D8000-D8999	Adjunctive General Services	D9000-D9999
Fixed Prosthodontics	D6200-D6999								
Oral and Maxillofacial Surgery	D7000-D7999								
Orthodontics	D8000-D8999								
Adjunctive General Services	D9000-D9999								
<p>Reading #3</p>	<p><u>What is HIPAA?</u></p> <p>HIPAA stands for Health Insurance Portability and Accountability Act and was enacted in the United States in 1996.⁽¹⁾ HIPAA placed rules and restrictions on the way medical professionals keep, use, and disclose patient information.⁽²⁾</p> <p>There are five Titles under the act⁽¹⁾:</p> <ol style="list-style-type: none"> 1. Title 1- Healthcare access, portability, and renewability. This keeps Americans insured in the event that they lose or change their jobs. 2. Title 2- Preventing healthcare fraud and abuse; administration simplification; medical liability reform. Notably for this title, it establishes policies and procedures for providing privacy and security for patient information. 								

3. Title 3- Tax-related health provisions governing medical savings accounts. Some people have special medical savings accounts. This title sets guidelines for pre-tax medical saving/spending accounts.
4. Title 4- Application and enforcement of group health insurance requirements. This title sets guidelines for group health plans. Group health plans are employer-provided medical care benefit programs for employees and their dependents.⁽³⁾
5. Title 5- Revenue offset governing tax deductions for employers. This governs company-owned insurance policies.

The Privacy Rule

The Privacy Rule is a federal law that gives rights to patients over their health information and sets rules on who can look at and receive patients' health information.⁽⁴⁾ Under this rule, those who are required to follow HIPAA such as healthcare providers must comply with the patient's request to:

- See and get a copy of his/her health records
- Have corrections added to his/her health information
- Receive a notice that describes how health information may be used and shared
- Decide if he/she want to give permission before his/her health information can be used or shared for certain purposes
- Get a report on when and why health information was shared for certain purposes

Who Must Follow HIPAA

Those who must follow HIPAA are called "covered entities." **Covered entities** include⁽⁴⁾:

- Health plans which include health insurance companies, company health plans, health maintenance organizations, and government programs such as Medicaid and Medicare.
- Healthcare providers including dentists, doctors, pharmacies, hospitals, clinics, psychologists, chiropractors, and nursing homes.
- Healthcare clearinghouses which are companies that forward claims information from providers to insurance payers.

Consequences for Violations

If a HIPAA violation occurs, the medical provider may need to provide notice to the patient(s) affected, the government, and, if more than 500 individuals are affected, the media (TV stations and newspapers so they can inform the public).⁽²⁾ Fines for violations run from \$100 to \$25,000 per violation depending on the type of violation.⁽¹⁾ Imprisonment may be another consequence and may be anywhere from one year to ten years, depending on the type of violation.⁽¹⁾

Conclusion

While it may seem like a bunch of legal details that don't really matter to someone who isn't even a health professional yet, understanding HIPAA now will benefit you in the future. You have the chance to observe HIPAA in action the next time you visit a medical professional. You can take inventory of what the office or clinic has you sign that applies to your HIPAA rights. You

	<p>can notice the steps they take to secure your information. By learning from others, you have the advantage of setting up your own practice (or one you work for) right in the future.</p> <p>References</p> <ol style="list-style-type: none"> 1. Health Insurance Portability and Accountability Act. (2018, March 21). Retrieved March 21, 2018, from https://en.wikipedia.org/wiki/Health_Insurance_Portability_and_Accountability_Act 2. Kethcart, R. (2017, June 29). Emails, texts, and HIPAA: 7 rules every dentist needs to know. Retrieved March 21, 2018, from http://www.dentistryiq.com/articles/2017/06/emails-texts-and-hipaa-7-rules-that-every-dentist-needs-to-know.html 3. Benefits, Z. (n.d.). What is a Group Health Plan? Retrieved March 21, 2018, from https://www.peoplekeep.com/blog/what-is-a-group-health-plan 4. HHS Office of the Secretary, Office for Civil Rights, & OCR. (2017, February 01). Your Rights Under HIPAA. Retrieved March 21, 2018, from https://www.hhs.gov/hipaa/for-individuals/guidance-materials-for-consumers/index.html
<p>Reading #4</p>	<p>Electronic Medical Records</p> <p>In today's electronic age, many healthcare offices are working toward becoming paperless. An electronic medical record (EMR) contains the medical and clinical information of a patient gathered in a provider's practice.⁽¹⁾ You may have an EMR at your dentist's office, your physician's office, your physical therapist's office, and so on. There are a few key benefits to having electronic medical records rather than paper records⁽¹⁾:</p> <ul style="list-style-type: none"> • Providers can track data over time • Identify patients who need their routine checkups, screenings, and preventative visits • Monitor patients' specific parameters such as blood pressure, vaccinations, and heart rate • Improve overall care in a practice because of the ease of collecting and consulting data <p>Like most things, there is a downside to EMRs. First, it is expensive to implement. The cost to implement an EMR system can be more than \$160,000 for a solo practitioner.⁽²⁾ Secondly, security risks continue to rise as more and more practices implement EMR systems.⁽²⁾</p> <p>Server-based EMR Systems</p> <p>To store electronic medical records, one option practitioners have is to use a server-based EMR system. Client-server EMR systems store data in local servers.⁽³⁾ This means the practice must purchase the hardware and software needed to run the system. One of the key benefits to using a server-based system is that it puts all the patients' data remains in the control of the practice. Since it does not store the information on the internet, but rather on the server, the vendor does not have access to the data nor can outside sources obtain the information easily. Server-based EMR systems are not inexpensive, however. The hardware and software</p>

costs tens of thousands of dollars. Plus there is the cost of labor- transferring data and implementation of the system.⁽²⁾

Web-based EMR Systems

The second option medical practices have for electronic medical records is a **web or cloud-based system**. In this setup, users pay a monthly subscription fee to access their EMRs rather than having to purchase the entire system. Since it uses the internet rather than specific servers, hardware, and software, any computer with the internet can implement the system. This makes it more cost-effective for solo practitioners or small group practices.⁽⁴⁾ If you are wondering about security with all the information on the internet, you will be relieved to hear that host companies have very sophisticated security measures.⁽⁴⁾ Does that mean that web-based systems are definitely the way to go? Not necessarily. After a few years (about 5), it actually becomes more economical to purchase an entire system rather than continue paying monthly fees.⁽⁴⁾ And although the host companies have sophisticated security measures, practitioners are still at the mercy of the host in terms of security. Furthermore, if the host company goes out of business, data may be lost with it.

Electronic Health Records

Electronic health records encompass all that electronic medical records track, but also include data collected by other providers, giving a more comprehensive overview of a patients' health.⁽¹⁾ All authorized users can access the patient's data. The data can also be accessed by labs and other auxiliary healthcare providers. If the patient moves to another state, the EHR goes with the patient, another major benefit to EHRs.

The most used EHR systems are⁽⁵⁾:

1. Epic
2. Cerner
3. Allscripts
4. eClinicalWorks
5. NextGen

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<p>Reading #5</p>	<p><u>Private Dental Insurance Plans</u></p> <p>Private Dental Insurance or “commercial dental insurance” as it is also known, refers to either individual dental plans that can be purchased or dental plans offered through employers.⁽¹⁾ Individual dental plans allow you to choose the plan that best fits your family and your unique needs. With a group plan, the employer will choose the dental insurance plans and allow the employees to select the plan that works best for them.</p> <p>Which type of private insurance works best for a person- individual or group- depends on a few factors. First, is how much the premiums will cost. Premiums are the amount a person or business must pay to have an insurance policy.⁽²⁾ Premiums may be paid yearly, twice a year, or monthly, depending on what the insurance company allows. Another consideration is the annual maximum. The maximum is the total amount per year that the insurance will pay for your dental expenses.⁽³⁾ So if you have a \$1,000 maximum for example, once that amount has been reached, it is the patient's responsibility to pay the remainder of the bill. Finally, individuals should consider the co-payments. Co-payments are fixed amounts that the insured individual pays for a particular service. For example, routine cleanings may have a co-payment of \$10. That \$10 is an amount you pay in addition to the monthly premiums.</p> <p>The type of insurance that works best for an individual comes down to math and figuring out how to get the most coverage for the lowest amount by factoring in premiums, annual maximums, and co-payments. Of course, there is still one more major consideration to make. That is thinking about the state of one's teeth and how much work is likely needed.</p> <p><u>Government Dental Insurance Plans</u></p> <p>The government has special insurance plans for qualified individuals. These programs allow individuals to receive health insurance at little or no cost compared to private dental insurance plans. Medicare is available to individuals over 65 or those with long-term disabilities.⁽⁴⁾ Medicare, however, does not include dental coverage in most cases.⁽⁵⁾</p> <p>Medicaid is an option for qualified low-income individuals. The amount of dental coverage varies state to state with some offering no coverage and others offering extensive dental coverage.⁽⁶⁾ Unfortunately, low-income individuals often suffer a high amount of dental disease. So if an individual with a lot of dental problems lives in a state with no dental benefits, that person may have to pay all the costs out-of-pocket. Having to pay out-of-pocket may keep low-income individuals from seeking the care they need.</p> <p>All children under Medicaid are entitled to comprehensive dental insurance.⁽⁶⁾ However, only about 20% of dentists accept Medicaid patients.⁽⁶⁾ The difficulties for dentists in working with Medicaid patients include: lots of work on the administration end, missed appointments, having to wait a long time to get payments, and low reimbursement rates.⁽⁶⁾</p> <p><u>Dental Discount Plans</u></p>

There is one more type of assistance to dental costs that we will mention here. That is **dental discount plans**. Dental discount plans work like membership programs. A person pays an annual fee to join the plan and the gets access to discounted services from participating providers.⁽⁷⁾ Whether or not these dental discount plans save a person more than a traditional insurance plan depends on the type and amount of work done.

Conclusion

There is a whole lot more to running a successful dental practice than alleviating a toothache. Much of the work that goes on in a dental office gets done by the office staff. The office staff deal with insurance, billing, and coding. They are a vital part of any successful dental practice.

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Module 8: College Preparation, the Dental Admissions Test, and Dental School

<p>Module Description</p>	<p>Applying to dental school can be a daunting task. This module will help students understand the process now, so they can develop a road map for the future. First, the module will describe the Dental Admissions Test and how to prepare for that test. Next, it will look at the interview process. Finally, it will take a closer look at some of the dental schools in the USA. The module will provide an overview of the cost, facilities, faculty, and location.</p>
<p>Reading #1</p>	<p><u>High School Preparation</u></p> <p>If you want to be a dentist- great! The world certainly needs amazing, qualified dentists now and in the future. Did you know there are things high school students can do right now to prepare for a career in dentistry? Here are some of the steps students can take to get them a head start for a career in dentistry:</p> <ol style="list-style-type: none"> 1. Shadow a dentist: that means follow a dentist (with his/her permission, of course!) and observe him or her at work. This is one of the best ways to get an idea of what a dentist's workday is like behind the scenes. Keep track of the hours because dental schools will be interested in how much time you spent shadowing dentists.⁽¹⁾ 2. Take science and math classes: biology, chemistry, and algebra, for example.⁽²⁾ And don't just pass them, but master the concepts, which future college and dental school courses will build on. If you can take advanced placement (AP) level courses in these subject, all the better. Advanced classes will prepare you for the faster, more in-depth pace of college and, hopefully, teach you how to truly study- a skill you will definitely need. 3. Practice working with your hands: dentists do a lot of intricate work with their hands. You can get used to working with your hands by playing musical instruments or doing art, for example. Find something you enjoy doing. 4. Get involved in community service or group organizations. Dentists work with a wide variety of people. Getting involved in community service will help you develop the necessary people skills you'll need as a dentist. 5. Participate in special programs for high school students interested in the medical and/or dental field. Here is a website with over 50 programs.⁽³⁾ <p><u>College Preparation</u></p> <p>Believe it or not, the preparation in college is not that different from the preparation in high school.⁽⁴⁾⁽⁵⁾</p> <ol style="list-style-type: none"> 1. Obtain clinical experience.⁽⁴⁾ The shadowing and volunteering should not stop after high school. The most important things to remember about clinical experience are: <ul style="list-style-type: none"> ○ Be consistent. Show that you can make a long-term commitment to a practice or organization. It will not only reassure you that this is a career you can do, but will also show potential dental schools that you can work well in a dental practice and act as an asset. ○ Try to get community-based and private practice experience. By getting both experiences, you'll show you understand the profession well from a variety of viewpoints And work with a diverse set of patients. ○ Limit working with family members. This may feel a bit out of your comfort zone, but it is important to show you have experiences working with people

outside of your immediate circle. Although there is nothing wrong with having some of your experience come from working with family members, this shouldn't be your only experience.

- Focus on medically underserved populations. While this is not necessarily a requirement, schools do look favorably upon these types of experiences. It shows that you have compassion for those who are less fortunate and gain experience with the social issues around the profession.
 - Early on in your clinical experience, identify a dentist that can potentially write you a letter of recommendation when the time comes. Be sure to be around them frequently so he/she gets to know you and sees your commitment.
2. Maintain a strong GPA. Dental school is not easy. One of the ways dental schools determine if you can handle the rigors of dental school is by the GPA you obtain as an undergraduate. Be especially aware of your GPA in the prerequisite classes you need to take to apply to dental schools. These classes will be weighted particularly heavily in your application.
 3. Do well on the Dental Admissions Test (DAT). We will get into this in the next section, but a strong score on the DAT will get your application some attention.
 4. Get involved in research. Unless you are planning on making research a priority in your career, the amount of research does not have to be extensive, but it does show you know the proper way to go about forming interesting questions and finding answers to those questions.
 5. Get leadership experience on clubs teams, or other organizations. Leadership experience does a variety of things. It shows you can work well with others, you can take the initiative, and you know what it takes to make things happen.
 6. Find community service opportunities. This shows dental schools that you have the desire to make a positive difference and will likely make a positive impact in the communities you work as a professional.

Applying to dental school is a major undertaking! It's not something you can do on a whim. It takes careful planning over many years and a lot of hard work. By knowing what you need to do to be a strong applicant for dental school in the future, you can formulate a plan that will help you keep to your goal.

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<p>Reading #2</p>	<p><u>What is the DAT?</u></p> <p>The Dental Admission Test (DAT) is a standardized test designed to provide dental schools with a way to assess prospective student's potential for success.⁽¹⁾ Together with a prospective student's grade point average, the DAT score helps schools determine whether or not a student has the academic foundation to be successful as a dental student and in the dental profession.</p> <p><u>The Four Sections</u></p> <p>The DAT is comprised of the following four sections:</p> <ol style="list-style-type: none"> 1. Survey of Natural Sciences- contains the Biology, General Chemistry, and Organic Chemistry subtests with a total of 100 questions. The test time for this section is 90 minutes. Test takers will receive a score for each subtest section as well as a cumulative score for the natural sciences portion.⁽²⁾ 2. Perceptual Ability Test- this is a 90-question, 60-minute test. This portion of the test is designed to test spatial visualization skills. The questions are divided into six categories: keyholes (apertures), top-front-end (view recognition), angle ranking, hole punching (paper folding), cube counting, and pattern folding (3D form development).⁽³⁾ 3. Reading Comprehension- this section contains three reading passages with 14-17 questions associated with each passage for a total of 50 questions. All passages are science related. The purpose is to test the ability to read, comprehend, and analyze scientific material.⁽⁴⁾ 4. Quantitative Reasoning- the math portion of the test consists of 40 questions to be completed in 40 minutes. Types of problems included in this section include algebra, numerical calculations, conversions, probability and statistics, geometry, trigonometry, and word problems.⁽⁵⁾ <p><u>Scoring</u></p> <p>Receiving a score for the DAT can seem a little confusing if you are not familiar with the scoring process. There are eight scores. Each score provides a little more insight into the strengths and abilities of an applicant. The first six are from the individual tests: biology, general chemistry, organic chemistry, perceptual ability, reading comprehension, and quantitative reasoning. These multiple-choice questions are scored as right or wrong for a raw score for each test. Then those raw scores are then converted to scaled scores ranging from 1 to 30, with 30 being the highest.⁽⁶⁾</p> <p>There are still two more scores. The Total Science score is the standard score for the 100 questions in the Survey of Natural Sciences section. It is <i>not</i> the average score, but rather a scaled score from the raw score. On the other hand, the Academic Average score <i>is</i> an average. It is the rounded average of those scores in reading comprehension, quantitative reasoning, biology, general chemistry, and organic chemistry. There is also an Academic Average Score. This score takes into account all of the sections <i>except</i> the Perceptual Ability Test.⁽⁶⁾</p>

The standard score indicates a person's ability relative to all the students who took the same test on the same day. For that reason, what is considered “average” can vary from year to year. The average DAT score for one group of students one year could be 17 while another year it might be 19. When reporting the average score, that is looking at the academic average score. If you would like to see the average DAT score for various programs, check this website out: <http://www.dat-prep.com/dat-scores-for-dental-schools>

Schools look at scores differently. Some may not accept applicants with a score lower than 17 in any section. Others may look at their particular group of applicants as a whole and establish a unique cut off from year to year. Although a person can take the DAT multiple times, scores cannot be voided.⁽¹⁾ So if a person takes the test 3 times, all 3 scores are going to show up on official transcripts.

Taking the DAT

When to best take the DAT will depend a bit on a student's individual schedule. However, the DAT should not be taken before the student completes the biology, general chemistry, and organic chemistry college classes. It is recommended that students take the test approximately one year before they want to go to dental school. Most students take it after their third year of college. Furthermore, students can only take it once every 90 days.⁽⁷⁾

As of 2018, the fee to take the test is \$460.⁽⁸⁾ Although that may seem like a high amount, as we will see in later sections, that is just a fraction of the cost it takes to go to dental school for four years. It is also only part of the cost associated with the application process. Each school has application fees applicants have to pay. In addition, there are interviews which may require travel and accommodations. These are to be covered by the student as well. Tests are given at Prometric testing centers. To find out more about testing center locations, visit their website: <https://secure3.prometric.com/Dispatch.aspx>

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<p>Reading #3</p>	<p><u>Dental School Interviews</u></p> <p>Most dental schools conduct interviews with potential students they are interested in admitting. Up until the interview, the candidate has only existed on paper, and paper can only tell the committee so much. By interviewing candidates in person, they are looking to assess qualities like self-confidence, interpersonal skills, and ability to overcome challenges. The school is also looking to establish a connection with the candidate.</p> <p>Most candidates are invited to an interview sometime between September and March. Some schools may only have a handful of applicants interview at a time. Some will have 50 or more applicants interview on the same day. Around 30-40% of students interviewed will be accepted to that dental school.⁽¹⁾ This means that to get into a dental school, you will need to apply to many programs, and interview at a minimum of 2 or 3 to ensure you will get in.</p> <p><u>Interviewers</u></p> <p>Most of the interviewers will be faculty from the school.⁽²⁾ However, there may be opportunities for others who are indirectly involved in the interview such as current students, alumni, and staff to give feedback as well.</p> <p>It is likely the interviewers will review the candidates file the day before the interview. This is called an “open file” interview. This gives the interviewer a chance to explore the individual's application in greater depth. There is a chance, however, that the school will do a “closed file” interview where the interviewer has no access to the interviewee's file. The theory behind this is that it allows the conversation to be more organic and exploratory.⁽²⁾</p> <p><u>Interview Structure</u></p> <p>The details of how the interview is structured vary from school to school. Traditional interviews feature one interviewer questioning one candidate. Or, there may be a slight variation with this format, where there is a panel of two or three interviewers for each candidate. These panel interviews might mix open and closed files formats with some interviewers being familiar with the candidates file and others not.⁽¹⁾</p> <p>Another format is known as the multiple mini interview (MMI). The multiple mini interview is when students rotate between stations every 7-10 minutes and is given a different question at every station. The interviewer then evaluates the candidate based on the specific question and answer given.⁽¹⁾</p> <p>Group interviews are also becoming more common. In a group interview, the interviewer asks questions to three or more candidates.⁽¹⁾ This allows for more evaluation of group dynamics.</p> <p><u>Common Questions</u></p>

The thought on nearly any candidate's mind before a dental school interview is likely to be, *"What questions are they going to ask me?"*. While there is no way to know with absolute certainty, here are some potential questions that could come up in an interview⁽¹⁾:

- Tell me about yourself.
- Why do you want to be a dentist?
- Why do you think you would make a good dentist?
- What would you do if you saw one of your close friends in your dental class cheating on a test?
- How do your experiences match well with our school's mission statement?
- What are your three greatest strengths and three greatest weaknesses?
- Why this dental school?
- Tell me about a time.... You had to work in a group? Had to deal with a problem? Solved a problem? Had to be a leader? Were not satisfied with your performance? Had to make a difficult decision?
- Have you had any experience with dentistry? What has it taught you about the profession? Why is it the right fit for you?
- What differentiates you from the rest of the applicants?
- I like you and this all sounds great, but what can I go back and tell the admissions committee that will convince them that we want you in our upcoming class?
- Why did you apply to our dental school?
- What type of dental program are you interested in?
- What did you think about our school (ie. facilities, program)?
- In the past, what has happened to you that has made the biggest impact on your life?
- Can you explain the (A-F) grade you received in this class?
- We noticed you withdrew from a class, why?
- Why did you decide to major in...?
- Your grades slipped your ___ semester, any reason?
- Dentists require a great deal of hand coordination. Do you have any relevant experience?
- Do you think the role of a dentist has changed, and how so?
- Did you consider applying to medical school?
- Why not medical school or another medical profession?
- If you had unlimited money for a day what would you do with it?
- If you are relocating, what do you think of our school's location?
- How did your friends/family react to your interest in dentistry?
- Do you have any friends or family who are dentists?
- Do you have any plans after graduation?
- What would make you happy 10 years from now?
- If you had to change anything about yourself, what would it be?
- How do you spend your free time?
- What do you do to relax?
- How do you think the dental profession has changed over the last 25 years?
- What book have you read recently?
- Who is your favorite author?
- What types of books do you enjoy reading?
- What would you say was the best day or experience you ever had?
- What do you do when you are stressed out?

	<ul style="list-style-type: none"> • How do you see yourself, what are your good characteristics? • If you could have dinner with any two individuals that are not related to you and are either dead or alive, who would it be and why? <p>As you can see, these questions do not focus just on a candidate's scholastic career. Getting an idea of a candidate as an individual, not just a bunch of GPA and DAT numbers, is one of the key points of interviews.</p> <p>References</p> <ol style="list-style-type: none"> 1. Dental School Interview. (n.d.). Retrieved March 28, 2018, from https://crushthedataexam.com/dental-school-interview/ 2. How to Prepare for Your Dental School Interview. (n.d.). Retrieved March 28, 2018, from http://www.adea.org/GoDental/Dental_Blogs/Advice_from_admissions_officers/How_to_Prepare_for_Your_Dental_School_Interview.aspx#sthash.ZwWNZvgc.dpbs
<p>Reading #4</p>	<p><u>Where are Dental Schools?</u></p> <p>For some, it would be a dream come true to go to the dental school a few minutes away from the childhood home. They could have the support of friends and family, they would already be familiar with the area, and they may even be able to save on costs thanks to living at home or other connections. For others, it would be a dream come true if they could go to school far, far away from their childhood home. Meet new friends, have a fresh start, and explore a new area of the country.</p> <p>While it might be nice to think you could just pick a state and go to dental school there, the reality is not every state has a dental school.⁽¹⁾ Others have multiple dental schools- some even fairly close to one another.</p> <p>By looking at a map of all the dental schools, you may notice that there is a greater cluster of options on the eastern side of the United States compared to the western side of the country. By knowing where the dental schools are, you can begin to think about where you could and would like to spend four years of your life going to dental school.</p> <p>Follow this link to see a map of the dental schools in the US.</p> <p><u>The Commitment</u></p> <p>Dental school is not a commitment to take lightly. There is a good possibility that you could end up hundreds of thousands of dollars in debt (we will get more into tuition and finances in the last section of this module). Considering that fact, it is a good idea to know what you are likely to face.</p> <p>You will likely spend 40 hours each week in lectures, labs, and clinics.⁽²⁾ That does not even take into account time studying. Many of the subjects you will study in your first year will likely be science-based such as biochemistry, anatomy, and physiology. You will also likely get some dental specific science classes too like oral biology, preventative dentistry, and dental anatomy.⁽³⁾ So consider whether or not you are excited to learn more about science.</p>

	<p>As you progress through your years in dental school, the time you spend in lectures will be less and the time you spend in clinic will be more. It is important to make sure that you are comfortable putting in the necessary work and hours to both a lecture set up and a clinical set up.</p> <p><u>Advice Before Going to Dental School</u></p> <p>It is one thing to read suggestions from a text in a course. It is another to read advice from a current student. Someone who has already climbed that mountainous task of applying to dental school and is currently going through school. Here is the advice one dental student has, “My advice for incoming first years is to enjoy your life while you can! Go do something your passionate about, or spend more quality time with your loved ones before you move away for 4 years. For me, I had the best summer trip of my life, traveled to 4 different countries with my parents, and backpacked to Peru with my best friend.”⁽⁴⁾</p> <p>While it is a great idea to begin what preparation you can now for dental school, remember that you have a life to live and enjoy right now! In fact, living and enjoying your life now may help give you more experience that may help you in your dental profession in the future.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. U.S. Dental Schools. (n.d.). Retrieved March 29, 2018, from https://www.google.com/maps/d/viewer?t=m&oe=UTF8&msa=0&ie=UTF8&mid=1NTkD8uwKfnmxMTzeyoxDaqD94ls&ll=33.16720454220505,-100.17918457812499&z=6 2. Choosing a Dental School. (n.d.). Retrieved March 29, 2018, from https://www.asdanet.org/index/get-into-dental-school/post-application/choosing-a-dental-school 3. Brown, D. (2016, March 02). How dental school works: A year-by-year guide. Retrieved March 29, 2018, from https://www.gapmedics.com/blog/2014/11/06/how-dental-school-works-a-year-by-year-guide/ 4. Day in the Life- First Year. (n.d.). Retrieved March 29, 2018, from https://www.asdanet.org/index/get-into-dental-school/before-you-apply/a-day-in-the-life-of-a-dental-student/day-in-the-life-first-year
<p>Reading #5</p>	<p>The final reading for this module will go through the cost of dental school, financing options (including student loans and scholarships), as well as trade-off considerations of attending dental school.</p> <p><u>Cost</u></p> <p>As we discussed in the previous section, the cost of tuition is only one factor in the equation of determining how much dental school truly costs. Most students do not work while in dental school due to the demanding schedule of dental school. In order to be able to pay for things like rent, many students take out loans to cover living expenses in addition to tuition loans. The average dental student typically owes around \$250,000 upon graduation.⁽¹⁾</p> <p><u>Student Loans</u></p>

Most graduates end up using student loans to finance their education. Not many people have saved up an extra \$250,000 to go to dental school. Student loans are a way of financing education in which a bank or institution provides the student with the necessary money, and then the student repays the loan upon graduation (exactly when the repayment begins is determined during the loan issuance process).

Since students are not handed \$250,000 at graduation, repayment is done gradually over time. The big kicker with student loans, however, is that loans accrue interest. That means you end up owing more than the amount you took out. It's how loan companies make money. Some loans do not begin to accrue interest until after the student graduates. Some accrue right when the loan is given out.⁽²⁾ Either way, it is generally a good idea to only borrow the amount needed and not more. The final point to keep in mind is that student loans of any type cannot be discharged in bankruptcy. That means even if for whatever reason you have to declare bankruptcy, student loans will not go away (other than with special loan forgiveness programs talked about in the next section). So in most cases, you are stuck with a massive financial obligation that can be in the thousands of dollars per month, until it is paid off.

Scholarships and Service Programs

There are other ways of financing dental education. One way is **scholarships**. Scholarships are financial awards given to students. These awards vary in the amount, the qualifications students must meet, and the stipulations for keeping those awards. For more information on scholarships, visit: <https://www.asdanet.org/index/dental-student-resources/scholarships-and-repayment-plans/scholarships>

There are also **service programs** or loan forgiveness programs that provide financial assistance. In these programs, scholarships are provided or student loans are forgiven *if* students commit to working in certain locations which have a high need for dentists. For example, certain rural locations qualify for loan forgiveness or public service positions. For more information, visit: <https://studentloanhero.com/featured/the-complete-list-of-student-loan-forgiveness-programs/>

Is It Worth It?

The question of is dental school worth the cost is kind of a loaded question. If someone gets three-quarters of the way through dental school and realized he *hates* it, then the road to paying back loans in a profession he hates is going to be a very *long* road. However, for most dentists, the answer is yes, dental education is a worthwhile investment.

Dentists are among the top 5% of wage earners in the country, and many pay back their loans within ten years.⁽³⁾ Thanks to the ability to begin practicing right out of dental school, qualified dentists can begin an aggressive loan repayment plan almost immediately.

Conclusion

Dental school is a big commitment. It is four years of a person's life. Four years likely without income and probably with a mountain of debt at the end. Four years of hard work and study. Four years possibly far from home. However, for the right individuals, the four years are also incredibly fulfilling and worth all the commitments.

By thinking about a career in dentistry now, you have time to decide if this commitment is for you. You have time to consider where you'd like to spend those four years, how you will prepare, and how you will finance it. You are truly doing yourself a favor by beginning the journey now.

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Module 9: General Dentistry

<p>Module Description</p>	<p>This module will look at the requirements and responsibilities of a dentist. Students will be exposed to some of the terminology related to a dentist's role. The module will look at the differences and similarities between a general dentist and a public health dentist. Finally, students will learn the education and licenses necessary to become a dentist.</p>
<p>Reading #1</p>	<p><u>Education</u></p> <p>Becoming a general dentist requires a great deal of education. Most dental schools require a bachelor's degree before being admitted to the school.⁽¹⁾ There is no specific undergraduate major required. However, the school will likely require successful completion of prerequisite courses such as biology, physics, and chemistry. The exact classes required may vary from school to school.</p> <p>In addition to an undergraduate degree, the Dental Admissions Test (DAT) is required to apply to dental school.⁽¹⁾ This test assesses a candidate's scientific background and academic abilities. Other considerations include grade point average, letters of recommendation, and interviews.⁽¹⁾</p> <p>Most dental schools are four-year programs. During the first couple of years, the focus is generally on classroom and laboratory work in health and dental science.⁽¹⁾ Clinical experience, where students diagnose and treat patients under the supervision of their instructors, increases during the last two years. Successful completion of the four-year programs results in becoming a Doctor of Dental Surgery (DDS) or Doctor of Dental Medicine (DDM).⁽¹⁾</p> <p><u>Licensure</u></p> <p>While completion of the four-year dental program is a major accomplishment, it is not the final step in becoming a dentist. All states require potential dentists to pass the National Board Exams. This is a two-part written exam which covers dental sciences, ethics, and clinical procedures.⁽²⁾ States also have their own clinical licensing exams required in order to practice in that particular state. To keep their license throughout their careers, dentists must meet continuing education requirements to keep up-to-date on the industry.⁽²⁾</p> <p><u>Responsibilities</u></p> <p>Once a dentist is licensed to practice, and begins seeing patients, dentists have a variety of roles and responsibilities. The following is a list, (though is by no means exhaustive) of responsibilities and abilities dentists perform⁽³⁾:</p> <ul style="list-style-type: none"> • Comprehensive oral exams • Oral cancer screenings and assessments • Interpreting x-rays • Dental caries (cavities) diagnoses, treatment, and prevention • Repairing or replacing broken/missing teeth • Crowns • Dentures • Emergency treatment • Tooth extraction

	<ul style="list-style-type: none"> • Prescribing medicine • Applying anesthetics • Gum disease prevention and diagnoses • Cosmetic services • Teeth whitening <p>Of course, the exact practice of the dentist will vary dentist to dentist. Some may perform more whitening treatments than others, for example. There are other responsibilities dentists have that are not directly patient related but affect the practice. These responsibilities include leading the dental team and business and administrative requirements of the practice.</p> <p><u>Compensation</u></p> <p>The amount a dentist will make depends on a number of factors such as where the dentist practices, the scope of the practice (group or solo), and the number of years of experience. However, the median salary for dentists in 2015 was \$158,310.⁽¹⁾ A dentist just starting his or her career will generally make between \$90,000 and \$100,000.⁽²⁾ We will get into the differences in dental practices and how this affects compensation in later sections.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. How to Become a Dentist. (n.d.). Retrieved April 02, 2018, from https://study.com/how_to_become_a_dentist.html 2. Dentists: Doctors of Oral Health. (n.d.). Retrieved April 02, 2018, from https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health 3. Hughes, B. (n.d.). The Work Of A General Dentist Uncovered. Retrieved April 02, 2018, from http://dentalcarematters.com/general-dentist-career/
<p>Reading #2</p>	<p><u>Common Dental Problems</u></p> <p>One of the factors that separates dentists from other members of the dental team is the dentist's training to diagnose, treat, and help prevent a variety of oral problems. In this section, we will define 9 common dental issues, their symptoms, and possible ways dentists may go about treating and/or preventing the issues.</p> <p>Halitosis: also known as bad breath. While proper teeth brushing can help prevent the problem in many cases, sometimes halitosis is a sign of a more serious issue such as oral cancer.⁽¹⁾ Dentists will listen to the patient's description of the problem and investigate for underlying causes.</p> <p>Tooth decay: also known as dental cavities or caries. This happens when plaque combines with sugar and starch from food the patient eats. Diagnosis is done either by interpreting an x-ray or by visually inspecting the teeth. Tooth decay is the second most common disease in the United States. (The common cold is the most common.)⁽²⁾ Dentists remove the decay and fill the cavity with a special feeling material to help prevent future problems.</p> <p>Periodontal disease: also known as gum disease is the number one cause of tooth loss in adults.⁽²⁾ Symptoms include bad breath, red, swollen, tender or bleeding gums, sensitive teeth,</p>

and pain when chewing. Depending on the severity, treatment ranges from standard dental cleanings to bone surgery.⁽³⁾

Oral cancer: this is a deadly condition that affects millions of people.⁽²⁾ Symptoms include lumps, sores, and rough areas of the mouth. While dentists often screen for oral cancer, they usually refer patients to specialists, such as oral and maxillofacial surgeons for further investigation and treatment.

Tooth erosion: caused by acid from the stomach or food/drink on the surface of teeth. Unlike tooth decay which affects a localized spot, erosion wears away the entire surface of the tooth.⁽⁴⁾ It may cause teeth to become sensitive or even crack. Dentists can look at the wearing away of enamel over time to identify erosion. Treatment is generally better basic home oral hygiene. Some dentists may apply sealants on teeth to help prevent erosion.

Tooth sensitivity: symptoms include discomfort when eating something hot, cold, and/or sweet or even breathing in cold air.⁽²⁾ Underlying problems may include erosion, decay, an infection, or a cracked tooth. Treatment is dependent upon properly identifying the true problem.

Broken or cracked teeth: symptoms include painful toothaches or missing parts of teeth. Exactly how the dentist will treat the problem depends on if the tooth is a permanent or primary (baby) tooth and what stage of development the tooth is in.⁽⁵⁾ However, if the pulp of the tooth (which holds the nerves and blood vessels of the teeth) has been exposed, treatment is often a root canal.

Stained teeth: the general symptom of stained teeth is discoloration of teeth. This usually the result of eating and drinking things that stain teeth. Dentists may perform in-office whitening treatments at the request of the patient. Results are generally temporary.

Hyperdontia: is the condition of having an extra tooth or teeth and is believed to be a genetic issue.⁽¹⁾ Treatment is often to pull the extra teeth.

By becoming familiar with some of these terms, you can not only have a head start in your dental career, but also be more aware of how your current habits could create or prevent dental problems in the future.

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<p>Reading #3</p>	<p><u>Benefits and Drawbacks</u></p> <p>If you are looking for a career with only upsides and absolutely no downsides, then you are going to be disappointed. There are <i>always</i> difficult aspects to any job. Dentistry is no different. In this section, we are going to look at 8 pros and 8 cons to becoming a dentist.</p> <p><u>Pros</u></p> <p>What exactly is a good aspect of a profession will differ from person to person. What one person may enjoy, another person may not. In general, however, here are 8 pros to working as a dentist:</p> <ol style="list-style-type: none"> 1. Track record for paying back loans: while it is true that most dental graduate students have over \$260,000 in debt, most will repay that amount in about 15 years.⁽¹⁾ Many will receive a return on investment for dental school in about eight years.⁽²⁾ Plus, dentists also have the option of loan forgiveness programs which can help reduce or eliminate debt. 2. Respected profession: most people respect and take the advice and feedback of their dentist, viewing dentists as experts in the dental field. 3. Service-oriented profession: dentists make an impact on people's lives every day. Improving a person's smile, relieving a toothache, and helping people chew properly are all very rewarding aspects of the profession. 4. Dentists in-demand: as the baby boomer generation of dentists retire, that is going to open up many jobs for new dentists. Furthermore, people will always need to take care of their teeth, ergo, people will always need dentists. 5. Ability to own one's own business: owning a dental practice means the dentist gets to set the schedule and set the trajectory for his/her career. 6. Variety of career options: while most dentists own their own practice, that is not the only option. There are career options in research, clinics around the world, and in hospital emergency rooms. 7. Stable career: dentists have one of the lowest unemployment rates in the United States.⁽³⁾ 8. Strong income: dentists have a high average salary of over \$158,000.⁽⁴⁾ Furthermore, dentists can determine how much they make by the way they set up their practice and the amount of hours they work. <p><u>Cons</u></p> <p>Just like the upsides, what is considered a downside to a profession to one person may not be a big deal to another. However, here is a list of frequent complaints and problems dentists tend to encounter in their profession.</p> <ol style="list-style-type: none"> 1. Debt: The average dental student graduates with over \$260,000 in debt.⁽¹⁾ Furthermore, establishing a private practice can easily cost an additional \$250,000.⁽¹⁾

	<ol style="list-style-type: none"> 2. Physically demanding: Carpal Tunnel Syndrome, chronic back pain, and hypertension are problems among dentists owing to the amount of time spent bent over and doing precise work in a tiny area with their hands.⁽³⁾ 3. Emotionally demanding: from unhappy patients to patients who fear the dentist, the emotional drain on dentists can be quite high. 4. Competition: while it's true that overall, there is a need for dentists, that is not necessarily true in all locations. Some areas have a higher concentration of dentist than others, so competition in those places will be higher. 5. Vulnerability to illness: patients come in with colds and other illnesses that dentists are susceptible to contracting. Furthermore, there is also the risk of contracting more serious illness like HIV if a patient is a carrier and the dentist accidentally pokes himself/herself with a needle or sharp instrument used on the patient. The risk is low, but possible. 6. Business management: dental school spends a great deal of focus on the clinical aspect of the profession, but not nearly as much time on the business management aspect. Dentists often must work out these problems on their own and learn as they go. 7. Dealing with insurance companies: frequently, patients do not understand their insurance plans and insurance companies can be difficult to deal with. Combine those two factors, and insurance can quickly become one of the more stressful aspects of dentistry. 8. Burnout: burnout occurs when a person is chronically stressed to the point of physical and mental exhaustion, and a feeling of detachment. The pressure to work many hours to pay off debt, the emotional stress of dealing with difficult patients and/or staff, and feeling the need to be available to patients as often as possible can lead to burn out. <p><u>Is Dentistry for You?</u></p> <p>There is no way to anticipate all the high moments or low moments a person will experience in their career. However, by asking yourself if the pros and cons we've mentioned make a career as a dentist worth it, is something you can think about now.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Cost vs Reward of a Dental School Education. (n.d.). Retrieved April 04, 2018, from http://doctorly.org/cost-vs-reward-of-a-dental-school-education/ 2. Is Becoming a Dentist Worth \$261,149 in Dental School Debt? (2018, April 03). Retrieved April 04, 2018, from https://studentloanhero.com/featured/dental-school-debt-worth-it/ 3. What You Should Know Before You Become a Dentist. (n.d.). Retrieved April 4, 2018, from https://crushtheexam.com/what-you-should-know-besfore-you-become-a-dentist/ 4. How to Become a Dentist. (n.d.). Retrieved April 02, 2018, from https://study.com/how_to_become_a_dentist.html
<p>Reading #4</p>	<p><u>What is Diversity?</u></p> <p>When we think of diversity, we tend to think of one of those perfectly contrived stock photos. The ones that show a group of students or co-workers from a variety of ethnicities, both male</p>

and female, smiling and working together just perfectly. The problem with those photos is that they cannot communicate true diversity. Diversity is about more than just different races or ethnicities. Diversity also encompasses characteristics like gender, sexual orientation, age, education, language, and disabilities.⁽¹⁾

Diversity and Dentistry

Diversity is important in the medical field, and dentistry is no exception. By increasing the number of diverse dentists, this increases the likelihood of patients being able to find a dentist they feel understands and relates to them and their unique issues.

Increase dentistry diversity begins with increasing diversity in dental schools. By increasing diversity among students, this fosters **cultural competency**. Cultural competency is the ability for a person to understand and interact with people from different backgrounds and cultures.⁽²⁾ Cultural competency goes a long way in providing better patient care. Even if a patient cannot find a provider with diverse characteristics similar to his/her own, a dentist with cultural competency may provide the same reassurance and understanding for the patient.

Non-traditional Students

In recent years, there has been an increase of non-traditional students applying to dental school. These non-traditional students add to the diversity of the field as well. There are three categories of nontraditional students⁽³⁾:

1. Career changers: a person who was in one career and then decided to switch to dentistry.
2. International students: students who wish to attend dental school in the United States or Canada on a student visa.
3. Gap year students: students who have a year (or more) between undergraduate graduation and starting dental school.

ADA's Plan

Recognizing the need for and the benefits of diversity, the American Dental Association has developed the Diversity and Inclusion Plan. The plan has three goals⁽⁴⁾:

1. Build Membership Diversity
2. Foster and Inclusive and Welcoming Environment
3. Institutionalize Sustainability

Required: Read through the Diversity and Inclusion Plan

here: <https://www.ada.org/~media/ADA/About%20the%20ADA/Files/ADA2015-2019DiversityandInclusionPlan.pdf?la=en>

What You Can Do

You can help set the course for greater diversity in dentistry in the future. In 2016, only 15.2% of dental school applicants were minority students.⁽²⁾ If you are a minority student interested in dentistry, pursue it!

	<p>Even if you are not considered a minority student, there is still things you can do. Perhaps the most crucial is to begin to develop cultural competency. Embrace opportunities to work with and interact with people of different backgrounds and cultures from your own. Learn from them. By developing cultural competency, you will improve whatever profession you enter.</p> <p>References</p> <ol style="list-style-type: none"> 1. Characteristics of Diversity, Age, Gender, Ethnicity, and Education. (n.d.). Retrieved April 05, 2018, from http://www.studylecturenotes.com/management-sciences/human-resource-management/96-characteristics-of-diversity-age-gender-ethnicity-education 2. ADEA. (n.d.). Need for Diversity. Retrieved April 05, 2018, from http://www.adea.org/GoDental/Dentistry_101/Need_for_diversity.aspx#sthash.kORVBgFB.rYYq4i2N.dpbs 3. ADEA. (n.d.). Importance of Diversity. Retrieved April 05, 2018, from http://www.adea.org/GoDental/Health_Professions_Advisors/Why_choose_dentistry/Importance_of_diversity.aspx#sthash.zwclsUsK.PuFtZMrB.dpbs 4. ADA. (n.d.). ADA's 2015-2019 Diversity and Inclusion Plan. Retrieved April 5, 2018, from https://www.ada.org/~media/ADA/About_the_ADA/Files/ADA2015-2019DiversityandInclusionPlan.pdf?la=en
<p>Reading #5</p>	<p><u>Dental Business</u></p> <p>Dentists have a few options as far as how to set up their dental business. They can either open a solo or private practice where they are the sole owner of the business and have complete control. Or they can work in a group practice or partnership where two or more dentists run the business aspect together. Or they can work for a large dental corporation.</p> <p>Most dentists do not go to dental school because they cannot wait to spend hours of their lives sorting through insurance issues, marketing their business, or figuring out employee benefits. But the truth is, the business aspect of dentistry is a huge part of making a successful career, no matter which type of practice the business falls under. In this section, we are going to look at four aspects of dental practice management- operations, financial management, human resources, and marketing.⁽¹⁾</p> <p><u>Operations</u></p> <p>The operations of the business refer to the daily tasks of running a business. This includes things like established procedures for opening each day, protocols for filing dental insurance, procedures for closing out at the end of the day, length of procedures, and many other day-to-day steps that make the day smoother. Dentists should evaluate the way their operations are working and evaluate if there is something that is outdated and slowing things down.</p> <p><u>Financial Management</u></p> <p>An interesting paradox about dental school is that while dental schools are training students which will likely own their own business, dental schools spend little to no time on financial management. While most dentists know the overhead costs of their business and the profits on a monthly and/or yearly basis, that is only part of excellent financial management. Financial management looks at all aspects of the business's spending, income, and potential areas for</p>

growth. Before expanding services, financial management looks at the cost vs reward of the service. Financial management asks questions like is it going to take a long time and a lot of effort, but only bring in just a little extra money?

Human Resources

Human resources is the hiring, administration, training and other aspects of handling staff.⁽²⁾ Other employees that a dentist might hire may include: dental assistants, dental hygienists, and administrators. This can be a difficult aspect of business because dentists need to find ways to motivate and inspire their teams but have relatively little time in the day to do so. Figuring out how to be an effective leader is crucial to avoiding expensive and time-consuming staff turnovers.

Marketing

It is awfully hard to have a successful business if no one knows your business exists. That's where marketing comes into play. **Marketing** is the process of getting the attention and interest of potential clients (or in this case, patients). There are all kinds of marketing activities that a dental office may use: social media marketing, websites and online advertising, direct mailers, patient referral programs, and brochures are all examples of marketing efforts.

Dental Service Organizations

If being responsible for all of the activities above, sounds stressful or overwhelming, there is another option. **Dental Service Organizations (DSO)** are multi-dentist, often multi-location dental practices run by large corporations.⁽³⁾ In this situation, the DSO handles all of the operations, financial management, human resources, and marketing efforts. In addition, they handle lease agreements (the rental of the building and equipment), scope of the practice, and basically anything other than the treatment of the patient. While the advantage is that the dentist gets to focus on treating patients. Of course, the downside to that is it leaves comparatively little control in the hands of the dentists.

Whether owning a solo practice or being part of a DSO is the best option, is something each dentist will have to assess for himself. By learning about what goes into running a successful business now, you will be setting yourself up for success whether as a business owner or part of a large organization.

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Module 10: Dental Specialties

<p>Module Description</p>	<p>Orthodontist, endodontist, oral surgeon, periodontist, pedodontist, prosthodontist... most people have a hard time pronouncing most of those specialties, let alone defining them! This module will help students understand the different specialties within dentistry. They will learn what additional education requirements are necessary to specialize and what specializing costs in terms of a financial investment. Finally, students will research a dental specialty procedure and develop a written explanation of the procedure.</p>
<p>Reading #1</p>	<p><u>What are Dental Specialties?</u></p> <p>The teeth, tongue, gums, jaws, and surrounding structures are extremely important. If they all do not look or feel good, a person's self-esteem and/or oral function can suffer. Some problems are relatively straight-forward, such as a small dental cavity. Those problems are generally under the scope of a general dentist's care.</p> <p>On the other hand, some problems are more complicated and can even require surgery. Dental specialties are areas within dentistry requiring advanced training and skills in order to become licensed in that area.⁽¹⁾ Dental specialists see specific patients with particular problems, which the specialist has been trained to treat.</p> <p><u>Education and Requirements</u></p> <p>All specialists undergo the same dental schooling as general dentists. However, specialists receive anywhere from two to six years of additional training in order to specialize in their chosen area.⁽²⁾</p> <p>These programs for specializing often require letters of recommendation. In addition, some may require students to have taken the Graduate Requisite Exam (GRE), while others may require a specific Master's Degree.⁽³⁾</p> <p><u>Cost vs. Reward</u></p> <p>Dental school often means hundreds of thousands of dollars of debt.⁽⁴⁾Specializing can add more debt on top of that as students take out more loans to finance their further education.⁽⁵⁾ How much debt, depends on the school, but generally speaking this will likely be over \$100,000. However, it is worth mentioning that some specialty programs actually offer stipends. In other words, some programs will actually pay students to pursue specialty training. Although, it is important to note that the stipend is way below what a general dentist would typically make in a year.</p> <p>Before you throw out the idea of becoming a specialist, there is an upside. Most specialists make almost double what a general dentist would make in a year.⁽⁵⁾ How much more they make depends on their specialty. We will get into the exact salaries of each specialist in the upcoming sections.</p> <p><u>The Nine Specialties</u></p> <p>There are currently nine specialty areas of dentistry recognized by the American Dental Association. They are⁽²⁾:</p>

	<ul style="list-style-type: none"> • Dental Public Health- preventing and controlling dental disease through community efforts • Endodontics- diagnosing, preventing, and treating problems of the dental pulp • Oral and Maxillofacial Pathology- researching, identifying, and diagnosing disease of the oral area • Oral and Maxillofacial Radiology- diagnosing and managing oral problems using x-rays and imaging • Oral and Maxillofacial Surgery- surgically treating problems with the mouth, oral, and maxillofacial areas • Orthodontics and Dentofacial Orthopedics- diagnosing and correcting dental and facial irregularities • Pediatric Dentistry- diagnosing and treating the oral healthcare needs of children from infancy through adolescents • Periodontics- diagnosing and treating diseases of the gums and bones surrounding the teeth • Prosthodontics- restoring or replacing teeth or oral structures with artificial devices <p>We will look at some of these specialties throughout the module.</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Dental Specialties. (n.d.). Retrieved April 09, 2018, from https://www.ada.org/en/education-careers/careers-in-dentistry/dental-specialties#Requirements_for_Recognition 2. Dentists: Doctors of Oral Health. (n.d.). Retrieved April 09, 2018, from https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health 3. Timeline for Applying to Residency. (n.d.). Retrieved April 09, 2018, from https://www.asdanet.org/utility-navigation/career-compass-home/post-grad-programs/timeline-for-applying-to-residency 4. Is Becoming a Dentist Worth \$261,149 in Dental School Debt? (2018, April 03). Retrieved April 04, 2018, from https://studentloanhero.com/featured/dental-school-debt-worth-it/ 5. American Academy of Periodontology. (n.d.). Are You Considering Specialty Training? Retrieved April 9, 2018, from https://www.perio.org/sites/default/files/files/PDFs/Postdoc_Education/Specialty-Training-Article.pdf
<p>Reading #2</p>	<p><u>Orthodontist Responsibilities</u></p> <p>Orthodontists are specialists who receive training beyond dental school to learn how to align the jaw and straighten the teeth.⁽¹⁾ Having properly aligned and straight teeth is important both for the long-term health of the teeth and also for self-esteem. Depending on the severity of the problem, orthodontists typically work with individual patients for one to four years.⁽¹⁾ During that time, the orthodontist will see the patient at regular intervals (typically monthly) to evaluate progress.</p> <p><u>Training and Requirements</u></p>

In order to properly align and straighten teeth, orthodontists require extensive knowledge of the mouth, jaw, skull, and face. Only about six percent of dentists go on to receive specialty training in orthodontics.⁽¹⁾ Their additional training, which typically lasts two to three years, is highly competitive and very selective.⁽¹⁾ Usually the only applicants who are accepted are those who graduated top in their class.

During this additional training focused on orthodontics, students learn more about biomedical, behavioral and basic science. They also are trained in and practice skills to move teeth, facilitate facial changes, and understand facial surgery. Finally, they also learn how to diagnose and treat other problems related to the face and neck.⁽¹⁾

Licensure is required to practice orthodontics. First, an orthodontist must be licensed as a dentist which happens upon passing the necessary tests after dental school. After completing their specialized training in orthodontics, potential orthodontists can apply through the American Association of Orthodontists to take the board examination. This examination contains a written component which tests 27 different subjects! There is also a clinical component. In this part, the potential orthodontist is given an entire set of case records to evaluate. Based on the case records, the test-taker must come up with a custom treatment plan. After the test-taker takes and passes the exam, he or she becomes a licensed orthodontist.⁽¹⁾

Common Orthodontic Appliances

You are probably either personally familiar with metal braces or have friends/family who have had braces to help straighten teeth. But that is just one orthodontic appliance. Here are some other common orthodontic appliances⁽²⁾:

- Elastics (rubber bands)- Elastics are placed on the brackets on the top jaw and connected to the brackets of the lower jaw in order to help guide the jaw to create a proper bite.
- Palatal expanders- widen the top jaw.
- Forsus springs- used to help correct severe overbites, similarly to elastics but cannot be removed by the patient.
- Headgear- is used when the upper and lower jaw have grown at different rates. It uses the back of the neck as its anchor point to correct the bite issues.
- Space maintainer- used to maintain space for the permanent tooth when a baby tooth has fallen out too early or has to be removed to make room for permanent teeth.
- Separators- small bands placed around the teeth to create space for future orthodontic bands to be placed.
- Retainers- help maintain the alignment achieved through orthodontic work. May be fixed or removable.

Pay and Outlook

The average salary of an orthodontist is around \$230,000.⁽³⁾ The outlook for orthodontists is good as well. It is expected that the occupation will grow at 19% by 2026, which means there will be a greater demand for orthodontists.⁽⁴⁾ However, it is important to note that there are companies who are seeking to change the industry. See the video for this section for more information.

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<p>Reading #3</p>	<p><u>Endodontist Overview</u></p> <p>Endodontists examine, diagnose, and treat dental problems affecting the interior areas of the teeth.⁽¹⁾ This area of the tooth is called the pulp. It is where the blood vessels, connective tissues, and nerves of the tooth are housed. When the pulp becomes infected, it is necessary to remove the infected pulp in order to save the tooth from extraction.</p> <p>Removing infected pulp and replacing it with an inert material is known as root canal treatment/therapy/procedure. Performing these procedures is a large portion of what an endodontist does. Dentists may provide root canal treatments as well, but on average general dentists only provide one or two a week. An endodontist, on the other hand, may provide 25 per week.⁽²⁾ This gives them a large amount of experience and expertise to draw on.</p> <p>Endodontists also perform other procedures such as apicoectomies (removing infected tissue from the root of the tooth), endodontic re-treatment (when a root canal did not work) and treat pulp damage that occurred during a traumatic injury. Interestingly, endodontists are increasingly playing a role in overall treatment of Type II Diabetes. Read the following article, which discusses more about gum health and Diabetes.</p> <p><u>Endodontist Training and Salary</u></p> <p>Like other specialists, endodontists must first successfully complete dental school and become licensed dentists. Once that is done, potential endodontists can choose to go on to endodontic residency programs. These programs focus on clinical specialty training in modern endodontic treatment. Included in this training is⁽¹⁾:</p> <ul style="list-style-type: none"> • utilization of microscopes • diagnoses and treatment of gum disease • emergency treatment of teeth • pediatric endodontic treatments <p>The residency training is a two-year commitment and includes preparing an independent research project and presenting it during the Annual Session of the American Association of Endodontics. The research should also be submitted for publication. After the residency training and research process, the student can sit for the board examination. After passing the board exam, the candidate is then a board-certified endodontist. The average salary for an</p>

	<p>endodontist is around \$200,000 with years of experience contributing to higher or lower salaries.⁽¹⁾</p> <p><u>Oral and Maxillofacial Surgeon ("OMFS") Overview</u></p> <p>There are many dental and medical conditions of the mouth and face that require surgery to fix. This is where an oral and maxillofacial surgeon, or OMFS, comes into play. The maxillofacial area is the bones of the forehead, face, cheekbones, and soft tissues in those areas.⁽³⁾ Operating on these areas requires precisions, attention to detail, and a high level of dental and medical knowledge.</p> <p>Oral surgeons may provide the following⁽³⁾:</p> <ul style="list-style-type: none"> • complicated tooth extractions (commonly wisdom teeth) • reconstructive surgery • TMJ (tempromandibular joint) disorder surgery • surgical repair to structural abnormalities of the neck, mouth, and/or face • removing cancerous tumors or tissue <p><u>Oral and Maxillofacial Surgeon Training and Salary</u></p> <p>After successfully becoming a licensed dentist, a potential oral surgeon can begin residency training. This training lasts four to six years.⁽³⁾ After which, the student must pass the necessary board exam.</p> <p>Another option for potential oral and maxillofacial surgeons is to earn degrees as both a dentist and a medical doctor. These programs combine both the residency training to become an oral and maxillofacial surgeon and the medical knowledge required to earn a medical degree. These dual programs often take six years after dental school to complete.⁽³⁾</p> <p>The average salary of an oral and maxillofacial surgery is approximately \$208,000.⁽⁴⁾ Although this may depend on where the surgeon practices. For example, the average salary of an oral and maxillofacial surgeon in Nassau County, New York is \$273,000.⁽⁴⁾</p> <p><u>References</u></p> <ol style="list-style-type: none"> 1. Doctorly.org. (n.d.). How to Become an Endodontist. Retrieved April 11, 2018, from http://doctorly.org/how-to-become-an-endodontist/ 2. DentalPlans.com. (n.d.). What is an Endodontist. Retrieved April 11, 2018, from https://www.dentalplans.com/dental-information/types-of-dentists/endodontist 3. Perrson, R. (n.d.). Becoming an Oral and Maxillofacial Surgeon. Retrieved April 11, 2018, from https://www.gapmedics.com/blog/2014/08/01/becoming-an-oral-and-maxillofacial-surgeon/ 4. US News. (n.d.). Oral and Maxillofacial Surgeon Salary. Retrieved April 11, 2018, from https://money.usnews.com/careers/best-jobs/oral-and-maxillofacial-surgeon/salary
<p>Reading #4</p>	<p><u>Periodontist Overview</u></p>

There are two main components to a healthy smile. First, healthy white teeth. Second, the right amount of healthy, pink gums. For extra help with that second component, there are periodontists. Periodontists are specialists who focus on the gums, bones, and ligaments that support the teeth.⁽¹⁾

They are experts at treating gum disease. Gum disease, also known as periodontal disease, is a progressive disease that causes redness, swelling, and bleeding of the gums. If left untreated, it can lead to bone loss, which in turn, can lead to loose teeth. Periodontists perform scaling and root planning, gum grafts, pocket reduction surgery, bone grafts, and dental implants.⁽²⁾ While some of those treatments are done in response to problems such as gum disease, some are done cosmetically. Periodontists are known as the “plastic surgeons of dentistry.”⁽²⁾

Periodontist Training and Salary

Like all specialists, periodontists must first become licensed dentists. After which, a potential periodontist can receive three more years of specialized training in periodontics. This is typically known as a “periodontics residency.” Then of course, the candidate must take and pass the written and oral exam to become board-certified.⁽³⁾

Like most professions, the salary depends largely on location and years of experience. A periodontist can expect to earn anywhere from \$120,000 to \$240,000 per year.⁽³⁾

Prosthodontists Overview

Whether it is due to injury or gum disease or something else entirely, sometimes teeth just cannot be saved. Prosthodontists are the industry experts when it comes to replacing teeth and gums in the mouth. Prosthodontists diagnose, form treatment plans, help with rehabilitation, and maintain the oral function, comfort, and appearance in patients with conditions related to tooth loss.⁽¹⁾

Services they may provide include⁽⁴⁾:

- Reconstructive dentistry
- Veneers/bonded restorations
- Dental crowns
- Dental bridges
- Dentures

Prosthodontist Training and Salary

After completing dental school and becoming a licensed dentist, prosthodontists complete a prosthodontic residency. During this three year program, students receive advanced training in fixed and removable prosthodontics, implants, and maxillofacial prosthodontics.⁽⁵⁾

This is a very small and selective profession with only 560 prosthodontists practicing in 2011.⁽⁵⁾ The average salary is reported as being approximately \$168,000.⁽⁶⁾ Of course this may vary according to experience and location.

References

	<ol style="list-style-type: none"> 1. Dentists: Doctors of Oral Health. (n.d.). Retrieved April 09, 2018, from https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health 2. Periodontal Dentistry. (n.d.). Retrieved April 12, 2018, from https://www.dentalplans.com/dental-information/types-of-dentists/periodontist 3. Persson, R. (2016, March 02). Dental specialties: Becoming a periodontist. Retrieved April 12, 2018, from https://www.gapmedics.com/blog/2014/08/04/dental-specialties-becoming-a-periodontist/ 4. Consumer Guide to Dentistry. (n.d.). Prosthodontics. Retrieved April 12, 2018, from https://www.yourdentistryguide.com/prosthodontics/ 5. Doctorly.org. (n.d.). How to Become a Prosthodontist. Retrieved April 12, 2018, from http://doctorly.org/how-to-become-a-prosthodontist/ 6. US. (n.d.). How Much Can a Prosthodontist Expect to Get Paid? Retrieved April 12, 2018, from https://money.usnews.com/careers/best-jobs/prosthodontist/salary
<p>Reading #5</p>	<p><u>Pedodontist Overview</u></p> <p>Think that because our primary (baby) teeth fall out, it doesn't matter if kids see a dentist or not? Think again. Primary teeth can decay and get infections just like permanent teeth. Furthermore, establishing good oral hygiene while young will set children up to properly care for their permanent teeth as well.</p> <p>Pedodontists or pediatric dentists, are dental specialists who work with children from birth through adolescence.⁽¹⁾ They receive specialized training and techniques to guide this age group toward healthy teeth as adults. Some of the responsibilities of a pedodontist include⁽²⁾:</p> <ul style="list-style-type: none"> • Dental examinations • X-ray scanning, evaluation, and diagnosis • Examination of jaw bones, gum tissue, tongue, and other oral structures • Treatments such as cavity fillings, tooth repair after injury, and oral disease treatments • Placing Sealants on newly erupted permanent molars • Pre-orthodontic evaluation <p>Those responsibilities may include further skills such as applying anesthetics, formulating a treatment plan, and performing surgical procedures.⁽¹⁾</p> <p><u>Pedodontist Training and Salary</u></p> <p>Pedodontic training begins after successful completion and licensure as a general dentist. There are 70+ official pediatric residency programs in the US.⁽²⁾ During the two to three years in the residency program, students gain clinical experience in areas of study such as:</p> <ul style="list-style-type: none"> • Advanced diagnostic and evaluation procedure for children • Advanced surgical procedures for children • Child development and child psychology • Radiology • Oral/dental injury management and treatment • Dental care for pediatric special needs patients

- Conscious sedation and general anesthesia

Upon completion of the residency program, candidates must take a certification examination with practical, written, and oral components. In addition, they must comply with any further state requirements.

Because of their advanced training, pedodontists often have higher salaries than general dentists. The range of pay is about \$102,500 to \$250,000.⁽³⁾ Salary may vary depending on workload, location, and years of experience.

Module Conclusion

Considering dental specialty training opens up the door of possible careers and more income. Of course, it comes at the expensive of additional years of training and testing. By exploring these options now, you can gain a head start by creating a roadmap of training and experiences you can gain and apply to your future career.

References

1. Pediatric dentistry. (2018, April 10). Retrieved April 13, 2018, from https://en.wikipedia.org/wiki/Pediatric_dentistry
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