

Area Health Education Center (AHEC) Community Health Internship Program (CHIP)

Biomedical Informatics Research Center

Marshfield Clinic Research Foundation

Marshfield Clinic

Internship Report

June 7, 2010 – July 30, 2010

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Area Health Education Center Community Health Internship Program

My internship was funded through the Wisconsin Area Health Education Center (AHEC) Community Health Internship Program (CHIP). The Wisconsin AHEC works to improve the supply, distribution and quality of health care professionals in Wisconsin. The CHIP program, administered by the UW School of Medicine and Public Health, places college student interns in local health departments, community health centers and other agencies, to work on public health projects to benefit the local community or region.

As a participant in the CHIP program, I was required to participate in various activities and complete many different assignments throughout the eight week internship. These included:

- AHEC CHIP orientation on June 3rd in Madison, WI
- Assignment: *This is Public Health* (June 11th)
 - Using the “This is Public Health” sticker from my orientation packet, I took a picture of the sticker on the Walkstation in the BIRC department - a place that illustrated my vision of public health. I then wrote a brief summary about how the Walkstation encompassed the ideals of public health. This summary was shared with the other CHIP interns.
- Webinar (June 15th): “*Environmental Health*”
 - Presented by Greg Kleinheinz, Associate Dean, College of Letters and Science Director, Environmental & Public Health Microbiology Laboratory & Oshkosh B’Gosh Associate Professor of Microbiology, UW Oshkosh.
- Webinar (June 16th): “*Opportunities for Using Social Marketing in Public Health*”
 - Presented by Michael Rothschild, Professor Emeritus, UW Madison School of Business.
- Assignment: *Four Years* (June 25th)
 - I watched the 3 minute video, “Four Years. Go: A Campaign to Change our Course in History” (http://www.youtube.com/watch?v=B_6iTCo5Ci8&NR=1) and then wrote a brief paragraph on my own next four years, including personal goals and how I want to make an improvement in my community in the next four years. This information was again shared with the other CHIP interns.
- Webinar (June 29th): “*The Importance of Policy and the Social Determinants of Health*”
 - Presented by Julie Willems Van Dijk, Associate Scientist, UW Madison School of Medicine and Public Health, Population Health Sciences.

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- Assignment: *Informational Interview* (July 2nd)
 - Each intern was expected to conduct an informational interview with someone – other than our mentor – who is doing the kind of work in public health that we envision ourselves someday doing. I decided to interview Greg Nycz, the Director of Health Policy at Marshfield Clinic and the Executive Director of the Family Health Center of Marshfield, Inc. Following the interview, I shared my interview experiences with my fellow CHIP interns.
- Assignment: *Games for Health Brief Summary/Review* (July 9th)
 - I played the online interactive health game, *Dining Decisions*, and then wrote a paragraph summarizing and critiquing the game. Again, I shared the paragraph with my CHIP interns.
- Assignment: *The Importance of Policy* (July 16th)
 - I wrote and sent a one-page letter to the legislators in Wood County and Outagamie County to educate them about the importance of public health and dental health. In this letter, I described the highlights of my project and how it promotes healthy lifestyles for the community.
- Assignment: *Final Webinar PowerPoint* (July 23rd)
 - Each intern was required to give a 10-minute, final webinar PowerPoint presentation about project highlights and accomplishments. The PowerPoint documents were due on July 23rd, so I submitted mine on this date.
- Assignment: *Final Webinar Presentation* (July 29th)
 - I gave a 15 minutes webinar presentation about what I have been doing throughout the eight week internship. The presentation consisted of a 10 minute PowerPoint presentation and a 5 minute question and answer section.
- Assignment: *Internship Summaries and Reflections* (July 30th)
 - I wrote a summary/reflection to conclude my experience, achievements and insights from this summer internship. Included in the summary was a description of my projects, responsibilities, results, outcomes accomplishments, challenges, and personal comments about my summer at Marshfield Clinic.

As illustrated by the assignments, I learned much about Public Health throughout my eight week internship. I am grateful for the experiences and opportunities AHEC provided me through this internship.

Overview of Internship

Through the AHEC CHIP program, I was assigned an internship in the Biomedical Informatics Research Center (BIRC) located in the Research Foundation of Marshfield Clinic. My mentor for this eight-week internship was Dr. Amit Acharya.

After my BIRC orientation, Dr. Acharya and I together decided I would work on two projects this summer based on my skill set and prior public health experiences.

The first project included designing, distributing, and analyzing a survey that would be administered in the Marshfield Clinic Dental Centers. The goal of the survey was to determine what dental information (if any) Marshfield Clinic patients would like to be included in their free, online health portal, *My Marshfield Clinic*. Another goal of this project was to create patient awareness of the health portal. Hopefully once more patients know about this great resource, they will use it to access their health information and reliable health education information at home.

The second project included developing a patient education module that dental hygienists will use while teaching patients about the correlation between oral and systemic health. We wanted to create an educational tool that would assist dental hygienists while at the same time be appealing to patients. The patient education module will be displayed in individual hygiene rooms and patient waiting rooms in the Marshfield Clinic Dental Centers, and it will be accessible to patients in their homes through *My Marshfield Clinic*. The goal of this project was to increase patient awareness of the correlation between oral and systemic health through education.

My Marshfield Clinic Patient Portal Survey

Background:

My Marshfield Clinic is a free online service available to Marshfield Clinic patients ages 18 and older. Through *My Marshfield Clinic*, patients can access personal health information and that of their biological or adoptive minor children. Their personal home page gives them an overview of their future appointments, health reminders, billing information and a wealth of information about their health.

Currently, *My Marshfield Clinic* only includes medical information. Dr. Amit Acharya and I wanted to determine what dental information (if any) patients would like to access from this health portal. To do so, we decided to develop a survey for patients in the Marshfield Clinic Dental Centers. Based on survey results, we will develop and add the appropriate dental information to meet patients' needs, requests and suggestions.

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Goals:

There were three goals to the *My Marshfield Clinic* Patient Portal Survey:

1. Use survey results to develop and then add the appropriate dental information to *My Marshfield Clinic* to meet patients' needs, requests and suggestions.
2. Change the availability and accessibility to *My Marshfield Clinic* by potentially adding secure kiosks or touch-screen computers in patient waiting areas if the survey results indicate it would be beneficial to patients to do so. This is a necessary goal because Marshfield Clinic patients may lack internet access. Although this by itself is may be a fairly common phenomenon in a rural community, it is especially common for Marshfield Clinic Dental Center patients because around 85% of them are on BadgerCare or some other form of Medicaid.
3. Increase patient awareness of *My Marshfield Clinic*. Hopefully once more patients know about this great resource, they will use it to access their health information and reliable health education information at home.

Methods:

As mentioned previously, in order to determine what (if any) dental information Marshfield Clinic patients would like to access on their health portal, Dr. Acharya and I decided to survey patients at the Marshfield Clinic Dental Centers.

To begin the research study, an application for an Institutional Review Board (IRB) Exemption Request was completed on June 16, 2010. Although no personalized health information (PHI) was collected in the survey, it was determined an Exemption Request was needed because the results and research findings from this study may someday be published and/or presented. The IRB Exemption Request (viewed below) was approved on July 2, 2010.

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IRB Exemption Request

Use this form for research you believe to be exempt from further IRB review. See IRB decision charts at <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.104.html> for guidance. Determinations of exemption must be made by the IRB. In the case of exemption, the need for HIPAA authorization or waiver may still be required.

Date:

SP Code:

Study Title:

Principal Investigator:

Routing Location: Phone:

Email:

Proposed Start Date: Proposed End Date:

1. Provide a summary of the project in enough detail to demonstrate that the project meets the exemption category you will choose below:

We will conduct a paper survey in the Marshfield Clinic Dental and Medical Centers. The survey will obtain data about the health portal, My Marshfield Clinic. Currently, the My Marshfield Clinic health portal only includes medical information. The survey will ask patients what dental information (if any) they would like to access in My Marshfield Clinic health portal. Based on their answers, we will be able to develop and add the appropriate dental information in the future to My Marshfield Clinic to meet their needs, requests and suggestions. The survey will also ask questions to determine patients' exposure to and use of My Marshfield Clinic which will further help us improve the health portal. The anonymous survey does not include any protected health information (PHI). The survey will be administered through the front office of the centers to willing patient volunteers. We will collect the surveys after three weeks to complete an analysis.

2. Indicate which exemption your project may qualify for. Check the appropriate box preceding the exemption and answer the questions that follow (the most commonly used exemptions are listed first):

46.101(b)(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the

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While waiting for the IRB Exemption Request to be approved, I researched survey design and methodology using two textbooks:

- *International Handbook of Survey Methodology*. Edith D. deLeeuw, Joop J. Hox, Don A. Dillman
- *Mail and Internet Surveys: The Tailored Design Method*. Don Dillman

These resources gave insight into effective survey design. Based on my research, I decided to use colored paper and to limit the survey to one page (front and back). These books also gave great examples of well written and of poorly written survey questions, and I was able to use these samples to guide my question design.

Based on this research and a discussion with Dr. Acharya about the survey, I created a rough draft of the survey. I then facilitated a small group meeting where we discussed the survey content, delivery methods, and purpose of both the survey in general and of each question being asked. As a group, we decided the survey would be best administered in paper form. This format was chosen over sending the survey to all dental patients via e-mail or mail. We decided against the e-mail survey since again, our patient population may not have internet access meaning we would have largely skewed data from this method, and we decided against administering a mail survey due simply to high cost associated with doing so. Once we decided a paper survey format would be best, we then decided the best delivery methods would be for the appointment coordinators in the Marshfield Clinic Dental Centers to ask patients to partake in our survey rather than having me doing so directly. We felt this delivery method would reach more patients than I alone could do, and also it would erase all chances of observer/researcher bias since I would not be present while the patients were actually taking the survey. Overall, this method was determined the most cost and time effective.

The feedback from this group meeting also allowed me to make further changes to the survey. Once an updated version of the survey was created, I then used it to administer a pilot study in the Biomedical Informatics Research Center (BIRC). Five BIRC employees who had never seen or heard of the survey before completed it. Their participation in the pilot study provided gave me insight into how long it takes to complete the survey. After the BIRC employees completed the survey, they edited it for grammatical and spelling errors, and for content and layout problems. Based on their suggestions, I finalized the survey. The final version of the survey can be viewed in Appendix A.

While the content of the survey was being finalized, I contacted the Dental Managers at the Marshfield Clinic Dental Centers to discuss the survey and to receive their permission to have the appointment coordinators administer it at their front desk. I called and/or e-mailed the Dental Managers at the Chippewa Falls, Ladysmith, and Park Falls Dental Centers, I spoke in person to the Dental Managers at the Medford and Neillsville Dental Centers during visits to their Dental Centers. These discussions also provided me with an insight into how many patients each clinic sees daily and weekly, and of that, how many of these patients are minors (i.e. unable to participate in the survey). From this information I decided to initially print and deliver 250 surveys to each Dental Center.

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To print the surveys, I created a mail-merge document using Microsoft Word and Microsoft Excel to number and ID the surveys. This allowed us to keep track of what Dental Center the completed surveys came from and how many went missing from each site. Since each Dental Center received 250 surveys, the ID was followed by a number from 1 to 250. The ID and number were located on the bottom right hand corner on the back side of the survey, next to my contact information. Below is the ID used to code each Dental Center:

Dental Center	ID
Chippewa Falls	CF
Ladysmith	LS
Medford	MD
Neillsville	NV
Park Falls	PF

When the completed surveys were returned to BIRC, I matched the ID and number listed on the survey with its corresponding code in the Excel mail-merge document, and then highlighted it in Excel to indicate that specific survey was indeed completed and returned. This was how I was able to track the surveys as intended.

Meanwhile, I also created an information sheet for the appointment coordinators to help them administer the survey. On my visit to the Medford Dental Center, I discussed the survey with the appointment coordinators and they suggested creating such a resource. The information sheet included a reminder to only administer the survey to patients 18 to 89 years old, as well as a prompt of what to say when asking the patients if they would like to take the survey. It also included potential patient questions and the appropriate answer to each question. My contact information was included on this sheet as well, in case there were any problems while administering the survey and the appointment coordinators needed to reach me for clarification and/or answers. The front desk information sheet can be viewed in Appendix B.

I also created an information sheet for the Dental Managers. Although I already discussed the survey with each Dental Manager, I felt it would be important to send them a summary of the project that they could easily refer back to if any questions or confusion arose. The information sheet contained my contact information, and key reminders including only to administer the survey to patients 18 to 89 years old, to administer it for three weeks, and to weekly route me the completed surveys so I could begin data entry and analysis. The Dental Manager information sheet can be viewed in Appendix C.

As mentioned previously, the IRB Exemption Request was approved on July 2, 2010. The protocol number for this study was FWA00000873. The day our IRB was approved I routed 250 printed surveys, two laminated copies of the appointment coordinators' information sheet, and one copy of the Dental Manager information sheet to the Marshfield Clinic Dental Centers in Chippewa Falls, Ladysmith, Medford, Neillsville, and Park Falls. Since it was a holiday weekend, the Dental Centers most likely did not receive these surveys until July 6, 2010.

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Once the Dental Managers received the surveys, I contacted them weekly by phone and/or e-mail to discuss the survey. These conversations were meant to address any problems that arose while administering the survey, and to determine if the Dental Centers needed more surveys printed and routed to them. Some general comments and problems that were discussed during these conversations included:

- Appointment coordinators lack the time to properly administer the survey
- Many patients are new and already have lots of paperwork so they don't want to be bothered with more paperwork
- Many patients don't know what *My Marshfield Clinic* is
- Many patients show up right before their appointment is about to start, so they don't have time to complete the survey
- Dental Centers are in general busy training new employees

To address these concerns, I brainstormed alternative ways to administer the survey with the Dental Managers and appointment coordinators. Two suggestions were to administer the survey in the Patient Financial Services department or to have the Dental Assistants administer the survey. Although these were great suggestions, general consensus from other discussions agreed that administering the survey at the front desks was still the best method. I was able to address the third concern about patients not being familiar with *My Marshfield Clinic* by reassuring the Dental Managers and appointment coordinators that still we want these patients to take the survey, and by reminding them that selectively denying these patients the opportunity to take the survey will bias the results.

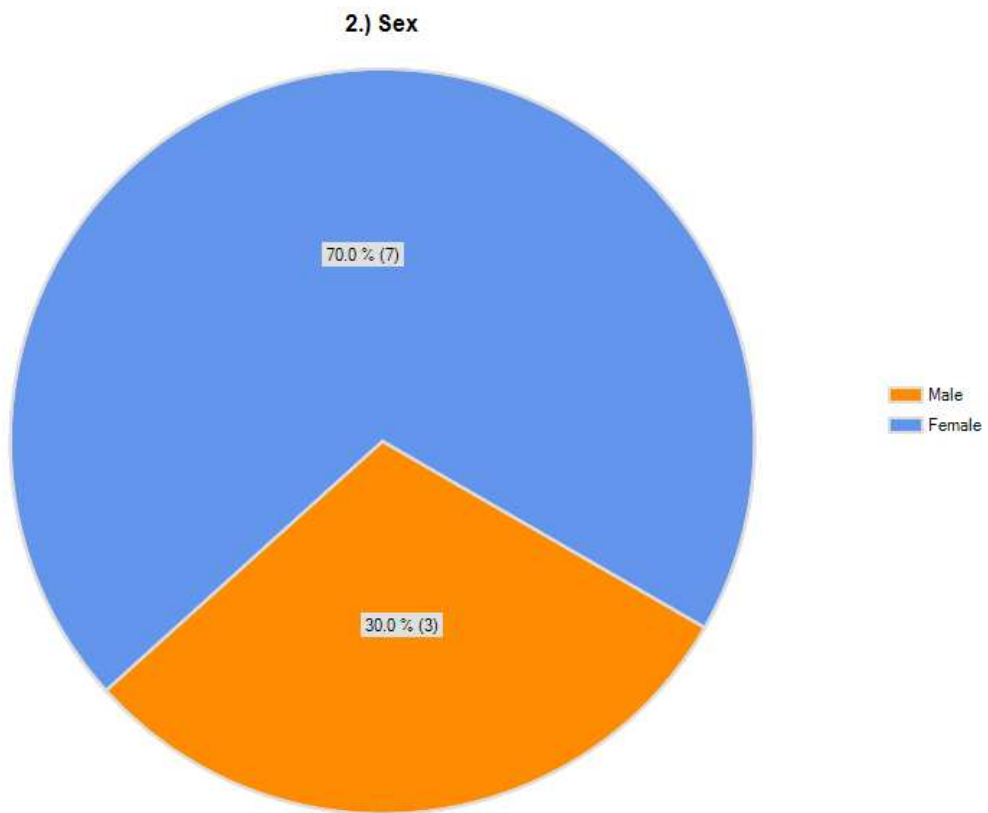
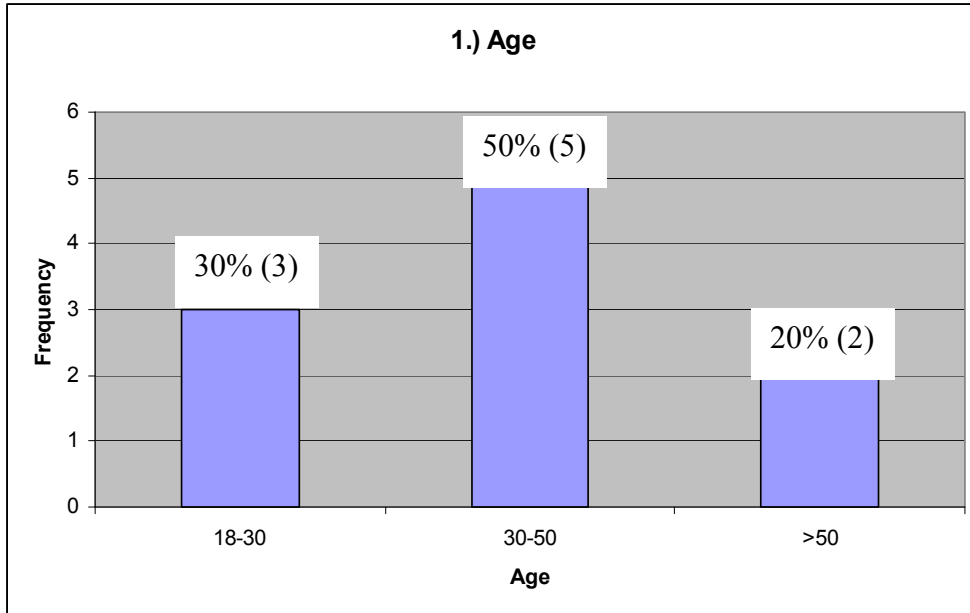
I also was able to learn when the Dental Centers began administering the survey from these conversations. Due to various reasons, each Dental Center began administering the survey on a different date. After learning this information, I then assigned each Dental Center an end date three weeks from the day they began the survey. Below are the start and end dates for the Dental Centers:

Dental Center	Start Date	End Date
Chippewa Falls	7-12-2010	8-2-2010
Ladysmith	7-13-2010	8-3-2010
Medford	7-8-2010	7-29-2010
Neillsville	7-6-2010	7-27-2010
Park Falls	7-19-2010	8-9-2010

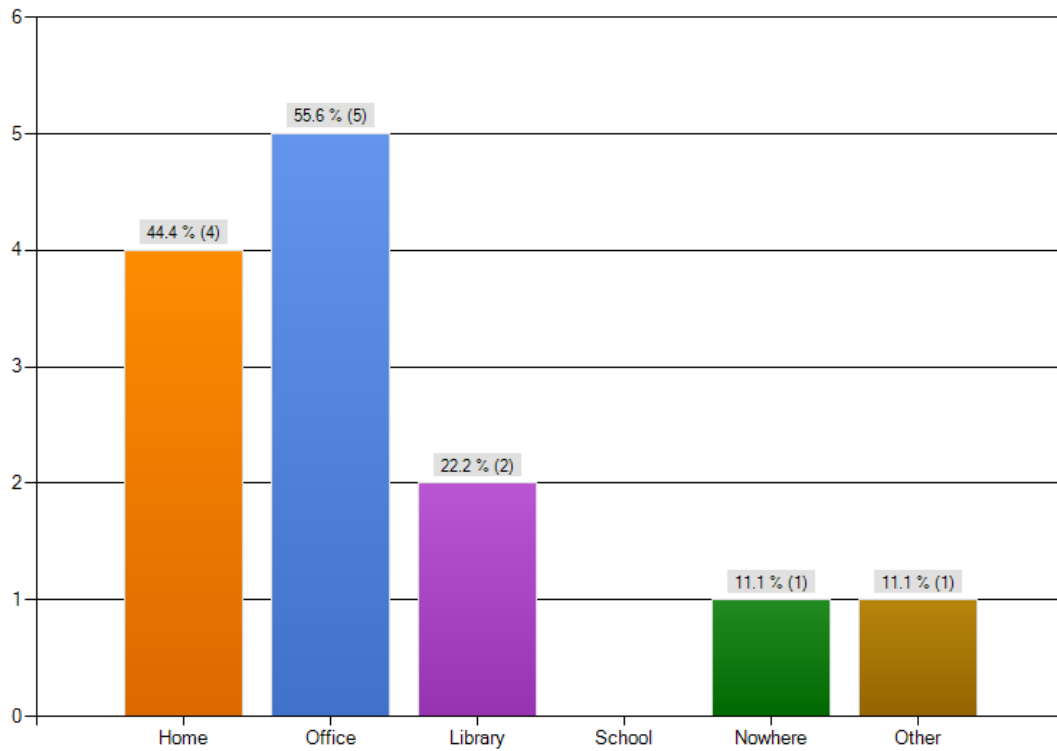
Once I received completed surveys from the Dental Centers, I manually entered the results into Survey Monkey and then began data analysis.

Results:

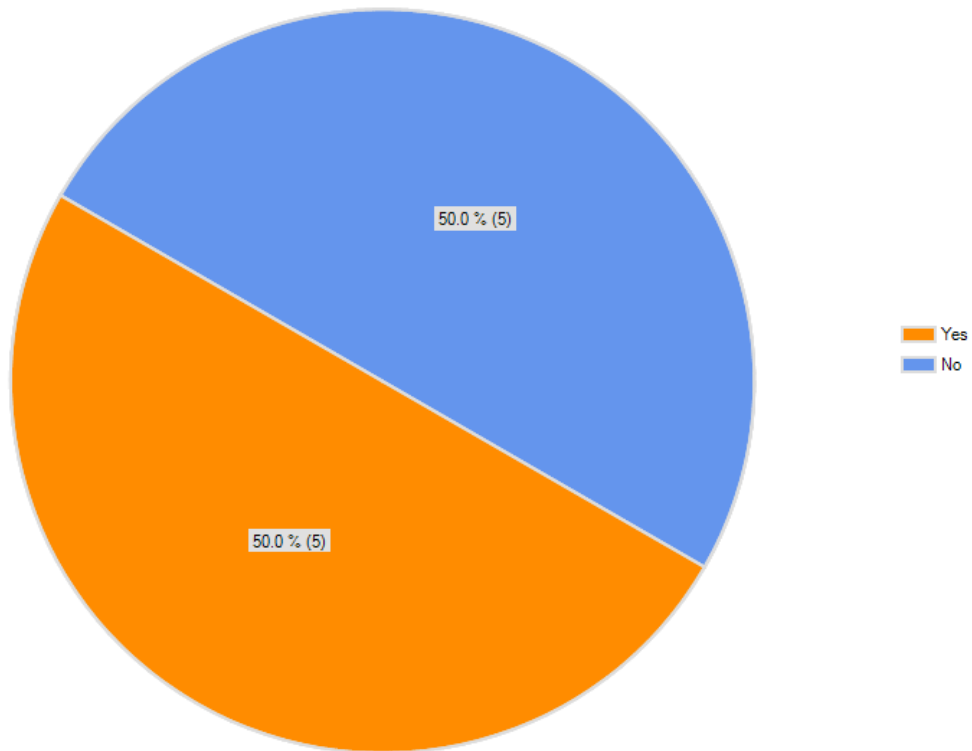
Although the survey was still being administered at some Dental Centers when my internship was over, I was able to enter and analyze the complete surveys I had received into Survey Monkey. All tables of these preliminary results can be found in Appendix D, but the graphs of this data can be viewed below:



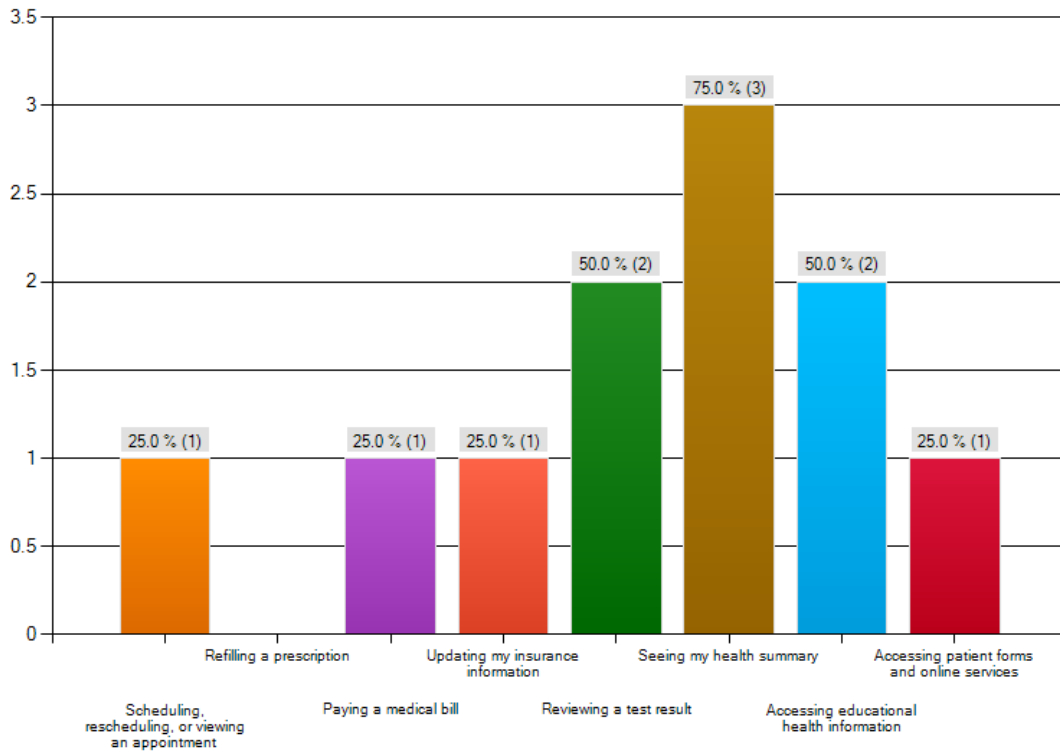
3.) Do you have access to the Internet? Where? [Check all that apply]



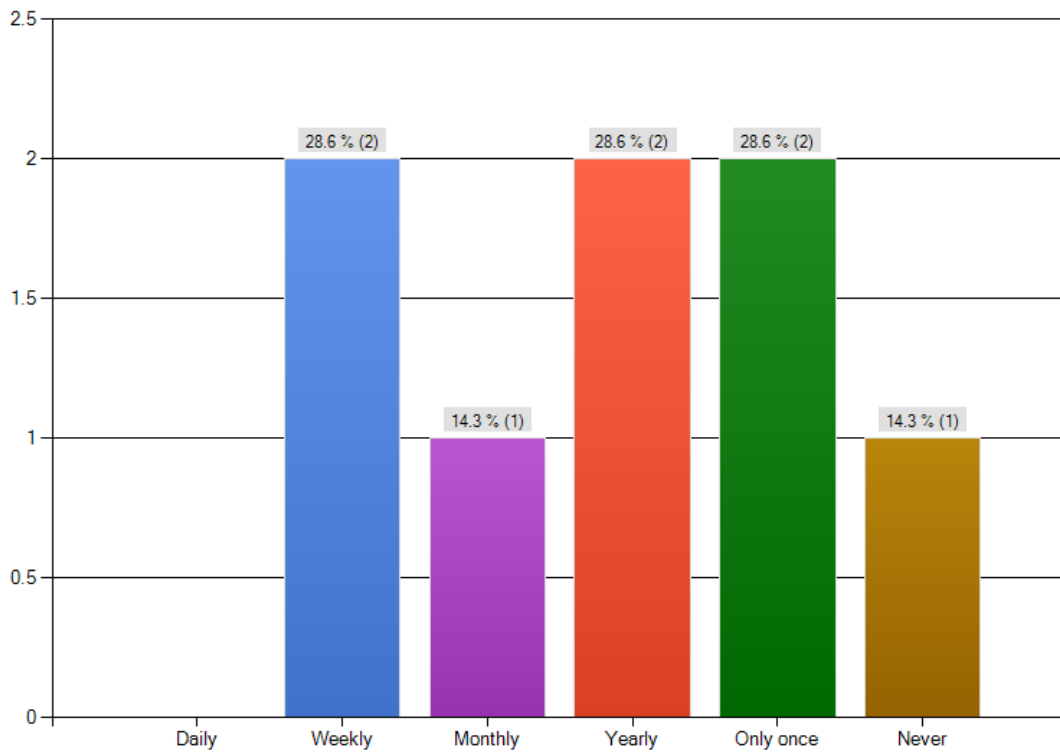
4.) Have you used My Marshfield Clinic before?



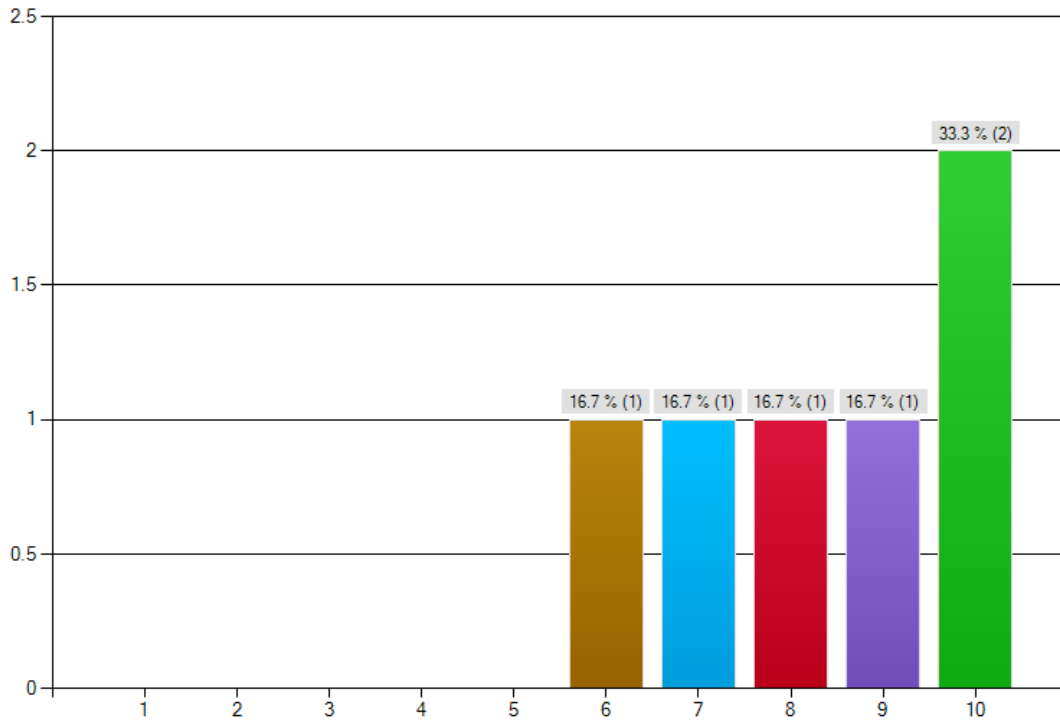
5.) What features of My Marshfield Clinic have you used? [Check all that apply]



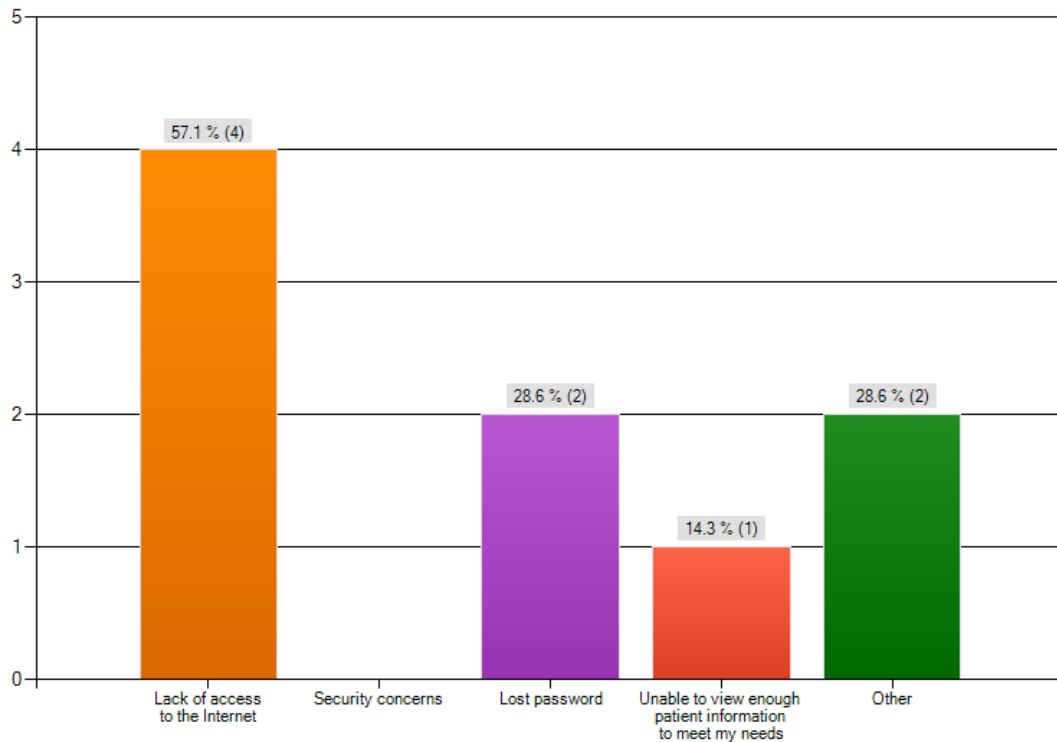
6.) How often do you use My Marshfield Clinic?



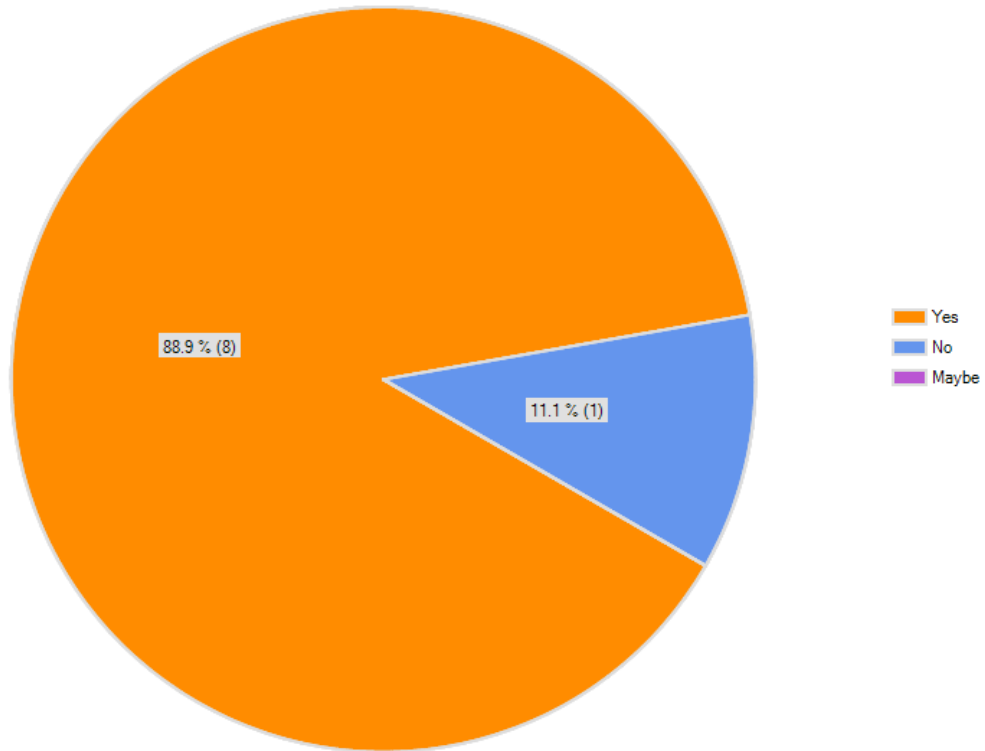
7.) How useful was My Marshfield Clinic in finding the information you needed or wanted?



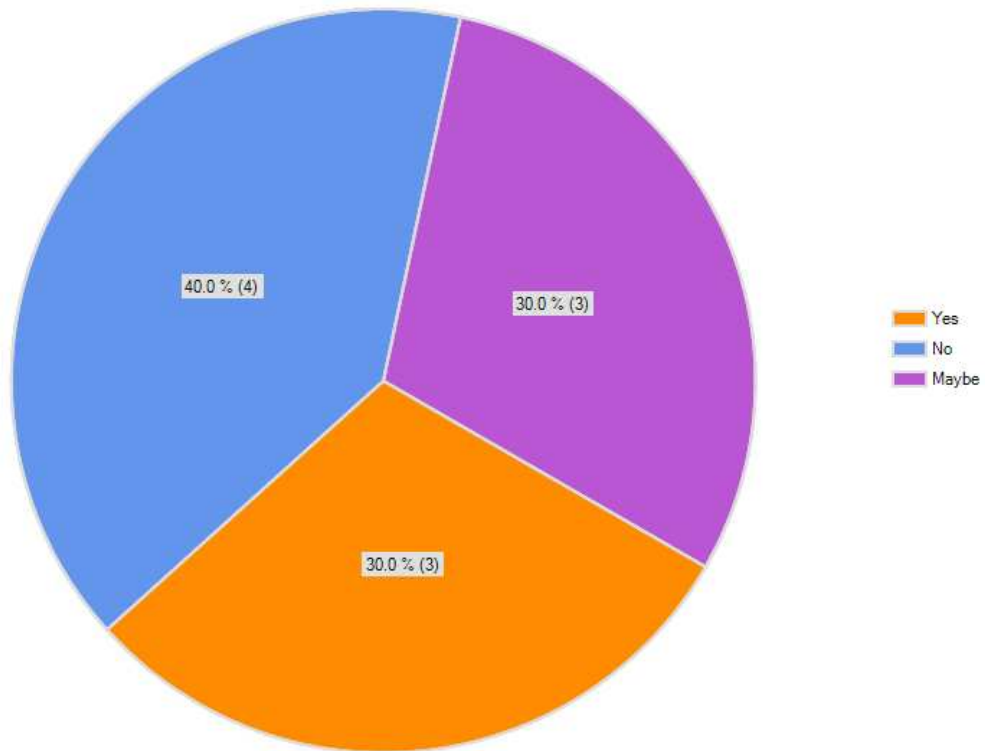
8.) What reasons limit you from using My Marshfield Clinic? [Check all that apply]



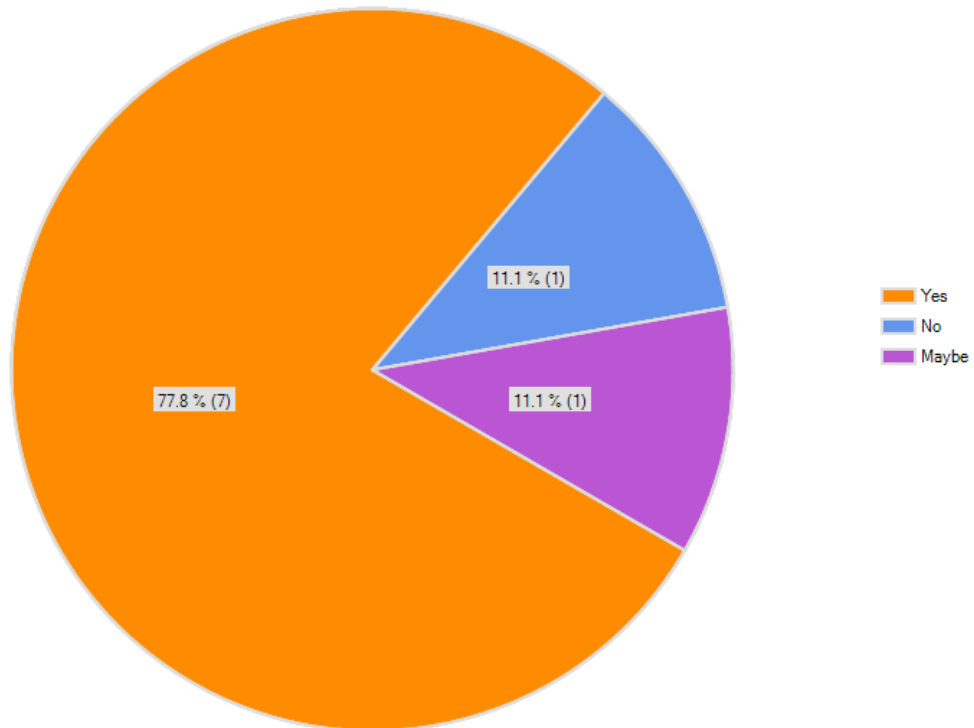
9.) Would you use My Marshfield Clinic if your concerns are met?



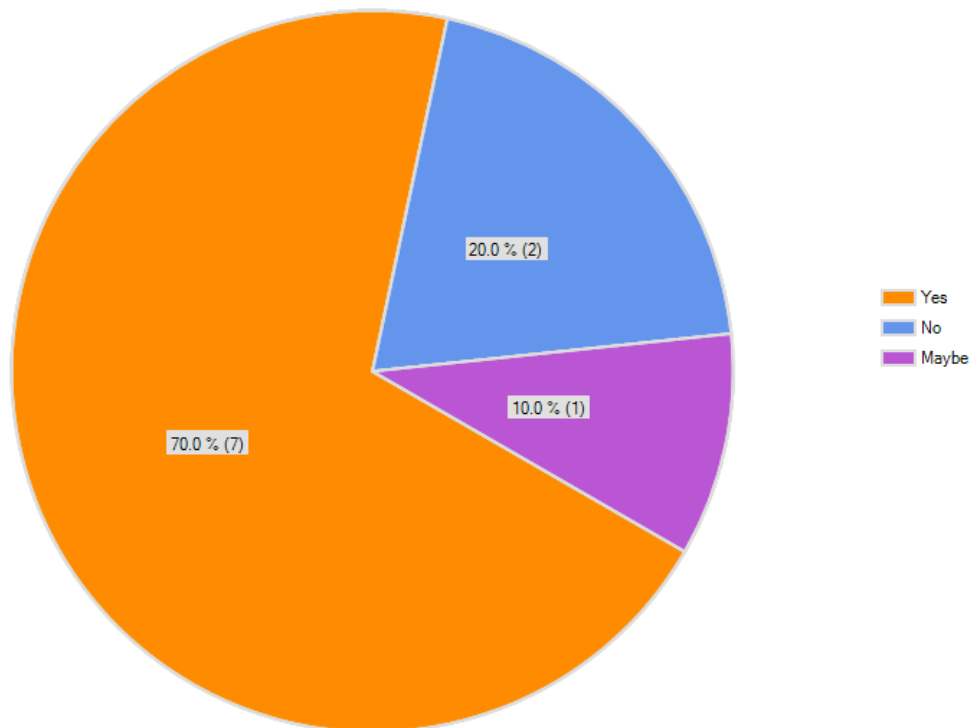
10.) Would you feel comfortable using My Marshfield Clinic in a public area?



11.) Would you feel comfortable using My Marshfield Clinic in a Clinic's patient waiting area if a secure touch-screen kiosk or computer was made available?

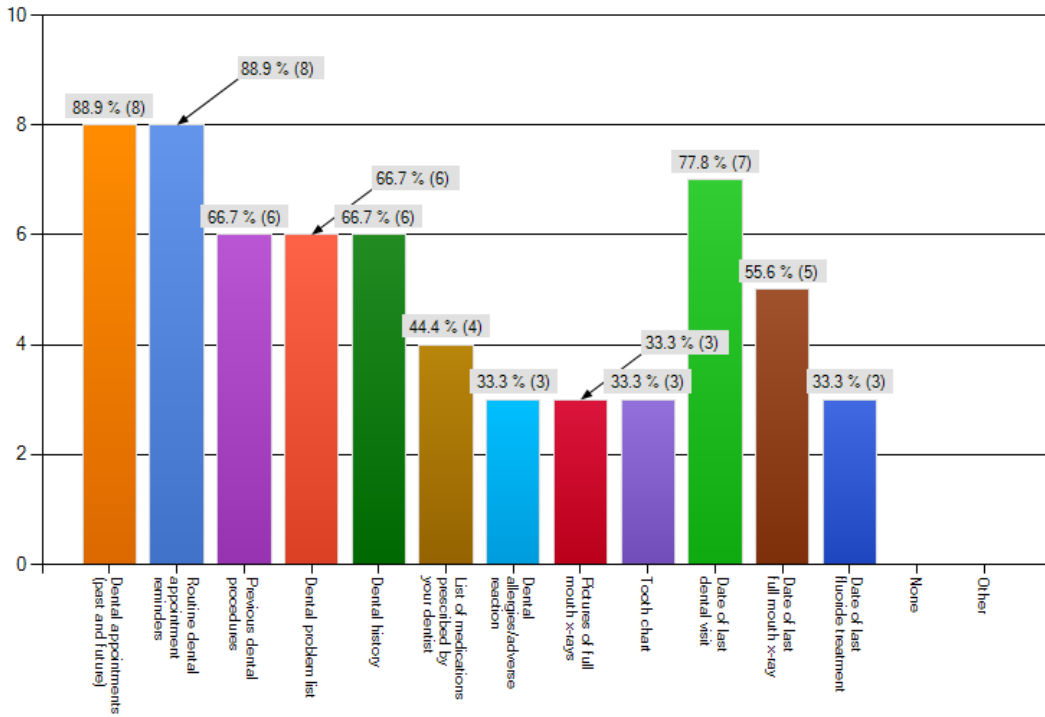


12.) Currently, My Marshfield Clinic does not include dental information. Would you like it to access your dental information?

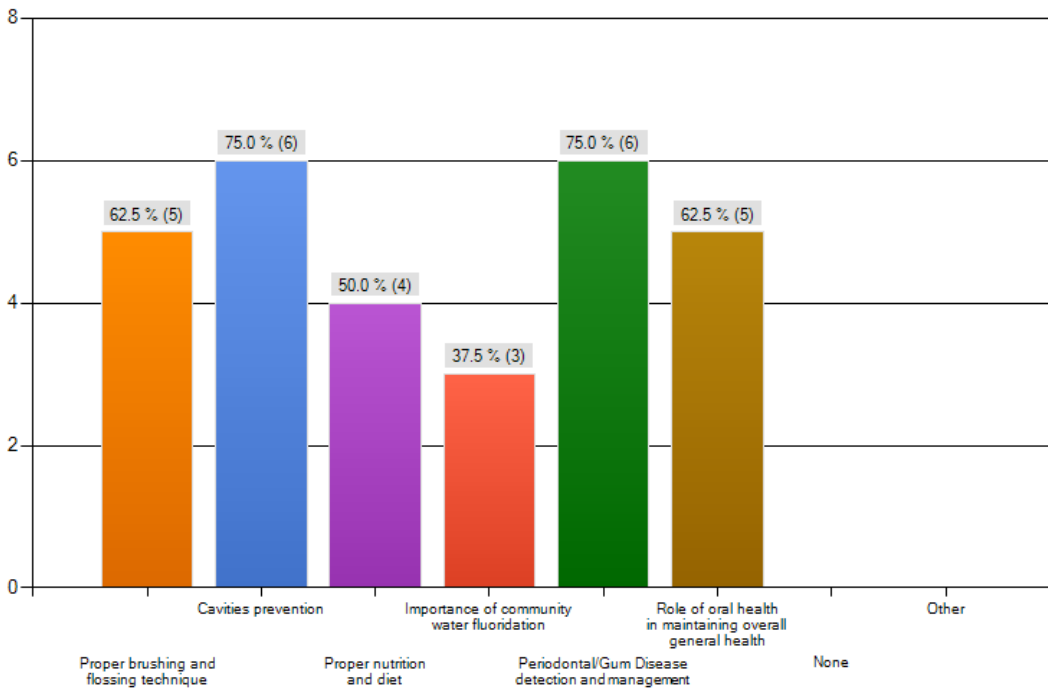


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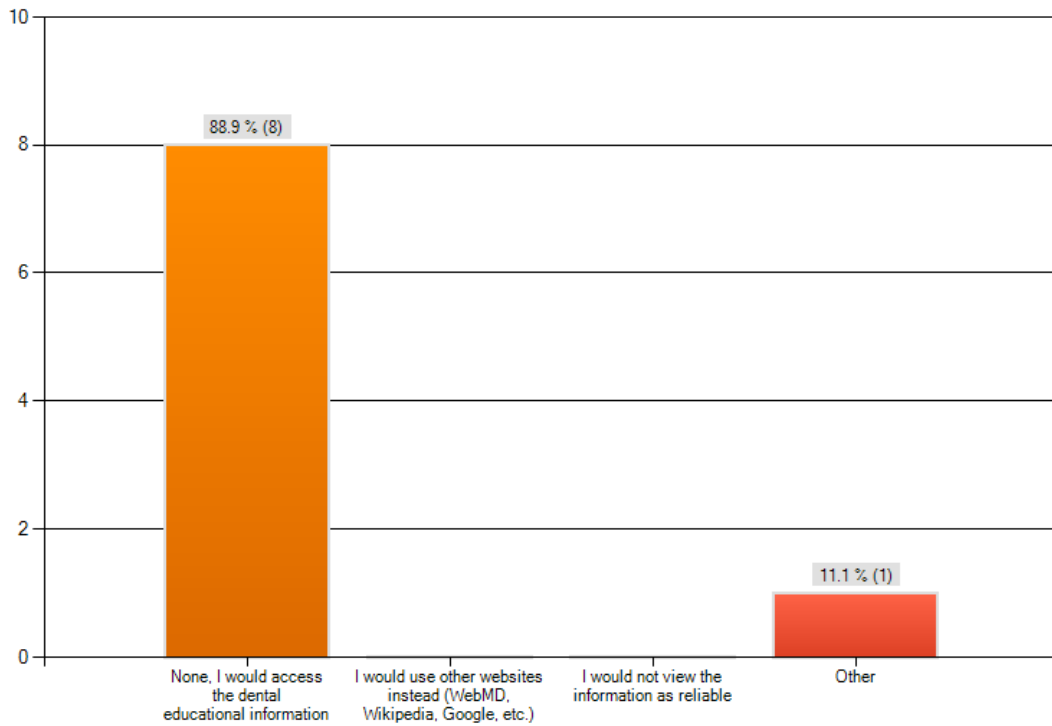
13.) My Marshfield Clinic includes your health summary. What dental history would be important for you to view? [Check all that apply]



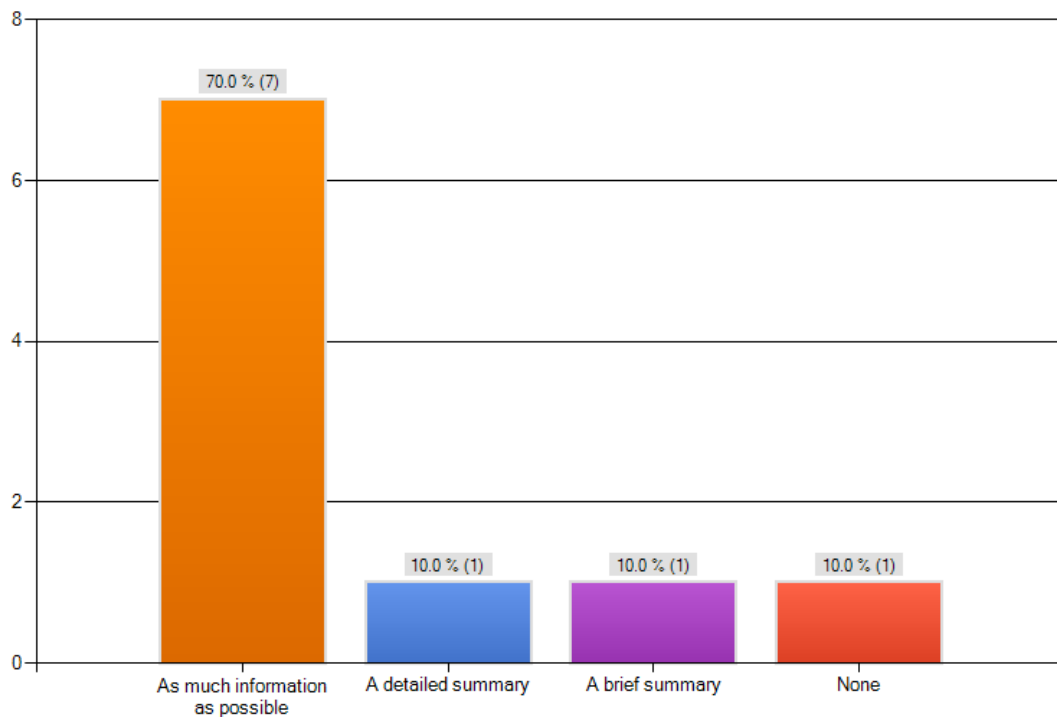
14.) My Marshfield Clinic includes information about disease prevention, early detection, and disease management. What important dental information would you like to be included? [Check all that apply]



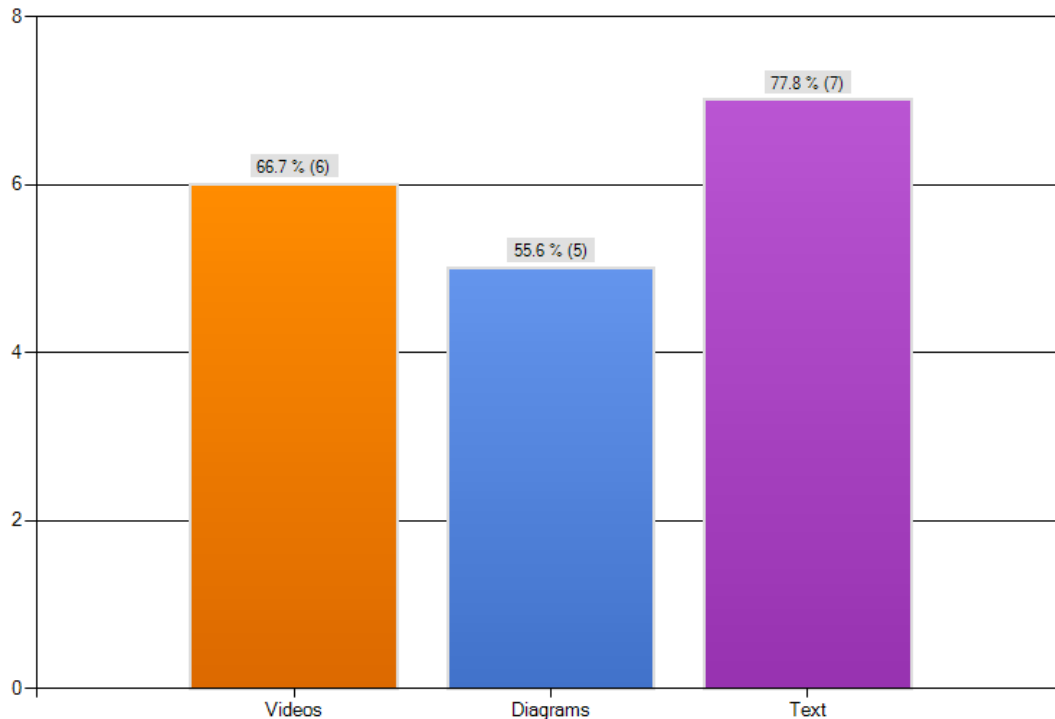
15.) What reasons may limit you from using the dental educational information on My Marshfield Clinic? [Check all that apply]



16.) What level of dental health details would you like to be included in My Marshfield Clinic?



17.) How would you like the dental educational materials presented? [Check all that apply]



Discussion:

Again, since my internship ended before all the results could be collected and analyzed, this discussion is only based on the preliminary results assembled thus far.

The survey has a small sample size (n=10), most likely due to the fact that the survey was still being administered. Participants varied in age, with a range from 18 to 76 years old, and in sex, with 70% female and 30% male respondents.

Because of the small sample size, it is hard to deduce accurate information from the results. With that in mind, 11% of survey participants had no access to internet. This was an initial concern of the project, which is why we decided not to administer the survey online. However, despite a lack of internet access, 50% of survey respondents had used *My Marshfield Clinic* before, with 8.6% using it weekly. Those who used *My Marshfield Clinic* before overall thought it was useful. This statement is based on the range of answers given from 6 to 10 on a scale of 1 to 10 with 10 being “very useful.”

Unfortunately, barriers limited participants from using *My Marshfield Clinic*. A lack of Internet access was the number one (57.1%) reason participants did not and do not use *My Marshfield Clinic*, and a lost password was tied for reason number two at 28.6% with survey respondents not knowing about *My Marshfield Clinic*. As mentioned before, it was a goal of the survey to increase patient awareness about *My Marshfield Clinic*. This last piece of data illustrates this goal is being met. Despite these barriers, 88.9% of

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participants would use *My Marshfield Clinic* if their concerns were met, highlighting an area that needs to be addressed in the future to make the health portal more accessible to patients. Although only 30% of respondents would use *My Marshfield Clinic* in a public area, 77.8% would use it in a clinic if a kiosk or secure touch-screen computer was made available, again highlighting an area that could be addressed in the future to make the health portal more available. The results also revealed that 70% of participants would like *My Marshfield Clinic* to include dental information, especially dental appointments (88.9%), dental appointment reminders (88.9%), previous dental procedures (66.7%), dental problem list (66.7%), and dental history (66.7%). Participants would also especially like to access educational information about cavities prevention (75%), periodontal disease detection and management (75%), proper brushing and flossing technique (62.5%), and the role of oral health in maintaining overall general health (62.5%). The majority (70%) of survey respondents wanted as much information about these dental topics as possible, and 66.7% wanted it presented as videos, 55.6% as diagrams, and 77.8% as text.

Future Direction:

Data from the surveys will continue to be entered into Survey Monkey and then analyzed as completed surveys are collected.

Based on these results, the survey may be extended or the survey may be mailed to all Marshfield Clinic patients in order to expand the survey size.

Once the survey is completed, the analyzed results will be used to develop and add the appropriate dental information to *My Marshfield Clinic*, and to potentially change its availability, to meet patients' needs, requests and suggestions.

Lastly, the results from this survey will eventually be published in abstract, poster, and/or paper in the future.

Development of Dental Patient Education Module

Background:

Many patients are unaware of the connections between their oral and systemic health. Dental hygienists bear the majority of the responsibility for patient education, yet there are few, if any, educational tools they are able to use to help teach patients about this very important topic.

Due to the lack of patient education resources, we wanted to determine how dental hygienists currently educate patients and what educational tools (if any) they would like us to create to help them teach about the correlation between oral and systemic health.


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Goal:

The goal of this project was to create a useful educational tool that dental hygienists will use while education patients about the correlation between oral and systemic health, the key being of course that the tool has to be appealing to patients as well.

Methods:

To begin the research study, an application for an Institutional Review Board (IRB) Exemption Request was completed on June 23, 2010. It was determined an Exemption Request was needed because the results and research findings from this study may be published and/or presented. The IRB Exemption Request (seen below) was approved on July 2, 2010. The protocol number for this study was FWA00000873.


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IRB Exemption Request

Use this form for research you believe to be exempt from further IRB review. See IRB decision charts at <http://www.hhs.gov/ohrp/humansubjects/guidance/decisioncharts.htm#cf> for guidance. Determinations of exemption must be made by the IRB. In the case of exemption, the need for HIPAA authorization or waiver may still be required.

Date: 8-22-10

SP Code:

Study Title: Development of Dental Patient Education Module

Principal Investigator: Dr. Amin Acharya

Routing Location: MLR Phone: 5-6430

Email: ciske.jannitor@mcrf.mfldclin.edu

Proposed Start Date: 6-25-10 Proposed End Date: 6-25-11

1. Provide a summary of the project in enough detail to demonstrate that the project meets the exemption category you will choose below:

We will be conducting pre-intervention and post-intervention surveys in the Marshfield Clinic Dental Centers. The pre-intervention survey will consist of phone interviews with dental hygienists who work in the Marshfield Clinic Dental Centers. All dental hygienists affiliated with Marshfield Clinic Dental Centers will be sent an e-mail asking them to participate in a phone interview about patient education counseling. We will schedule phone interviews with recruited participants. Each phone interview is expected to last 15 minutes and will follow a standard script. The script that will be used in the phone interviews is attached. The goal of the phone interviews is to determine what patient education resources dental hygienists would like us to develop to use while they teach patients about the correlation between oral and systemic health. After the patient education materials are developed, we will deliver them to the Marshfield Clinic Dental Centers. After the education resources have been integrated into daily practice for three months, we will conduct post-intervention anonymous surveys. These simple paper surveys will be administered to patients and dental hygienists in the Marshfield Clinic Dental Centers for three weeks. The goal of these surveys is to assess the usefulness of the new patient education resources. No protected health information (PHI) will be collected from any study participants.

While waiting for the IRB Exemption Request to be approved, I researched the correlation between oral and systemic health. To do this, I conducted a PubMed Search using the keywords ‘oral and systemic health,’ ‘periodontal disease and cardiovascular disease,’ ‘periodontal disease and diabetes,’ ‘periodontal disease and respiratory disease,’ ‘periodontal disease and xerostomia,’ ‘periodontal disease and pregnancy,’ and ‘periodontal disease and osteoporosis.’

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I also called the Marshfield Clinic Dental Centers to determine what patient education resources they currently use. The Dental Centers graciously sent me the educational brochures they have. Although most of the brochures were not about the oral and systemic disease correlation, I was able to use some of them for information about periodontal disease, oral health during pregnancy, and oral health for diabetics. Mostly I used the brochures as a guideline for the level and complexity of language that was appropriate for my patient education module.

Lastly, I gathered information about the oral and systemic connection through a general online research. The credible websites I visited were:

- Centers for Disease Control
 - www.cdc.gov
- Department of Health and Human Services
 - www.hhs.gov
- National Institute of Dental and Craniofacial Research
 - www.nidcr.nih.gov
- American Dental Association
 - www.ada.org
- Wisconsin Dental Association
 - www.wda.org
- MedlinePlus
 - www.medlineplus.gov

From the Department of Health and Human Services website I was able to access the Oral Health in America: A Report of the Surgeon General from 2000. All these resources provided great information about the correlation between oral and systemic health.

After gathering and organizing the information about oral and systemic health, I decided the most important health topics to cover in my module were:

- Periodontal disease
- Cardiovascular disease and periodontal disease
- Diabetes and periodontal disease
- Respiratory disease and periodontal disease
- Xerostomia and periodontal disease
- Pregnancy and periodontal disease
- Osteoporosis and periodontal disease

This decision was largely based on the research about these topics, such as how prevalent, well known, and strongly linked they are.

I then began to transfer information about these topics into PowerPoint to begin creating my patient education module. I decided to use PowerPoint as my software because the program allows you to add sound, and to automatically advance to the next slide or object when timed to do so by using 'custom animation' and 'slide transition' tools. Also, a PowerPoint document can be converted into a video file through QuickTime software. Ideally, this would allow the Marshfield Clinic Dental Centers to display my video in the waiting room and in the patient hygiene rooms. Converting the file into a video will also

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allow us to upload it to *My Marshfield Clinic* and YouTube, making it accessible to as many people as possible.

I also wanted to use PowerPoint to create my video education module because every dental hygienist has a unique teaching style and every patient has a unique learning style dependent on attention span, reading level, and many other factors. A PowerPoint document allows dental hygienist not only to play a video or clips of a video, but to also display one slide and use it in a chart-like manner to help explain a concept to a patient. Also, dental hygienists can print individual slides for patients, thus using the information like handouts or brochures. Overall, using PowerPoint will give dental hygienists flexibility and freedom to use the education module however is most convenient and comfortable for them and best for the patient.

After deciding to use PowerPoint as my tool to create the video, I contacted the Creative Services department at Marshfield Clinic to see what services (if any) they could provide to help me develop my module. I was advised to attend a Creative Services meeting in order to get feedback from all members of the Creative Service team. The meeting I attended provided helpful information about what services their department provides, such as creating basic animation and accessing many pictures through ThinkStock.com. They also sent me the template for the Marshfield Clinic approved slideshow backgrounds. Although I did not utilize their department's resources, I am still glad to have networked with them and to have gathered feedback about my project. The reason I decided not to work with Creative Services was because I was able to find all the open-source pictures I needed from Wikipedia and because I was able to create basic animation myself using various PowerPoint tools.

Once all the information and pictures were uploaded into PowerPoint, I wrote a script for each slide that covered all the information I wanted to say about the topic. I then used a digital voice recorder to record myself speaking this script. I upload all the sound files to the appropriate slides and then used the 'custom animation' tool to create basic animation and to have objects and text boxes automatically appear in sync with the voice recording. I also used the 'slide transition' tool to have the slides automatically transition again in sync with the voice recording. This concluded the development part of my project.

While I was creating the patient education module, I also developed a pre-intervention survey for the dental hygienists. The survey was intended to see how dental hygienists currently educate patients, how they would like to education patients, what oral/systemic connections are important to cover in the module, and what format and length the educational video should be. The pre-intervention survey can be viewed in Appendix E.

I administered this pre-intervention survey personally to dental hygienists at the five Marshfield Clinic Dental Centers in Chippewa Falls, Ladysmith, Medford, Neillsville, and Park Falls. While administering the survey, I asked the dental hygienists the questions and then wrote down their response instead of just giving the survey to them to fill out. This way the survey was more of a discussion where I was able to gather additional information pertaining to the module that I could not have acquired from them

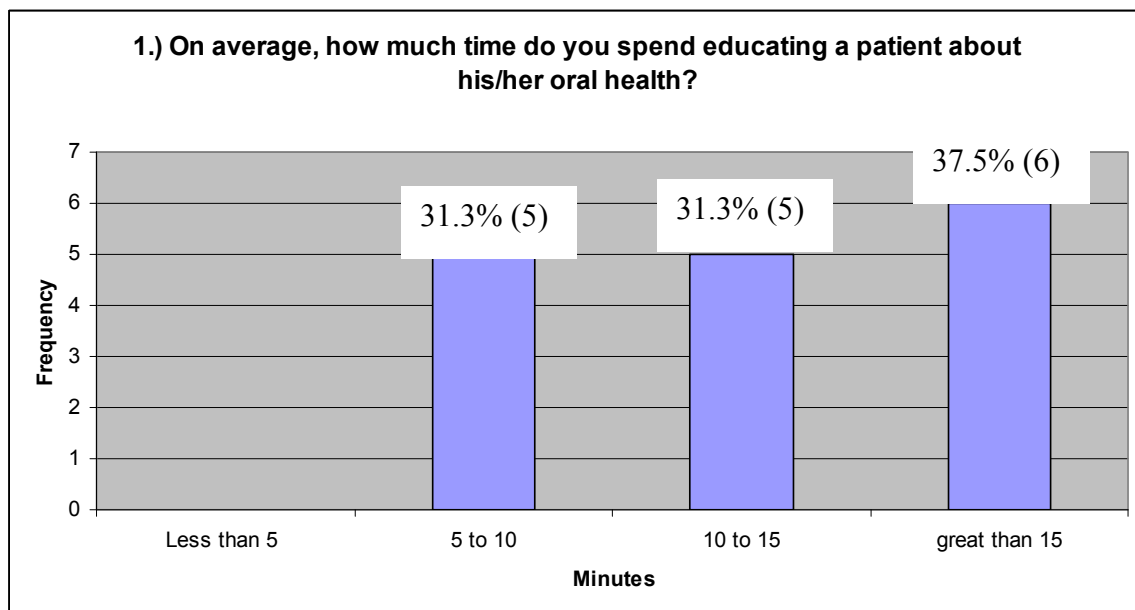
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answering just yes/no or multiple choice questions. Sixteen dental hygienists in total completed my survey.

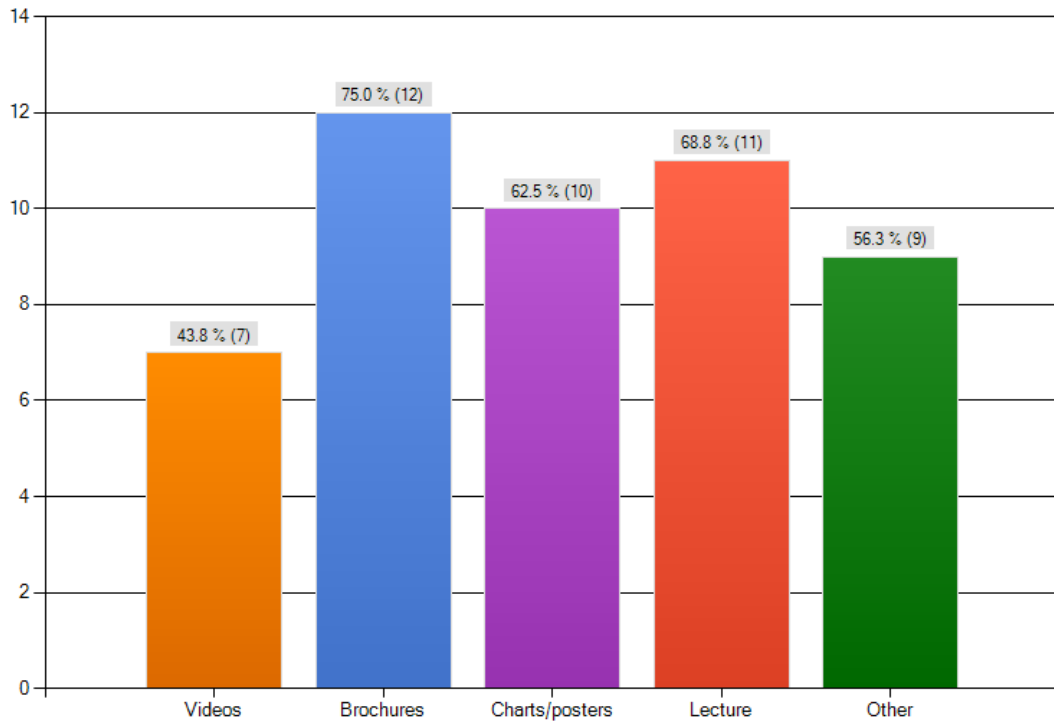
Also while I was at the dental center, I asked the dental hygienists to view the education module I had created up to that point in order to get specific feedback on it. Not many dental hygienists were able to critique the video however because of their busy schedules and the process itself (including the pre-intervention survey) required about an hour of their time. Luckily, dental hygienists in Neillsville and Ladysmith were able to view the module and provide feedback to make it more understandable, useful, and entertaining. I included their valuable suggestions while finalizing the module.

Results:

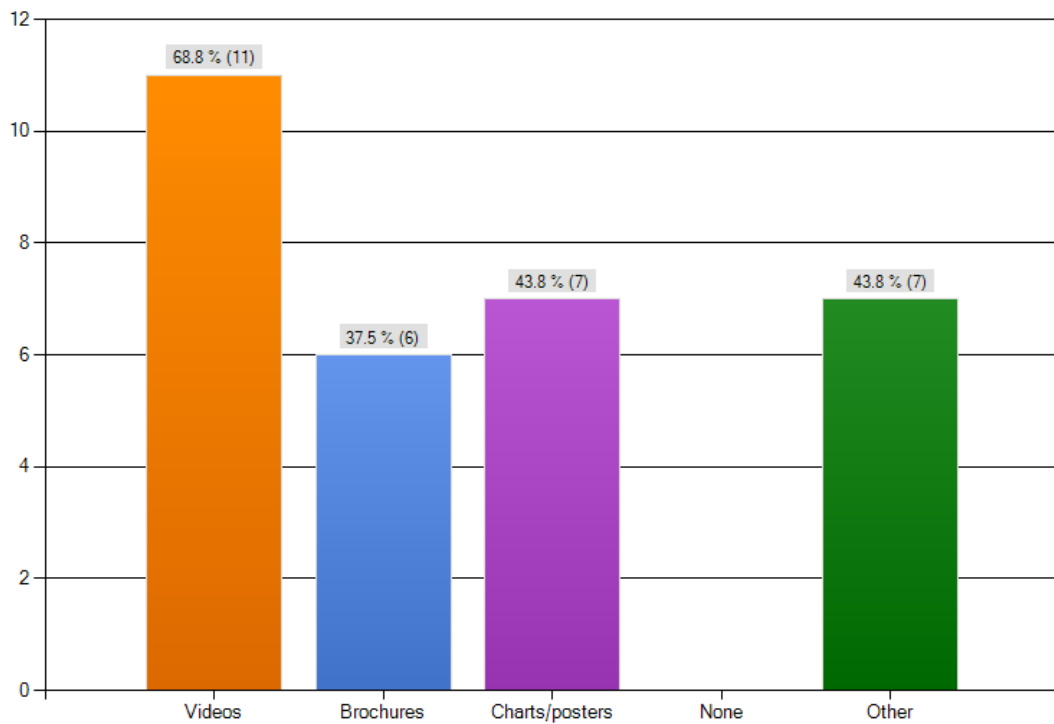
After the pre-intervention dental hygienist survey answers were entered into Survey Monkey, I was able to analyze the results and tailor my module to meet their needs, desires, and suggestions. All tables of the results can be found in Appendix F, but the graphs can be viewed below:



2.) What materials do you currently use to educate patients about their oral health?
[Check all that apply]

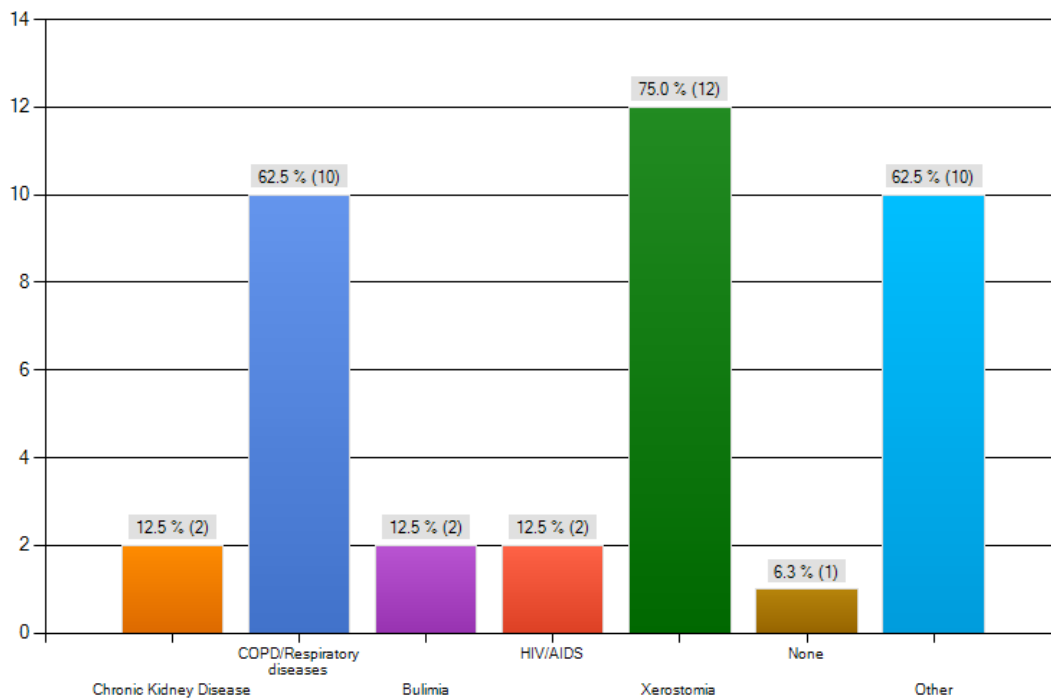


3.) What materials would you prefer to use while educating patients about their oral health? [Check all that apply]

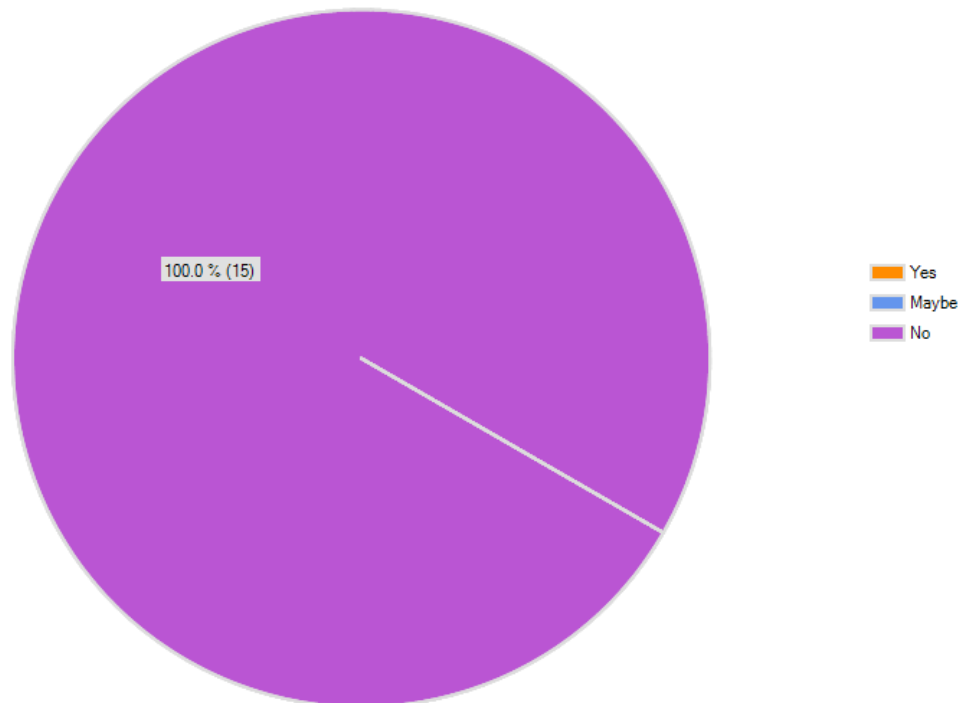


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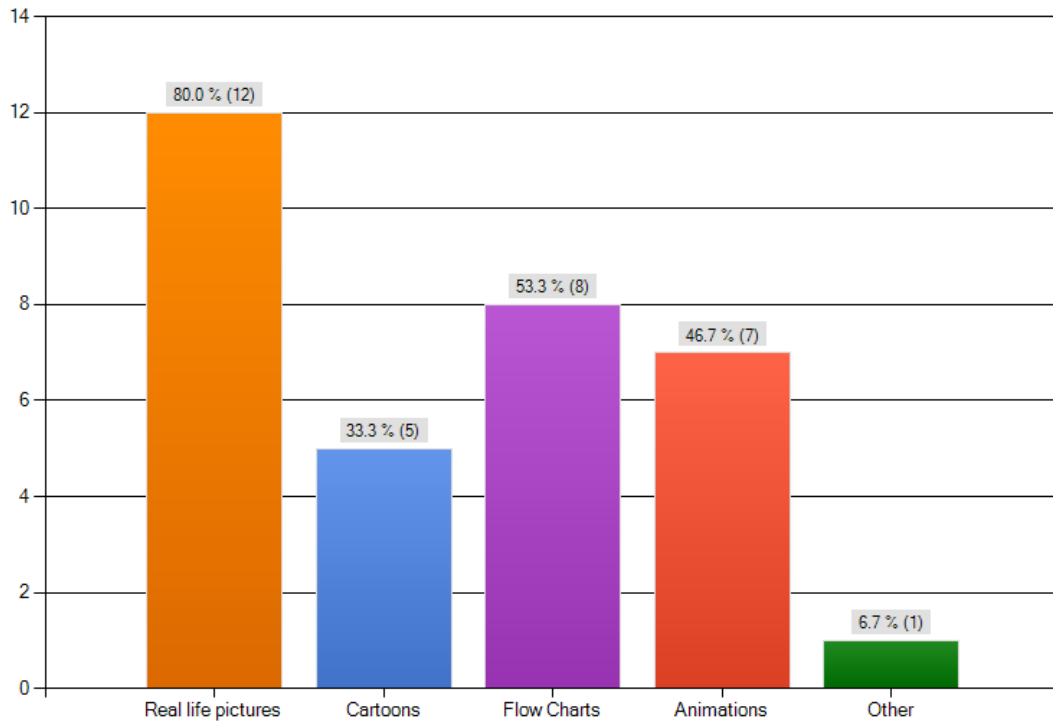
4.) Currently we're creating video based educational modules that outline the connection between oral health and diabetes, cardiovascular disease, osteoporosis and pregnancy. What other systemic health issues (if any) do you feel would also be important to include? [Check all that apply]



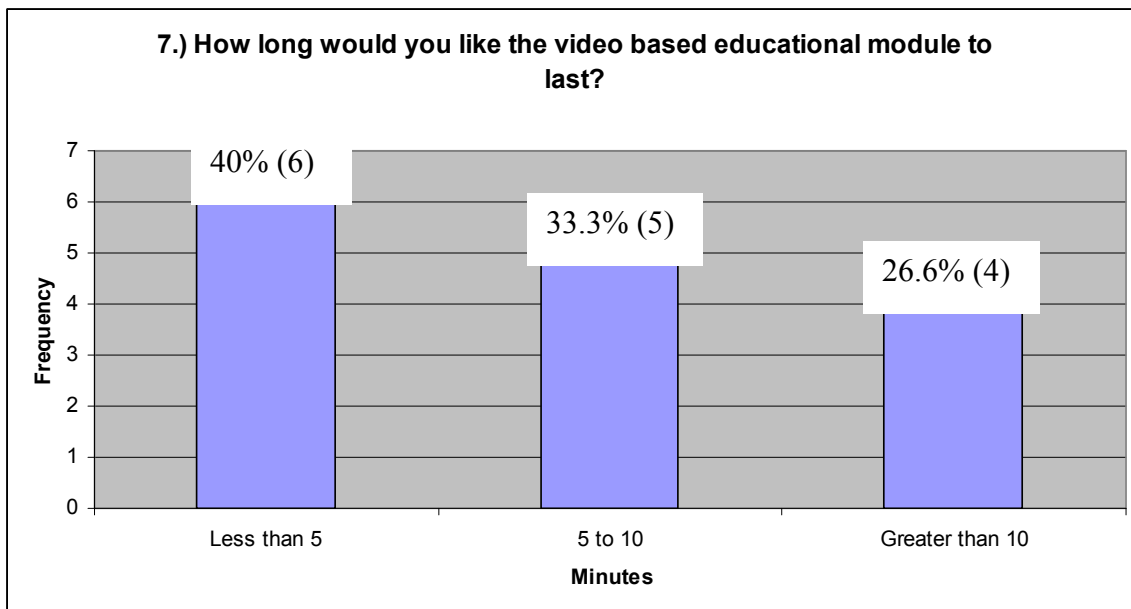
5.) The current format for the video based educational module includes an introductory overview of periodontal disease followed by the connection between oral and systemic health. Would you recommend a different format?



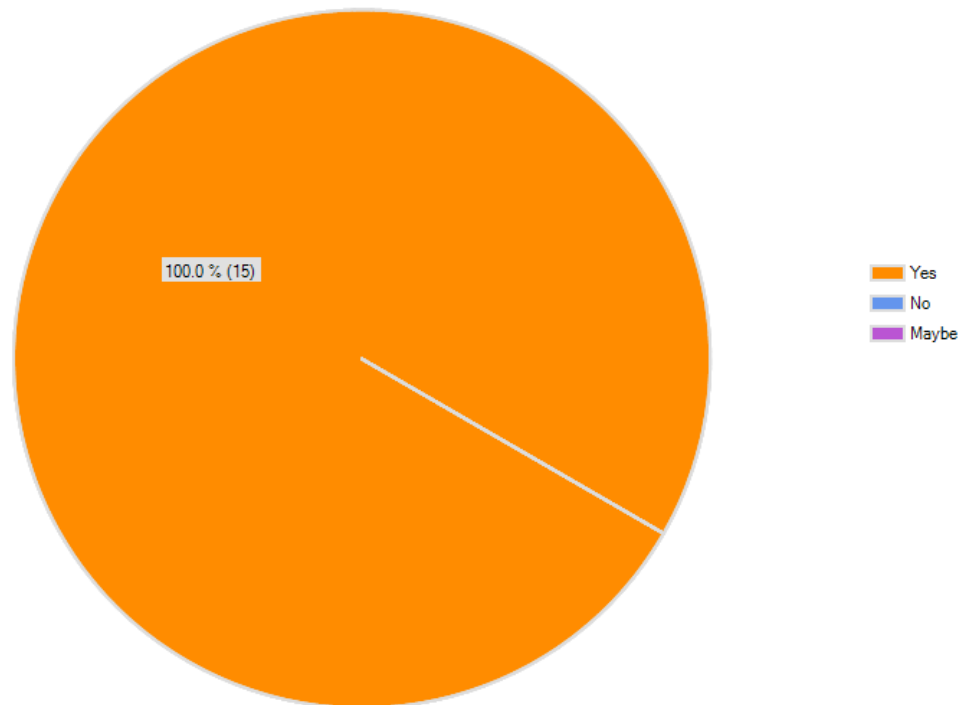
6.) What graphics would be best to include in the video based educational module?
[Check all that apply]



7.) How long would you like the video based educational module to last?



8.) If you used the video based educational module, would you still like a brochure about the oral and systemic disease connection that you could give to patients to take home?



Discussion:

As mentioned previously, the pre-intervention survey was more of a discussion than a rigid yes/no or multiple choice question survey. The survey was designed this way in order to yield the maximum amount of information, suggestions, and ideas about the module as possible. Because of this discussion nature, it is important to include this summary of my conversations with the dental hygienists.

1.) On average, how much time do you spend educating a patient about his/her oral health?

Based on survey results, dental hygienists on average educate patients anywhere from five to thirty minutes. Most of the dental hygienists said this number varied based on the patient's medical needs, how many times they have seen the patient, and how many questions they ask to prompt the discussion. Most dental hygienists explained that they educate by talking and demonstrating throughout the appointment. A concern that did arise was that educating too much can overwhelm a patient, so finding the right balance can often be difficult.

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2.) *What materials do you currently use to educate patients about their oral health?*

The discussion comments below highlight the dental hygienists varied teaching styles.

2.1. *Videos*

Many of the dental hygienist have used or continue to use videos the Ladysmith Dental Center created. These videos are stored on a Shutterfly account and they cover topics like soda drinking and proper brushing and flossing technique. Although these videos are dated, Chippewa Falls is creating newer videos using PowerPoint. These PowerPoint's cover brushing and flossing, meth mouth, oral cancer, soda drinking, Sippy cups and baby bottle syndrome, and tongue piercing.

Concerns over videos include that they are bothersome to setup and play, especially since dental hygienists are always already multitasking. Also, it was mentioned that there is not enough time for the patient to watch the video because of time constraints. Currently, the stand the hold the TV is unable to position the TV at a suitable angle for the patients to watch while they are back in the tilted chair, meaning patients often lean forward in order to watch it which makes it harder for dental hygienists to work in their mouth.

2.2. *Brochures*

Some dental hygienists voiced concern that brochures aren't useful because they are located inconveniently far away from hygiene rooms. Thus, they are not utilized as much as they could be if they were available in each patient hygiene room. Because of this and other reasons, dental hygienists said brochures may not be distributed unless patient's specifically asked for them. Other concerns over brochures include that patients may not be able to read, and that they are often just thrown away. In fact, a dental hygienist has found brochures in the Dental Center's garbage can on multiple occasions.

2.3. *Charts/posters*

Current charts/posters that dental hygienists use include Crest flip chart, picture book, and posters about a healthy tooth and tartar. Although present, they may not be utilized because some dental hygienists admitted to only using them when patients ask about them.

2.4. *Lecture*

As one dental hygienist put it, educating is often simply answering patient questions. Other dental hygienists mentioned that it is easier to talk to a patient than to show videos, use charts/posters or models because of the many time constraints and the fact that dental hygienists already highly multitask.

2.5. *Other*

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Models (such as a giant mouth and toothbrush, Mr. Gross Mouth, and puppets) are frequently used by dental hygienists. Hand mirrors are also a favored educational tool since they allow dental hygienists to demonstrate proper brushing and flossing technique, and to show the patient good oral health vs. bad oral health within their own mouth.

3.) What materials would you prefer to use while educating patients about their oral health?

Again, these discussion comments highlight the dental hygienists varied teaching styles, and their desire for diverse educational tools. As one dental hygienist nicely summarized, it is important to have a variety of educational tools available since each dental hygienist teaches different and each patient learns differently (for example, some cannot read), so to maximize patient education there must be an assortment of tools accessible.

3.1. Videos

Some dental hygienists were extremely adamant about having videos available since many were educated with the Kasey Educating System - a video based patient educating system. These dental hygienists also mentioned that patients have nothing else to look at during the appointment so there may as well be a video playing. Videos are also great because they spark questions that patients may not have thought of asking before. This leads to even more discussion and education than patients normally receive. Overall, videos would be ideal if the TV could be positioned so patients could watch it while they are leaning back in the chair (like a TV on the ceiling would do).

A concern over videos includes that there is not time to show the patient it because during the appointment they are leaning back in the dental chair and can't see the TV. Basically, the only time to show a video would be while medical history is being taken and entered, and while the patient waits for the doctor. This however is not enough time to show a whole video. Another concern some dental hygienists voiced was that the patients would not be able to listen to the video because the TV's in the hygiene room currently do not have speakers or access to sound. This problem will need to be addressed in the future. Also, when the appointment is over the dental hygienists must start cleaning the area for the next patient, so patients couldn't stay to watch a video even if they wanted too. A suggestion would be to show the video in the patient education room, but this may not work because often patients just want to leave after their appointment. Furthermore, videos may be too much for kids to follow and understand, especially with their limited attention span, and almost half of the patients seen in the Marshfield Clinic dental Centers are minors. In addition, it was mentioned that videos are annoying to use because they don't allow dental hygienists to talk to the patient, and because they force dental hygienists to listen to the same thing over and over. Lastly, one dental hygienist was concerned that the video would not be useful unless it was extremely user friendly. It will be important to work with the usability specialists to ensure the modules are easily accessible.

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3.2. Brochures

Some dental hygienists like to circle and highlight the information in brochures when they describe concepts so patients can easily refer back to the information at home.

Again, brochures would be utilized more if they were made available in patient hygiene rooms instead of in an obscure hallway.

3.3. Charts/posters

It was mentioned that it is really nice to have charts to help explain a concept to patients.

3.4. None

3.5. Other

Models and physical objects are the best for hands-on demonstrations, and it is believed by some dental hygienists that showing and physically illustrating what is being discussed is the best way to teach.

4) *Currently, we're creating video based educational modules that outline the connection between oral health and diabetes, cardiovascular disease, osteoporosis, and pregnancy. What other systemic health issues (if any) do you feel would also be important to include?*

I asked this question to determine what diseases patients in the Marshfield Clinic Dental Centers often present with, in order to include in the module the common diseases dental hygienists encounter.

Although dental hygienists consistently mentioned diabetes, cardiovascular disease and pregnancy as the major health conditions they educate on, they also listed other dental and medical health issues they commonly encounter. These include:

- Soda drinking
- High blood pressure
- Cancer – oral, lung, in general
- Generalized sexual transmitted infections (STI's)
- Drug use – especially methamphetamine
- Fibromyalgia
- Arthritis
- Baby bottle decay
- Diet

In order to assist dental hygienists as much as possible, it is vital to add these suggestions to the module in the future.

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5) *The current format for the video based educational module includes an introductory overview of periodontal disease followed by the connection between oral and systemic health. Would you recommend a different format?*

100% of dental hygienists replied ‘no’ to this questions, meaning they all believe it is very important to include an overview of periodontal disease before talking about the oral and systemic connections. Many dental hygienists explained the review is necessary because patients do not know what periodontal disease is. They explained many don’t understand the difference between oral problems, such as the difference between gingivitis and periodontitis. Once this information is presented and the link between oral and systemic health is made, then it would be appropriate to expand on the connection by talking about specific health conditions.

6) *What graphics would be best to include in the video based educational module?*

In general, most dental hygienists preferred real-life pictures, but some mentioned that cartoons would be necessary to include for children. This is important since periodontal disease can begin in childhood, and since children may have diabetes. It was suggested to then include cartoons in these sections of the module. However, other dental hygienists adamantly argued that cartoons should not be included because kids won’t watch the video anyway due to their limited attention span. Rather, the video should be tailored towards adults and real-life pictures would do just that.

Many dental hygienists also mentioned that animation would be very nice to include – especially an animation showing the bacteria entering the bloodstream and traveling through the arteries and causing various problems.

One dental hygienist feverously did not want flow charts included. Since the majority of my project includes flow charts, I took the liberty of ignoring this suggestion.

7) *How long would you like the video based educational module to last?*

Dental hygienist gave a range from 30 seconds to 30 minutes on how long they thought educational video should last. Since it is impossible to satisfy both extremes, I aimed to make my project meet the average time length stated by dental hygienist which was 5 to 10 minutes.

It was suggested that the video could play while the patient waits for the dentist, receives fluoride treatments, or when the hygienists is updating dental history into the computer.

Concerns over the length of the video included that dental hygienists still want to educate patients themselves after the video is over, but if it is too long they will not have the chance to do so. Also, if a video is too long patients won’t pay attention to it and that is a waste of valuable time that the hygienist could be educating patients directly.

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8) *If you used the video based educational module, would you still like a brochure about the oral and systemic disease connection that you could give to patients to take home?*

100% of dental hygienists answered 'yes' to this question, meaning they all would like brochures made about the oral and systemic disease connection. Some dental hygienists answered 'yes' because they believe the more senses stimulated, the better the patient will learn. Also, some patients like to take home information for clarification purposes and this would provide them the means to do so. In addition, some patients agree with dental hygienists or say they understand when really they don't, so it is nice to provide them with resources to really understand the information at home. Lastly, not everyone is computer literate so they may not be able to access the video at home to watch if they have any questions about the material.

Future Direction:

After the internship is over, the PowerPoint document will be converted into a video file, most likely by using QuickTime software. Dr. Acharya will then make the video files accessible to dental hygienists in a module format. The module will then be sent to the Marshfield Clinic Dental Centers as a file and/or DVD for them to use at their earliest convenience. The PowerPoint document will also be sent to the Dental Centers in order for dental hygienists to use the slides in a chart-like manner, or as handouts, as discussed previously.

Dr. Acharya will share the resources I used during the study with the dental hygienists if they ask for them.

In three months after delivering the module to the Dental Centers, a post-intervention survey will be administered to patients and dental hygienists to assess the usefulness of the patient education module. Based on the survey results, the patient education module will be modified to meet the needs, desires, and suggestions of those surveyed. The results from the pre-intervention and post-intervention survey will then be published in an abstract, paper, and/or poster.

Summary of Internship

Working as a CHIP intern this summer in the Biomedical Informatics Research Center in the Research Foundation of Marshfield Clinic under the supervision of my mentor, Dr. Amit Acharya, turned out to be an incredibly rewarding experience. The two projects I was assigned focused on integrating oral and systemic health. My undergraduate degree in Biomedical Sciences from Marquette University prepared me for the medical side of my projects, but I was largely unaware of anything dental prior to the internship. Thus, I was hesitant at first about the projects since they both incorporated a foreign field, but the vast amount of knowledge I gained relating to dental health has been an extremely gratifying aspect of the internship. For instance, the information I acquired about the oral

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and systemic health connections and the severe dental disparities in rural Wisconsin has transformed me into a dental advocate. I am excited to continue this passion throughout medical school and my future profession as a physician.

The first project I worked on included designing, distributing, and analyzing a survey that was administered to patients in the Marshfield Clinic Dental Centers. The goal of the survey was to determine what dental information (if any) Marshfield Clinic patients would like included in their free, online health portal, *My Marshfield Clinic*. Based on the survey results, the appropriate dental information will be developed and added to *My Marshfield Clinic* to meet patients' needs, requests, and suggestions. Another goal of this project was to create patient awareness of the health portal, so that more patients will utilize this great resource and access their personal health information and valuable health education materials at home.

The second project I worked on included designing a patient education module that dental hygienists will use while teaching patients about the correlation between oral and systemic health. This was an extremely important project since many patients are unaware of the connections between their oral and systemic health, and dental hygienists bear the majority of the responsibility for patient education, yet there are few educational tools they are able to use to help teach patients about this topic. In order to create a useful educational tool for dental hygienists that patients would be receptive too, I visited the Marshfield Clinic Dental Centers in Chippewa Falls, Ladysmith, Medford, Neillsville, and Park Falls and discussed my project with and interviewed the dental hygienists. These visits were immensely rewarding – not only because the dental hygienists provided invaluable feedback that helped me develop my project, but also because I discovered the great need for an education tool like the one I created, and I was able to witness the dental disparities of rural Wisconsin and use this knowledge to forever remain a dental advocate. The educational tool I ended up creating was a video that covered periodontal disease and how it affects cardiovascular disease, diabetes, respiratory disease, xerostomia, pregnancy and osteoporosis. This video will be played in the hygiene rooms on a TV patients can view from the dental chair. It will also be displayed in patient waiting rooms and be accessible online for patients to view in their homes. Since the video was created using PowerPoint, dental hygienists will be able to print off slides and use them as handouts, or just show a specific slide and use it to help explain a concept in a chart-like manner. Essentially, the educational tool can be adapted to meet individual dental hygienist teaching and patient learning styles. After implementation of the educational tool, patient awareness of the correlation between oral and overall health will surely increase, hopefully creating healthier mouths and bodies in northern Wisconsin.

Although my internship focused on the oral and systemic health connection and I did not work in a public health office, I was still able to learn about other areas of public health through the homework assignments, webinars, and interviews that were a requirement of the CHIP program. Through all these experiences I have developed a better understanding of the critical role public health plays in multiple aspects of our lives. I sincerely appreciate the opportunity to gain this knowledge and because of it, I now

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intend to specialize in primary care – a field where I can easily continue to support public health missions through practicing preventative medicine.

Working in Marshfield Clinic and visiting the Dental Centers also allowed me to experience rural medicine. Now knowing the severe health and dental disparities members of rural communities face, I am inclined to practice medicine in rural Wisconsin where I can serve an underserved and impoverished population like I always envisioned doing.

As mentioned before, I also intend on advocating for dental health in my future practice as well because of my internship experiences. Throughout the summer I learned the importance of integrating and networking the medical and dental fields for the betterment of patients. I also learned how as a culture we separate dental and medical health into distinct categories in everything from education to insurance. This certainly is a tragedy, especially since the two sciences are intimately intertwined. I am passionate to dispel the illusion that dental and medical healths are two distinct sciences because oral health can and does affect overall health and vice versa. Thus, by supporting dental health through preventative measures including education and regular dental appointments, I will also be supporting social justice and medical health in a cost-effective way. Only through the cooperation between medical and dental professionals and programs will the goal of practicing the best patient care be realized.

I am immensely grateful for the opportunity to work as a CHIP intern this summer. I will use the various knowledge I gained from my many positive experiences to better my future practice as a holistic, and public-health minded physician.

Appendix A – *My Marshfield Clinic Patient Portal Survey*

My Marshfield Clinic Patient Portal Survey

My Marshfield Clinic is a free online service available to Marshfield Clinic patients ages 18 and older. Through *My Marshfield Clinic*, you can access your personal health information and that of your biological or adoptive minor children. Your personal home page gives you an overview of your future appointments, health reminders, billing information and a wealth of information about your health. For more information about *My Marshfield Clinic*, please visit www.marshfieldclinic.org/mymarshfieldclinic/.

1. Age: _____
2. Sex: Male Female
3. Do you have access to the Internet? Where? [Check all that apply]
 - Home
 - Office
 - Library
 - School
 - Nowhere
 - Other: _____
4. Have you used *My Marshfield Clinic* before?
 - Yes No [If you selected 'No', skip to Question # 8]
5. What features of *My Marshfield Clinic* have you used? [Check all that apply]
 - Scheduling, rescheduling, or viewing a past/future appointment
 - Refilling a prescription
 - Paying a medical bill
 - Updating my insurance information
 - Reviewing a test result
 - Seeing my health summary
 - Accessing educational health information
 - Accessing patient forms and online services
6. How often do you use *My Marshfield Clinic*?
 - Daily Weekly Monthly Yearly Only once Never
7. How useful was *My Marshfield Clinic* in finding the information you needed or wanted?

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Not Useful 1 2 3 4 5 6 7 8 9 10
Very Useful

8. What reasons limit you from using *My Marshfield Clinic*? [Check all that apply]

- Lack of access to the Internet
- Security concerns
- Lost password
- Unable to view enough patient information to meet my needs
- Other: _____

9. Would you use *My Marshfield Clinic* if your concerns are met?

- Yes No Maybe

10. Would you feel comfortable using *My Marshfield Clinic* in a public area?

- Yes No Maybe

11. Would you feel comfortable using *My Marshfield Clinic* in a Clinic's patient waiting area if a secure touch-screen kiosk or computer was made available?

- Yes No Maybe

12. Currently, *My Marshfield Clinic* does not include dental information. Would you like it to access your dental information?

- Yes No Maybe

13. *My Marshfield Clinic* includes your health summary. What dental information would be important for you to view? [Check all that apply]

- | | |
|---|--|
| <input type="checkbox"/> Dental appointments (past and future) | <input type="checkbox"/> Dental allergies/adverse reaction |
| <input type="checkbox"/> Routine dental appointment reminders | <input type="checkbox"/> Pictures of full mouth x-rays |
| <input type="checkbox"/> Previous dental procedures | <input type="checkbox"/> Tooth chart |
| <input type="checkbox"/> Dental problem list | <input type="checkbox"/> Date of last dental visit |
| <input type="checkbox"/> Dental history | <input type="checkbox"/> Date of last full mouth x-ray |
| <input type="checkbox"/> List of medicines prescribed by your dentist | <input type="checkbox"/> Date of last fluoride treatment |
| | <input type="checkbox"/> None |
| | <input type="checkbox"/> Other: _____ |

14. *My Marshfield Clinic* includes information about disease prevention, early detection, and disease management. What important dental educational information would you like to be included? [Check all that apply]

- Proper brushing and flossing technique
- Cavities prevention
- Proper nutrition and diet
- Importance of community water fluoridation
- Periodontal/Gum Disease detection and management
- Role of oral health in maintaining overall general health
- None
- Other: _____

15. What reasons may limit you from using the dental educational information on *My Marshfield Clinic*? [Check all that apply]

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- None, I would access the dental educational information
- I would use other websites instead (WebMD, Wikipedia, Google, etc.)
- I would not view the information as reliable
- Other: _____

16. What level of dental health details would you like to be included in *My Marshfield Clinic*?

- As much information as possible
- A detailed summary
- A brief summary
- None

17. How would you like the dental educational materials presented? [Check all that apply]

- Videos
- Diagrams
- Text

If you have any questions or comments about the survey, please call Jennifer Ciske at 715-221-6430. Thank you for your time and opinions. Your responses will help improve My Marshfield Clinic. CF1

Appendix B – *My Marshfield Clinic* Front Desk Survey Information Sheet

My Marshfield Clinic Survey Information Sheet

*** Please make sure patients are 18 to 89 years old before asking them to partake in the survey. Only administer the survey to patients who fall in this age range***

You may use the following script or one like it when asking patients if they would be interested in taking our survey:

“Would you be interested in completing a brief anonymous survey about the health portal My Marshfield Clinic? Your answers will help develop integration of your dental information within My Marshfield Clinic.”

- If the patient says ‘yes,’ please ask him/her to return the completed survey to you. Reassure the patient that all answers will be kept confidential and that you will keep the completed survey in a secure envelop.
- If the patient says ‘no,’ please reassure him/her it is okay not to take the survey.

Some answers to potential patient questions:

- 1.) Do I have to take the survey?
 - a. No. The survey is voluntary. There are no rewards for completing the survey. There are no punishments either for not completing the survey.
- 2.) How long will the survey take?
 - a. Five to ten minutes
- 3.) Are my answers confidential?
 - a. Yes, it is an anonymous survey. Your name, address and other identifying information will not be included in the survey.
- 4.) What is the survey for?
 - a. The survey is designed to improve the health portal, *My Marshfield Clinic*, which is a free online service available to Marshfield Clinic patients ages 18 and older. Through *My Marshfield Clinic*, you can access your personal health information and that of your biological or adoptive minor children. Your personal home page gives you an overview of your future appointments, health reminders, billing information and a wealth of information about your health. If you have any further questions about the survey you can contact Jennifer Ciske at 1-6430.
- 5.) Do you want me to complete the survey even if I don’t know what *My Marshfield Clinic* is or have never used it?
 - a. Yes! Your responses will help improve *My Marshfield Clinic*.
- 6.) What is the code for on the bottom back page?
 - a. The code is a tracking number the surveyors are using to keep track of the surveys sent to each dental center. The tracking number will allow the

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surveyors to determine how many surveys are complete, incomplete, or lost. The tracking number cannot be traced back to you or your personal information in any way. The survey is anonymous.

7.) Do I have to fill it out now?

- a. Although we would prefer you to fill out the survey before your appointment, if you wish to fill it out after your appointment that is fine. Just make sure to turn in the completed survey at the front desk before you leave.

Please direct any comments or questions you don't know how to answer or don't feel comfortable answering towards me (Jennifer Ciske) by calling 1-6430.

Appendix C – My Marshfield Clinic Dental Manager Survey Information Sheet

My Marshfield Clinic Patient Portal Survey Dental Manager Informational Sheet

Enclosed are 250 paper surveys that will collect data about the health portal, *My Marshfield Clinic*. Currently *My Marshfield Clinic*, as you most likely know, only includes medical information. The survey will ask patients what dental information (if any) they would like to access in *My Marshfield Clinic*. Based on their answers, we will be able to develop and add the appropriate dental information to *My Marshfield Clinic* to meet their needs, requests and suggestions.

Thank you again for agreeing to be a site for the survey to be distributed. I ask that you only administer the survey for three weeks from the date that you received it. At the end of each week of administering the survey, I ask that you route to me (Jennifer Ciske) the completed surveys so data entry can begin. My routing number is ML8. I will call once a week to check on the progress of the survey and to see if you need anything, including more surveys, from our office, the Biomedical Informatics Research Center. During this time if any concerns arise, you would be able to call me at 1-6430 or e-mail me at ciske.jennifer@mcrf.mfldclin.edu. If you have any questions or comments, you would also be able to contact my mentor, Dr. Amit Acharya, at 1-6423 or acharya.amit@mcrf.mfldclin.edu.

I also would appreciate you passing along the information of the survey to the staff in the clinic who will need to know about it (secretaries, dental hygienist, etc.). We believe the survey would be best administered when the patients check in at the front desk. Enclosed is an informational sheet for the front desk assistants that they may find useful while administering the survey. This informational sheet includes a script/prompt and a question and answer section about the survey. We ask that the front desk assistants first verify the patient is 18 to 89 years old and then ask the patient if he/she would be interesting in taking a brief anonymous survey (it should only take five to ten minutes to complete). If the patient agrees to take the survey, he/she should be handed the survey and instructed to return it to the front desk when it is complete. The front desk should have a secure, confidential envelop where completed surveys are to be stored. If the patient has any questions during the survey we encourage them to contact me. My contact information is listed on the back of each survey.

Thank you again for your assistance. Your efforts are greatly appreciated.

Sincerely,

Jennifer Ciske
Biomedical Informatics Research Center Intern
ciske.jennifer@mcrf.mfldclin.edu
1-6430

Appendix D – Results from *My Marshfield Clinic* Patient Portal Survey

My Marshfield Clinic Health Portal Survey		
1.) Age		
Answer Options		Response Count
		10
	<i>answered question</i>	10
	<i>skipped question</i>	0
Number	Response Date	Response Text
1	Jul 27, 2010 1:37 PM	18
2	Jul 27, 2010 1:38 PM	45
3	Jul 27, 2010 1:39 PM	76
4	Jul 27, 2010 1:39 PM	41
5	Jul 27, 2010 1:40 PM	38
6	Jul 27, 2010 1:41 PM	46
7	Jul 27, 2010 1:41 PM	27
8	Jul 27, 2010 1:41 PM	52
9	Jul 27, 2010 1:42 PM	29
10	Jul 27, 2010 1:43 PM	35

My Marshfield Clinic Health Portal Survey		
2.) Sex		
Answer Options	Response Percent	Response Count
Male	30.0%	3
Female	70.0%	7
	<i>answered question</i>	10
	<i>skipped question</i>	0

My Marshfield Clinic Health Portal Survey		
3.) Do you have access to the Internet? Where? [Check all that apply]		
Answer Options	Response Percent	Response Count
Home	44.4%	4
Office	55.6%	5
Library	22.2%	2
School	0.0%	0
Nowhere	11.1%	1
Other (work)	11.1%	1
<i>answered question</i>		9
<i>skipped question</i>		1

My Marshfield Clinic Health Portal Survey		
4.) Have you used My Marshfield Clinic before?		
Answer Options	Response Percent	Response Count
Yes	50.0%	5
No	50.0%	5
<i>answered question</i>		10
<i>skipped question</i>		0

My Marshfield Clinic Health Portal Survey		
5.) What features of My Marshfield Clinic have you used? [Check all that apply]		
Answer Options	Response Percent	Response Count
Scheduling, rescheduling, or viewing an appointment	25.0%	1
Refilling a prescription	0.0%	0
Paying a medical bill	25.0%	1
Updating my insurance information	25.0%	1
Reviewing a test result	50.0%	2
Seeing my health summary	75.0%	3
Accessing educational health information	50.0%	2
Accessing patient forms and online services	25.0%	1
<i>answered question</i>		4
<i>skipped question</i>		6

My Marshfield Clinic Health Portal Survey		
6.) How often do you use My Marshfield Clinic?		
Answer Options	Response Percent	Response Count
Daily	0.0%	0
Weekly	28.6%	2
Monthly	14.3%	1
Yearly	28.6%	2
Only once	28.6%	2
Never	14.3%	1
<i>answered question</i>		7
<i>skipped question</i>		3

My Marshfield Clinic Health Portal Survey		
7.) How useful was My Marshfield Clinic in finding the information you needed or wanted?		
Answer Options	Response Percent	Response Count
1 (not useful)	0.0%	0
2	0.0%	0
3	0.0%	0
4	0.0%	0
5	0.0%	0
6	16.7%	1
7	16.7%	1
8	16.7%	1
9	16.7%	1
10 (very useful)	33.3%	2
<i>answered question</i>		6
<i>skipped question</i>		4

My Marshfield Clinic Health Portal Survey		
8.) What reasons limit you from using My Marshfield Clinic? [Check all that apply]		
Answer Options	Response Percent	Response Count
Lack of access to the Internet	57.1%	4
Security concerns	0.0%	0
Lost password	28.6%	2
Unable to view enough patient information to meet my needs	14.3%	1
Other (didn't know it existed)	28.6%	2
<i>answered question</i>		7
<i>skipped question</i>		3

My Marshfield Clinic Health Portal Survey		
9.) Would you use My Marshfield Clinic if your concerns are met?		
Answer Options	Response Percent	Response Count
Yes	88.9%	8
No	11.1%	1
Maybe	0.0%	0
<i>answered question</i>		9
<i>skipped question</i>		1

My Marshfield Clinic Health Portal Survey		
10.) Would you feel comfortable using My Marshfield Clinic in a public area?		
Answer Options	Response Percent	Response Count
Yes	30.0%	3
No	40.0%	4
Maybe	30.0%	3
<i>answered question</i>		10
<i>skipped question</i>		0

My Marshfield Clinic Health Portal Survey		
11.) Would you feel comfortable using My Marshfield Clinic in a Clinic's patient waiting area if a secure touch-screen kiosk or computer was made available?		
Answer Options	Response Percent	Response Count
Yes	77.8%	7
No	11.1%	1
Maybe	11.1%	1
<i>answered question</i>		9
<i>skipped question</i>		1

My Marshfield Clinic Health Portal Survey		
12.) Currently, My Marshfield Clinic does not include dental information. Would you like it to access your dental information?		
Answer Options	Response Percent	Response Count
Yes	70.0%	7
No	20.0%	2
Maybe	10.0%	1
<i>answered question</i>		10
<i>skipped question</i>		0

My Marshfield Clinic Health Portal Survey		
13.) My Marshfield Clinic includes your health summary. What dental history would be important for you to view? [Check all that apply]		
Answer Options	Response Percent	Response Count
Dental appointments (past and future)	88.9%	8
Routine dental appointment reminders	88.9%	8
Previous dental procedures	66.7%	6
Dental problem list	66.7%	6
Dental history	66.7%	6
List of medications prescribed by your dentist	44.4%	4
Dental allergies/adverse reaction	33.3%	3
Pictures of full mouth x-rays	33.3%	3
Tooth chart	33.3%	3
Date of last dental visit	77.8%	7
Date of last full mouth x-ray	55.6%	5
Date of last fluoride treatment	33.3%	3
None	0.0%	0
Other	0.0%	0
<i>answered question</i>		9
<i>skipped question</i>		1

My Marshfield Clinic Health Portal Survey		
14.) My Marshfield Clinic includes information about disease prevention, early detection, and disease management. What important dental information would you like to be included? [Check all that apply]		
Answer Options	Response Percent	Response Count
Proper brushing and flossing technique	62.5%	5
Cavities prevention	75.0%	6
Proper nutrition and diet	50.0%	4
Importance of community water fluoridation	37.5%	3
Periodontal/Gum Disease detection and management	75.0%	6
Role of oral health in maintaining overall general health	62.5%	5
None	0.0%	0
Other	0.0%	0
<i>answered question</i>		8
<i>skipped question</i>		2

My Marshfield Clinic Health Portal Survey		
15.) What reasons may limit you from using the dental educational information on My Marshfield Clinic? [Check all that apply]		
Answer Options	Response Percent	Response Count
None, I would access the dental educational information	88.9%	8
I would use other websites instead (WebMD, Wikipedia, Google, etc.)	0.0%	0
I would not view the information as reliable	0.0%	0
Other (don't have computer)	11.1%	1
<i>answered question</i>		9
<i>skipped question</i>		1

My Marshfield Clinic Health Portal Survey		
16.) What level of dental health details would you like to be included in My Marshfield Clinic?		
Answer Options	Response Percent	Response Count
As much information as possible	70.0%	7
A detailed summary	10.0%	1
A brief summary	10.0%	1
None	10.0%	1
<i>answered question</i>		10
<i>skipped question</i>		0

My Marshfield Clinic Health Portal Survey		
17.) How would you like the dental educational materials presented? [Check all that apply]		
Answer Options	Response Percent	Response Count
Videos	66.7%	6
Diagrams	55.6%	5
Text	77.8%	7
<i>answered question</i>		9
<i>skipped question</i>		1

Appendix E – Dental Hygienist Interview Patient Education Module

Dental Hygienist Interview Patient Education Module

- 1.) On average, how much time do you spend educating a patient about his/her oral health? _____

- 2.) What materials do you currently use to educate patients about their oral health?
[Check all that apply]
 - Videos
 - Brochures
 - Charts/Posters
 - Lecture
 - Other: _____

- 3.) What materials would you prefer to use while educating patients about their oral health? [Check all that apply]
 - Videos
 - Brochures
 - Chart/Posters
 - None
 - Other: _____

- 4.) Currently we're creating video based educational modules that outline the connection between oral health and diabetes, cardiovascular disease, osteoporosis and pregnancy. What other systemic health issues (if any) do you feel would also be important to include? [Check all that apply]
 - Chronic kidney disease
 - COPD/Respiratory diseases
 - Bulimia
 - HIV/AIDS
 - Xerostomia
 - None
 - Other: _____

- 5.) The current format for the video based educational module includes an introductory overview of periodontal disease followed by the connection between oral and systemic health. Would you recommend a different format?
 - Yes: _____
 - Maybe: _____
 - No

- 6.) What graphics would be best to include in the video based educational module?
[Check all that apply]
 - Real life pictures
 - Cartoons
 - Flow Charts
 - Animations
 - Other: _____

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7.) How long would you like the video based educational module to last? _____

8.) If you used the video based educational module, would you still like a brochure about the oral and systemic disease connection that you could give to patients to take home?

Yes

No

Maybe

Appendix F – Results from Dental Hygienist Patient Education Module Survey

Dental Hygienist Patient Education Module Survey		
1.) On average, how much time do you spend educating a patient about his/her oral health?		
Answer Options		Response Count
		16
<i>answered question</i>		16
<i>skipped question</i>		0
Number	Response Date	Response Text
1	Jul 7, 2010 3:42 PM	5 minutes
2	Jul 7, 2010 3:44 PM	Varies
3	Jul 7, 2010 3:45 PM	5 to 10 minutes
4	Jul 12, 2010 1:31 PM	5-10 minutes
5	Jul 12, 2010 1:32 PM	15 minutes
6	Jul 12, 2010 1:35 PM	5 to 10 minutes
7	Jul 12, 2010 1:36 PM	Varies
8	Jul 12, 2010 1:36 PM	10 to 15 minutes
9	Jul 12, 2010 1:39 PM	Varies
10	Jul 15, 2010 4:44 PM	Varies- talk throughout the appointment so maybe around 20 minutes
11	Jul 15, 2010 4:46 PM	varies - few minutes to throughout the appointment
12	Jul 16, 2010 2:37 PM	10 to 15 minutes
13	Jul 16, 2010 6:19 PM	10 minutes
14	Jul 16, 2010 6:21 PM	throughout the appointment (30 minutes)
15	Jul 16, 2010 6:22 PM	throughout the appointment (30 minutes)
16	Jul 16, 2010 6:23 PM	5 to 10 minutes

Dental Hygienist Patient Education Module Survey		
2.) What materials do you currently use to educate patients about their oral health? [Check all that apply]		
Answer Options	Response Percent	Response Count
Videos	43.8%	7
Brochures	75.0%	12
Charts/posters	62.5%	10
Lecture	68.8%	11
Other (mouth/tooth model, toothbrush model, hand mirror, puppet)	56.3%	9
<i>answered question</i>		16
<i>skipped question</i>		0

Dental Hygienist Patient Education Module Survey		
3.) What materials would you prefer to use while educating patients about their oral health? [Check all that apply]		
Answer Options	Response Percent	Response Count
Videos	68.8%	11
Brochures	37.5%	6
Charts/posters	43.8%	7
None	0.0%	0
Other (Models, mirror, something 3D and physical)	43.8%	7
<i>answered question</i>		16
<i>skipped question</i>		0

Dental Hygienist Patient Education Module Survey		
4.) Currently we're creating video based educational modules that outline the connection between oral health and diabetes, cardiovascular disease, osteoporosis and pregnancy. What other systemic health issues (if any) do you feel would also be important to include? [Check all that apply]		
Answer Options	Response Percent	Response Count
Chronic Kidney Disease	12.5%	2
COPD/Respiratory diseases	62.5%	10
Bulimia	12.5%	2
HIV/AIDS	12.5%	2
Xerostomia	75.0%	12
None	6.3%	1
Other (soda drinking, blood pressure, transmissible oral diseases, generalized STI's, cancer, fibromyalgia, arthritis, drug use (methamphetamine), baby bottle decay, diet/nutrition)	62.5%	10
<i>answered question</i>		16
<i>skipped question</i>		0

Dental Hygienist Patient Education Module Survey		
5.) The current format for the video based educational module includes an introductory overview of periodontal disease followed by the connection between oral and systemic health. Would you recommend a different format?		
Answer Options	Response Percent	Response Count
Yes	0.0%	0
Maybe	0.0%	0
No	100.0%	15
<i>answered question</i>		15
<i>skipped question</i>		1

Dental Hygienist Patient Education Module Survey

**6.) What graphics would be best to include in the video based educational module?
[Check all that apply]**

Answer Options	Response Percent	Response Count
Real life pictures	80.0%	12
Cartoons	33.3%	5
Flow Charts	53.3%	8
Animations	46.7%	7
Other (graphs)	6.7%	1
<i>answered question</i>		15
<i>skipped question</i>		1

7.) Dental Hygienist Patient Education Module Survey		
How long would you like the video based educational module to last?		
Answer Options	Response Count	
	15	
<i>answered question</i>	15	
<i>skipped question</i>	1	
Number	Response Date	Response Text
1	Jul 7, 2010 3:42 PM	Less than 5 minutes
2	Jul 7, 2010 3:44 PM	Less than 5 minutes
3	Jul 7, 2010 3:45 PM	3 to 5 minutes
4	Jul 12, 2010 1:31 PM	30 seconds to 1 minute
5	Jul 12, 2010 1:35 PM	1 to 2 minutes
6	Jul 12, 2010 1:36 PM	30 minutes
7	Jul 12, 2010 1:36 PM	10 minutes
8	Jul 12, 2010 1:39 PM	If cover the material well, time doesn't matter
9	Jul 15, 2010 4:44 PM	15 to 20 minutes
10	Jul 15, 2010 4:46 PM	few minutes
11	Jul 16, 2010 2:37 PM	10 minutes
12	Jul 16, 2010 6:19 PM	5 minutes
13	Jul 16, 2010 6:21 PM	5 minutes
14	Jul 16, 2010 6:22 PM	7 to 10 minutes
15	Jul 16, 2010 6:23 PM	5 minutes

Dental Hygienist Patient Education Module Survey		
8.) If you used the video based educational module, would you still like a brochure about the oral and systemic disease connection that you could give to patients to take home?		
Answer Options	Response Percent	Response Count
Yes	100.0%	15
No	0.0%	0
Maybe	0.0%	0
<i>answered question</i>		15
<i>skipped question</i>		1