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# Developing Inter-Professional Oral Health Education: An Evaluation of Educational Resources

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Developing Inter-Professional Oral Health Education:

An Evaluation of Educational Resources

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## **Executive Summary**

To study the impact of a novel use of learning modules developed for family practice residents for first-year dental students. A program evaluation was developed at the University of the Pacific Arthur A. Dugoni School of Dentistry (UOP) to evaluate the knowledge and confidence levels of first-year dental students. These dental students would have only been in dental school for about two weeks and have very little to no experience working with patients in a dental setting prior to entering dental school. The study provided two learning modules presented by Smiles for Life, focusing on the following topics: Child Oral Health, and Oral Health in the Pregnant Patient. The topics focused on areas of oral health examination skills and oral health education. The study was presented in two phases over the course of one week. During phase 1, students were to complete a pre-test and learning modules within a 7-day period. A pre-test survey was administered to the students to measure their existing knowledge and confidence levels on the given subjects, and whether or not they have had experience working with children and pregnant patients within a dental setting. During phase 2, a post-test survey was presented a week after the pre-test to determine their change in knowledge and confidence levels. Pre and post-test surveys were analyzed against each other to determine any changes in knowledge and confidence levels between individual students. Evaluations were also provided at the end of each post-test survey to determine the effectiveness of the learning modules and what other areas of oral health students would like to learn about.

Based on the findings, students demonstrated poorly on the conceptual and analytical questions, but performed well with objective questions on the pre-test. After introducing the learning modules, the students' post-test demonstrated an increase of 20 to 50 percent. The increase in the number of questions that were originally missed indicates a change in knowledge after presenting the learning modules. Additionally, students' confidence levels have increased from 20 to 60 percent. Students felt more confident to providing oral health education to young children and their parents/caregivers on the importance of good oral health than performing oral examinations on infants and toddlers. Similarly, students felt more confident in their ability to provide education than to identifying early signs of oral conditions related to pregnancy in dental patients. Comparing the students' performances on both learning modules, it was interesting to see that the overall students performed better in the Child Oral Health module than the Oral Health in the Pregnant Patient. Students demonstrated a greater percentage of questions answered correctly in the pre-test of the Child Oral Health learning module and a 20-50 percent increase in questions answered correctly on the post-test. There performance relatively corresponds with the higher percentage of students having previously worked with young children in dental settings than pregnant or nursing patients. Using the learning modules improved students' knowledge and confidence. Thus, this study is the first step to implementing inter-professional education.

**Agency Background:**

The setting of the capstone project will be conducted at the University of the Pacific Arthur A. Dugoni School of Dentistry (UOP). The dental school is located at the heart of downtown San Francisco, on Fifth and Mission. It provides oral health services throughout the city as well as other cities within California. The dental school is both an academic facility and a community dental clinic. Founded in 1896, the school was called The College of Physicians and Surgeons (Dugoni School of Dentistry, 2015). It offered its communities pharmaceutical and medical care until it adopted dentistry in 1918, discontinuing its medical and pharmacy school (Dugoni School of Dentistry, 2015). By 1923, The College of Physicians and Surgeons restructured its institute to adopt the American Dental Association (ADA) dental school provisions and has since then focused its mission to providing quality dental care to its communities (Dugoni School of Dentistry, 2015). The College of Physicians and Surgeons was later adopted by the University of the Pacific in 1962 and renamed the University of the Pacific School of Dentistry, until 2004 when the school was renamed the University of the Pacific Arthur A. Dugoni School of Dentistry; after its dean for serving 28 years of dental education to the school (Dugoni School of Dentistry, 2015). It has since then adopted new methods of dental practices and comprehensive patient care models to promote its vision to advance the values of oral health.

The school's mission is to train future providers through scientifically based practices that promote individual potential and "defines a new standard for education" (Dugoni School of Dentistry, 2015). They seek to promote new

knowledge of dental practices and improve standards of identifying the needs of the community. They value being the leading innovators of oral health, providing humanistic and collaborative approaches to patient care. Demonstrating their strong sense of stewardship and philanthropy, they reflect on their principles and morals to provide its community quality dental care (Dugoni School of Dentistry, 2015). UOP's community dental clinics provide a variety of dental practices from caries management to oral surgical practices, and from primary patient practices to special population treatment. Primarily offering its services to communities with dental or medicaid, the clinics serve a large population of patients varying from different spectrums of socioeconomic statuses and communities challenged with different social determinants. Its services extend past the Bay Area and throughout different regions within California. Extending its services through their outreach programs in clinics such as Laguna Honda Rehabilitation Center and OnLok Senior Health Centers, UOP provides the convenience of oral health treatment within their patients' respective facilities.

### **Literature Review:**

Beyond primary practice, inter-professional education seeks to influence the flow of knowledge between healthcare providers to collaborate on the bases of improving the quality of patient care. It is a cross-educational learning tool that blends the data, information, methods, tools, concepts and theories collected from other disciplines to convey and generate new knowledge (American Association of Colleges of Nursing, 2015). Inter-professional education bridges the gap between unmet needs and healthcare by providing the necessary tools to address these

issues, maximizing the abilities of healthcare services and enabling them to function at their highest capacity (WHO, 2010). The shared efforts of inter-professional education identifies that both health and educational systems should reflect on the needs and aspirations of the communities (WHO, 2010). Recognizing the limitations of each discipline, it introduces comprehensive approaches that expand knowledge and understanding of complex issues beyond the primary scope of practice.

Developing a system that incorporates recognition of ambiguity and bias among collaborative professions integrates critical thinking and acknowledgement of ethical concerns. Furthermore, knowledge collected from different professions promotes holistic patient care. Facilitators are responsible for evaluating and analyzing the outcomes of an interdisciplinary approach to ensure that “collaboration is enhanced, the delivery of care is facilitated, and patient outcomes are improved” (American Association of Colleges of Nursing, 2015). Inter-professional education ultimately promotes advancement within healthcare.

According to the American Psychological Association (APA), the collaborative sharing of information relevant to the patient between providers establishes “a comprehensive treatment plan to address the biological, psychological, and social needs of the patient” (2015). In the present study, inter-professional education demonstrates significant collaboration between different branches of healthcare.

The following literature review attempts to analyze the elements of inter-professional education for future implementation of oral health education into various disciplines. The literature review will provide an overview of its application within patient care settings. Additionally, the literature review will also examine the

competency and appreciation of inter-professional education by other disciplines. Focusing on these key points will demonstrate how implementation of inter-professional education can allow health professionals to work collaboratively with other fields of healthcare.

**Context:** Traditionally, professions are taught within their own disciplines.

Professions generally study concepts and clinical practices pertaining to their field of specialty. Compared to an inter-disciplinary model, professions work individually, instead of as a collaborative team (American Association of Colleges of Nursing, 2015). Though each health profession has a significant amount of knowledge and is well respected within the healthcare system, individual disciplines often lack qualities of other professions that may assist in providing better care to patients (World Health Organization, 2015). Additionally, rather than looking at a patient from the perspective of other professions, formal education focuses on only one aspect of patient care (American Association of Colleges of Nursing, 2015). Inter-professional education expands the knowledge of the professions. According to the American Psychological Association (2015), inter-disciplinary health care is an approach that integrates the collaboration and communication of health professionals. Merging clinical practices used by other health professions can develop a comprehensive approach to providing clinical care. According to the American Association of Colleges of Nursing (2015), evidence-based practices of inter-disciplinary care have proven to increase the knowledge and attitudes of different professions. Ultimately, blending various clinical practices seeks to improve the delivery of patient care. Although further analysis is required to



demonstrate how applying inter-professional education can benefit other health professions, inter-professional education has the potential to improve the quality of patient care.

**Need For Study:** Being the leading advocates of oral healthcare, dentists are considered society's primary caretaker in oral hygiene. However, in parallel with medicine, dentistry faces an inflation of patients as the implementation of the Affordable Care Act allows access to healthcare for more and more people (Medicaid.gov, 2015). As a result, pressure is placed upon dentists to accommodate new populations. Rather than tending to their typical communities, dentists are experiencing a new wave of patients ranging from all areas of disparities and disabilities with a combination of low income to mental or behavioral health issues. At the University of the Pacific Arthur A. Dugoni School of Dentistry, patients are provided oral healthcare through the school's community clinic offered by their student dentists. During their first year in dental school, students are taught how to address and communicate with patients and their concerns, collect patient information, and prepare them for treatment (Dugoni School of Dentistry, 2015). Their values are focused on patients as a whole rather than as an individual. But because incoming students would have only just entered dental school, many will have very little to no experience working with patients or different types of patients within a dental setting. Thus, future implementation of inter-professional education is recommended to expand dental education. Integrating learning modules developed for family practice residents will determine if introducing topics of

children and pregnant patient oral health will have a significant impact on their knowledge and confidence to care and educate for these patients.

### **Inter-Professional Practice Within Clinical Care:**

While conventional health care disciplines center their ideals and commitment towards patient care within their own profession, the scope of healthcare mandates that health professions work collaboratively to exemplify their shared common and primary commitment to serve patients and their ideals of health for all (American Association of Colleges of Nursing, 2015). However, part of the profession as oral health practitioners is to promote oral health through disease prevention. Often times, promotion of preventative factors require oral health practitioners to promote their profession to other health disciplines to encourage awareness of oral diseases. Multidisciplinary collaboration is established through understanding and appreciation of the responsibilities that each profession offers (American Association of Colleges of Nursing, 2015). Sharing knowledge of clinical practices and skills of different disciplines can institute a holistic approach to healthcare. Similarly, facilitating collaboration between different professions to adopt clinical practices and knowledge from other professions promotes the implementation of preventative care. Among the most common inter-professional practices taught to other health professions is early childhood caries (ECC). ECC is one of the most common initiatives used in inter-professional oral health education. ECC encompasses universal knowledge that has been widely integrated among various professions for early screenings of cavities among young children. Primary

care providers are in a unique position where they are able to carry out assessments, interventions, education and referrals for children with caries (Kagihara, 2009). Practicing clinical skills beyond a profession of any discipline improves the ability of health providers to sufficiently assess, consult, refer, and provide service to patients (Golinveaux, 2013). Considerably, introducing knowledge of ECC crosses the line between professional and conventional practices by proposing the use of multiple disciplinary skills to screen for early preventative conditions. Although potential barriers such as the lack of knowledge or confidence may prevent professions from providing the appropriate health care service, inter-professional education can still influence knowledge to be shared driving health care teams to collaborate on the bases of improving the quality of patient care (Golinveaux, 2013).

Implementation of inter-professional education has the potential to improve the knowledge and competency of providers, it utilizes the clinical practices and theories derived from other health professions to strengthen the overall practice. To strengthen clinical practices, professions are often encouraged to certify in management, and preventative guidance (Kagihara, 2009). However, because many facility's lack emphasis of oral health and clinical reports indicating the prevalence of caries among their children, implementation of inter-professional education on ECC seeks to strengthen the integration of oral health prevention for children into a clinical, medical educational facilities (Graham, 2003). Providing the necessary learning tools to help professions identify the signs of ECC as well as the background knowledge to provide oral health education and referrals improves preventative

practice outside the scope of oral practitioners. Thus, implementing an inter-professional service identifies the gaps within facilities (Graham, 2003).

Integration of inter-professional education is a collective method that incorporates the foundational backgrounds of various professions. Introducing inter-professional education of oral health concepts to other workforces within healthcare facilitates similar opportunities for approaching patient care outside of clinical practices. It provides the basic skills and knowledge that can develop a comprehensive health service with a wide range of health care expertise (WHO, 2010). Introducing inter-professional education beyond the typical profession of providers and promoting the constructs among other focuses of health services recognizes the number of healthcare workforces who are unfamiliar of the importance of oral health factors. Stakeholders of healthcare workforces, such as caretakers, are significant contributors when analyzing patient care as a whole and outside of clinical care. Introducing inter-professional education focusing on the importance of various aspects of oral health aims to increase the awareness, knowledge, and skills of caretakers for patient care (Khanagar, 2014). It is essential that as healthcare continues to evolve, strategies to patient care be enhanced. Promoting quality patient care outside the scope of clinical care exemplifies the significance of patient oral health. It is anticipated that healthcare workforces outside the practice of oral health would have very low competence of the importance of oral hygiene. However, equipping healthcare workforces with the appropriate educational tools to assist or enable their patients' oral health can be advocated through introduction of oral health management (Khanagar, 2014)

Implementing comprehensive programs equipped with new practices on oral health care can be implemented within organizational policies or personal care practices (McNally, 2014). Conducting shared knowledge between the different branches of healthcare workforces enhances the ability of those who may lack the necessary skills to care for the community. It identifies the gaps that exist between clinical practices and policies that prevent changing practices and policies into planned actions (McNally, 2014). Because healthcare workforces lack the knowledge or skills to identify the potential risk factors affecting their patients, implementing the necessary tools to address these issues maximizes the abilities of healthcare workforces to function at their highest capacity (WHO, 2010). The shared efforts of inter-professional education identifies that both health and educational systems should reflect the needs and aspirations of the communities (WHO, 2010). All health care disciplines share a similar responsibility and commitment to providing health services to their patients and work towards the ideal health for their communities (American Association of Colleges of Nursing, 2015). Sharing knowledge beyond the scope of clinical care expands the responsibilities of healthcare providers to other healthcare workforces, addressing the needs to coordinate the delivery of health care.

### **Perceived Attitudes and Behaviors:**

Applying education and practice experiences forms a socialized system where multiple professions can work together towards a common goal. Just as oral health practitioners expand their influence of preventative ECC to a wider range of

professions, they share a common ambition to promote primary prevention among young children. It establishes understanding and appreciation of the responsibilities that each profession brings to the table, facilitating unique approaches to patient assessments, diagnosis, treatment planning, interventions and evaluations (Mabry & Mosca, 2006). Implementing inter-professional education recognizes the attitudes, values and behaviors of other professions to improve oral health outcomes through activities that foster collaborative approaches towards patient care (Mabry & Mosca, 2006). Underlining key concepts of clinical practices and theories acknowledge the significance of collaborative practices to provide comprehensive care. Applications of inter-professional education facilitate mutual appreciation and understanding between members of different health professions (Robertson, 1995). Although, the atmospheres in which the professions respectively practice in are different, other disciplines are able to adopt methods of critical thinking, knowledge, and perspectives towards clinical practices.

Competency and appreciation centers around a collaborative practice. Thus, competency and appreciation can be achieved by providing experiences that reflect the appropriate levels of competency for a collaborative practice (Grymonpre, 2010). Inter-professional education in conjunction with interactive experiences facilitates opportunities where participants can learn hands-on of the skills and practices of different professions, enforcing attitudes and behaviors of inter-professional collaboration (Grymonpre, 2010). Advocating a method that seeks to improve the quality of patient care through enhancing the knowledge of health care providers develops an inclusive care system that better equips health care providers

with new skills, knowledge, and an opened mindset to developing quality patient care. Additionally, providing effective learning tools to facilitate learning can influence knowledge and collaborative approaches between professions to promote a standardized health-related message to the community (Yamani, 2014). Utilizing the values and objectives of different professions as learning tools strengthens the understanding of the roles and responsibilities of individual professions.

Understanding the practices and objectives of different disciplines improves the skills and self-confidence of individuals increasing the desire of caring and the quality of patient care (Yamani, 2014). Providing the necessary learning tools to students of health professions has a significant impact to their knowledge and confidence in administering additional services to patients, which may also improve strategies of primary prevention. A comprehensive approach for health care services seeks to promote collective practices of patient care that can potentially expand areas of primary care and early prevention.

### **Inter-Professional Education and the Objectives of Patient Care:**

Aside from the attitudes and behaviors of health providers towards the integration of inter-professional education, determining its effectiveness depends on the level of impact it has on patient outcomes. It is an important variable to consider since the objective of implementing inter-professional education was to provide comprehensive patient care. A change in professional practices and service delivery reflects the impact of inter-professional education on patient outcomes (Clifton, 2006). Considering that all professions have a common ambition to provide

quality patient care and exemplify their ideals of health for all, professions sympathize that all providers are working together on a common goal. Understanding that although each may specialize within a different discipline or part of the body, patient care must be seen as a whole rather than as individual parts. Working collaboratively, health professions of all disciplines must facilitate a flow of knowledge between each other to share innovative treatments or methods of patient care to continuously enhance the quality of care provided. Additionally, analyzing changes in efficiency of multi-disciplinary collaboration to develop appropriate and collective treatments are essential to improving clinical practices and action plans towards the standard of care (Clifton, 2006). Although clinical practices may vary among professions, facilitating an efficient multi-disciplinary team-base approach to enhancing the standard of patient care requires cooperation. Considerably, developing an effective collaborative professional practice is necessary to providing a patient-centered service (Clifton, 2006). Providers contributing to a multi-disciplinary intervention must share common values to implementing an inter-professional curriculum (Ching, 2015).

### **Practicing Inter-Professional Skills and Promotions:**

Because inter-professional education strengthens the ability of primary providers to diagnose health conditions outside their scope of practice, providers are expected to confidently provide assessments, interventions, and referrals using the clinical skills and information taught by inter-professional materials.

Preventative practices constitute for majority of a patient's treatment plan. Primary



care practitioners become an initial provider to offer anticipatory guidance and oral health education to parents/guardians and young children (Kagihara, 2009). Topics of early childhood caries (ECC) or maternal oral health (MOH) are widely used among a variety of practitioners when introducing oral health preventative factors. The onset of ECC is a preventable and reversible chronic disease, yet left untreated may result in pain, bacteremia, high treatment expenses, reduced development, speech disorder and premature tooth loss (Kagihara, 2009). Additionally, MOH encompasses concepts of maintaining a mother's oral hygiene during pregnancy and a risk factor when considering the health of the unborn child (National Maternal and Child Oral Health Resource Center). Primary practitioners along with many other health professions on the frontline play an essential role in preventative care. Providing appropriate assessments, diagnostics and care management of a disease to introduce inter-professional courses are necessary steps to take when considering the quality of patient care. Arguably, inter-professional education of oral health does not train practitioners to the extent of the specialist, however, it provides the appropriate learning tools to screen and educate patients on the importance of oral hygiene. Practicing the learning tools and understanding the objectives of the profession increases the flexibility of providers to administer a comprehensive health service.

### **Target Population:**

At the University of the Pacific Arthur A. Dugoni School of Dentistry, a total of 138 incoming first-year students participated in the study. Of the incoming first-

years, there are 93 males and 45 females. Underrepresented minorities (URM) including Black/African-American, American Indian/Alaska Native, and Hispanic/Latino students made up 5 percent of the overall class of 2018. Of the overall first-years of 2018, 36.2 percent were White, and 55.7 percent were Asian/Pacific Islanders. 88.4 percent received an undergraduate degree and 2.1 percent received higher educational degree. Majority of the students had received an undergraduate degree in biological/life sciences or chemical/physical sciences. 51.4 percent of first-year students had earned a degree in biological sciences and 11.6 percent earned a degree in chemical/physical sciences. Additionally, another 3.6 percent received a degree in other sciences and 7.9 percent had received a degree in dentistry or dental hygiene. In contrast, 6 percent received a degree in business/economics and 15.9 percent received degrees in other majors.

Dental schools are growing ever more larger with the more students they accept. Schools must continuously develop curriculums and experiences that will continue to challenge their students to better prepare them for dental practices outside of school (Mofidi, 2003). Because many of the incoming students would have had very little to no experience working with patients or different types of patients within a clinical environment, the intervention would provide essential knowledge and skills to care for the populations that they will encounter during their clinical practices. As dental students begin to encounter more and more patients, they begin to develop an awareness of the different social determinants that challenge their patients. By providing them the appropriate learning tools to prepare them will improve their overall experience with different patients. In the

following study, students wrote a reflection essay based on a self-defined critical incident that occurred during their clinic rotations (Mofidi, 2003). The study sought to understand the learning outcomes and perceived benefits of the students' experiences within a community-based clinic by analyzing their critical incident essays documented after their rotations within public health clinics, special needs facilities, hospitals, and correction institutions. Based on the reflections, the students' demonstrated an increased appreciation of professional identity and the responsibilities they played as dentists within these community clinics. The study concluded that analyzing the students through "real world" experiences combined with their reflections facilitates the skills, knowledge, values, and attitudes that are essential for dentists to be successful within today's compelling healthcare environment (Mofidi, 2003). Thus as real clinical experiences encourage students to develop their own morals and ethics about the upcoming populations, future introduction of inter-professional educational curriculums will enforce their knowledge and expectations of real-world clinical practices, better preparing them as future dental practitioners.

### **SWOT Analysis:**

The University of the Pacific School of Dentistry is a well-established university with an enriched dental program dedicated to emphasizing quality oral health within patient care. Their community clinic offers extensive dental care treating patients from different spectrums of society. Students entering the dental school participate in an Integrated Clinical Science Workshop (ICS I Workshop) during their first year in addition to the core curriculum. Students learn strategies to

addressing patient concerns as well as presenting oral health education. Because their workshop is taught in the dental clinic, the students and faculty are accessible and available. During their first semester as new students, they practice their skills to introduce oral health education. Their workshop provides a great opportunity to introduce learning modules to increase their knowledge and confidence levels to providing education and practicing oral healthcare focusing on children and pregnant patients.

However, potential obstacles such as time restraints, conflict of interests, and limited existing surveys available to measure their changes in knowledge and confidence, strategies must be implemented to overcome these challenges. Because the first semester does not begin until the beginning of July, there will only be two months available to implement the intervention and collect the data before the capstone project is to be completed. Preparations for the intervention must be complete and ready to be administered before the start of the semester.

Additionally, because the intervention is implemented within a university setting and data will be collected, faculty members want to keep the identifications of the participating class confidential and not published into USF's records. Lastly, with the limited amount of existing surveys available testing for knowledge and confidence of oral health material, a template of what should be analyzed must be determined to guide the focus of the intervention.

See Appendix A for SWOT Analysis.

**Problem Statement:**

This fieldwork project is to evaluate first year dental students on the impact of introducing an educational curriculum originally developed for family practice residents. The study will present two learning modules provided by Smiles for Life: Child Oral Health, and Oral Health in the Pregnant Patient. Based on the learning modules, a survey will measure the students' change in knowledge and confidence levels to provide oral health education and screenings to these populations. At the University of the Pacific Arthur A. Dugoni School of Dentistry, dental students provide oral health services through the school's community dental clinic located at the school and throughout San Francisco. During their first year, students are focused on patient communications, emphasizing on communication skills and humanistic viewpoints (Dugoni School of Dentistry, 2015). During their second and third year, students are focused on clinical skills and patient care, emphasizing on a variety of areas of dental practices, technical skills, treatment planning, and oral health education (Dugoni School of Dentistry, 2015). However, this intervention will be presented to incoming first-year students. Students entering their first year may have had very little to no experience working with patients or different types of patients within a dental setting. These learning modules will be essential to providing introductory information on oral health education and screening skills to children and pregnant patients.

Because the Affordable Care Act expands the coverage of health insurance by lowering the cost of health care and guaranteeing more choices of health insurances, millions of Americans who could not afford health insurance are now given access to healthcare (Medicaid.gov, 2015). Though the advancement of providing Americans a

universal healthcare where health treatments are provided to everyone is of utmost importance, it increases the need for providers to accommodate for the new generation of patients. These patients come from a variety of backgrounds and may be challenged with a combination of disparities that may limit new student doctors from providing the necessary attention and care. Patients ranging from all areas of disparities and disabilities with combinations from low income to mental or behavioral health issues may require different approaches or cooperation from dentist to provide the appropriate treatment. Thus, future integration of an inter-professional educational learning module to the dental students' first-year curriculum will have an impact on their abilities to care and educate these new patients.

### **Goals/Objectives:**

- **Goal 1:** To evaluate the effectiveness of the learning modules: Child Oral Health and Oral Health in the Pregnant Patient, on 1<sup>st</sup> year dental students.
  - **Objective 1:** Students will be given evaluation questions about the effectiveness of the learning modules
- **Goal 2:** To measure the changes in knowledge and confidence levels to provide education and practice clinical skills on patients before and after students have been provided the learning modules.
  - **Objective 1:** Students will be given a pre-test to measure their existing knowledge and confidence levels on the given learning modules

- **Objective 2:** 2 learning modules: Child Oral Health and Oral Health in the Pregnant Patient, will be administered to the students after completing the pre-test.
- **Objective 3:** Students will be given a post-test to measure their change in knowledge and confidence
- **Objective 4:** Students' individual pre and post-test will be compared against each other to determine any changes in knowledge and confidence levels.

### **Methods:**

This study sought to better understand whether presenting learning modules originally developed for family practice residents, focusing on the oral health of children and pregnant patients were appropriate curriculums to introduce to first-year dental students. The study tried to determine whether their existing knowledge and confidence levels were related to any prior experiences in dentistry before entering dental school. The study sought to relate the students' improved knowledge and confidence levels to potential future implementation of an inter-professional education curriculum.

The evaluation tools used in the study were a pre-test survey, post-test survey and two learning modules provided by Smiles for Life: Module 2 – Child Oral Health and Module 5 – Oral Health in the Pregnant Patient. The pre and post-test questions focused on gathering evaluations of the students' existing and improved knowledge and confidence to present the materials taught by the learning modules.

The knowledge questionnaires asked a series of questions from the two learning modules, which focused on materials of oral health examinations, and oral health education. In addition, the confidence questionnaires asked several questions evaluating the level of confidence to present the information and perform the clinical skills taught by the learning modules. In the pre-test, a prior experience question was added to determine whether or not a student has had experience working with the specific population before entering dental school. The purpose of including a prior experience question is to determine whether it has any relation on the students' existing knowledge and confidence levels. In the post-test, evaluation questionnaires assessed the students' behaviors towards the two learning modules. The purpose of the evaluation questionnaires were to provide feedback from the students on whether they felt the information provided by the learning modules were useful and informative. The data from both the pre and post-test were collected and analyzed through qualtrics. Qualtrics presented the results as statistical data to determine the relations of the pre and post data, and prior experience data and pre-test data. Qualtrics also provide statistical data on the evaluation to determine how useful and informative the materials were to the students. An additional evaluation question was added at the end of module 5's post-test asking what other areas of oral healthcare students would like to learn more about.

The students were organized into groups of eighteen to attend their ICS I Workshops. Two groups attended their workshop each week over the course of four weeks. One group attended the workshop at 9:00 am and the other group attended



the workshop at 11:00 am. However, the study organized two groups of eighteen into one group; giving a total of four groups. Professor Miller administered and made the pre-test survey and two learning modules available to the first set of students on Monday, a week before their post-test survey. The students took the pre-test and read the learning modules within a 7-day period through Sakai, their collaborative learning system. The two learning modules were accessible after the students have completed their pre-test. After the 7-day period, the post-test survey was administered and made available to the first set of students through their student email. Dr. Jue and I facilitated the post-test at the beginning of the class. The post-test survey was taken within a twenty-minute timeframe. Upon completion of each test, students received 5 extra credit points added to their ICS I Workshop grade for each test. After the students had completed the post-test, Dr. Jue conducted her class to develop an oral health presentation caring for children's oral hygiene. The data submitted by the pre and post-test was collected through qualtrics after each student completed a test. Qualtrics organized the collected results allowing Professor Rogers and I to analyze the statistical data to compare the results of different variables.

Originally, three learning modules were incorporated into the study, Module 2 – Child Oral Health, Module 5 – Oral Health in the Pregnant Patient, and Module 7 – Oral Examination. Each module's pre-test had a series of thirty questions: ten knowledge, ten confidence and ten prior experience questions. The post-test had a series of exact questions of knowledge and confidence, excluding the prior experience questionnaires because the students' experiences were recorded by the

pre-test. The knowledge and confidence questionnaires were exactly the same for both the pre and post-test survey. However, re-evaluating the amount of questions presented, each test was reformatted to present twelve questions in the pre-test and fourteen questions on the post-test to accommodate for the limited timeframe. In addition, Module 7 was removed from the intervention because faculty members felt that it was too early and unrelated to the other topics being taught in their ICS I Workshop. Question 5 from module 2 and question 1 from module 5 were removed from the knowledge questionnaires because faculty members felt that the information presented by the learning modules were different to the information that the students will be taught later on during their first year; therefore the questions were removed to prevent confusion of future information. Evaluation questionnaires were included at the end of each respective post-test survey. However, Module 5 had additional evaluation questions incorporated with the test that asked about the overall usefulness of both learning modules and what other topics of oral healthcare that students would like to learn more about.

Incorporating the evaluation questionnaires at the end of each post-test were used to evaluate the potential benefits of the courses to the first-year dental students. The evaluation questions provided useful incites to what other areas of oral healthcare students would like to learn more about. The results based on the evaluations determined if presenting the learning modules were beneficial for future curriculums. Demonstrating that the improved knowledge and confidence levels of the first-year students can be related to various other future learning modules. Including these learning modules into future curriculums will provide a

good introduction to what students will be expected to learn during their first year and what they can expect to do during their clinical practices. In addition, considering the other areas of oral healthcare that students would like to learn more about can also be used in a similar fashion as an introductory course.

The strengths and limitations of the methods used to integrate the pre and post-test and learning modules revolve around the availability and accessibility to the test materials and learning modules. The use of qualtrics was a strength that helped distribute and collect data from the pre and post-test surveys. Another strength was the use of Sakai to post the pre and post-test surveys and learning modules. The last strength was having students take the post-test at the beginning of their class to ensure that everyone has completed the test. However, having a 7-day period to complete the pre-test limited the methods of the study because the dates of when students had taken the pre-test were distributed. Another limitation of the methods was having the learning modules presented online because we were unsure if students had or had not reviewed the learning modules prior to attending their ICS I Workshop.

See Appendix B for GANTT Chart.

See Appendix C for Child Oral Health: Pre-test.

See Appendix D for Child Oral Health: Post-test.

See Appendix E for Oral Health in the Pregnant Patient: Pre-test.

See Appendix F for Oral Health in the Pregnant Patient: Post-test.

See Appendix G for ICS I Workshop: Content Guide.

See Appendix H for Workshop B: Professional Presentation.

## Findings:

### Child Oral Health - Individual Group Knowledge:

Table 1 illustrates the average of correctly answered questions for both the pre and post-test on Child Oral Health of Group 1. Pre-test questions that received less than 50 percent correct answers demonstrated areas where students were weakest. Pre-test questions that received 50 percent or more correct answers demonstrated where students were the strongest. Students had stronger knowledge with objective dentistry questions, while demonstrating weaker knowledge with more conceptual and analytical dentistry questions. In the pre-test, about 2.80 to 16.70 percent of students answered questions: 1, 2, and 7 correctly. Comparatively, about 50.00 to 69.80 percent of students answered questions: 3,4,5,6,8, and 9 correctly. However, the percent change demonstrated an increase in knowledge ranging from 22.20 to 52.80 percent change.

Composite (36)

Child Oral Health

Group 1:	Pre-test	Post-test	% Change
Question 1	2.80%	50.00%	47.20%
Question 2	11.10%	63.90%	52.80%
Question 3	52.70%	86.10%	33.40%
Question 4	50.00%	88.90%	38.90%
Question 5	55.60%	100.00%	44.40%
Question 6	63.90%	83.30%	19.40%
Question 7	16.70%	38.90%	22.20%

Question 8	58.30%	83.30%	25.00%
Question 9	69.40%	91.70%	22.30%
<b>Total</b>	<b>42.28%</b>	<b>76.23%</b>	

Table 1. Pre and Post-test Knowledge Questionnaire

Group 2 in Table 2 demonstrated similar results with the exception of number 8. About 2.70 to 43.20 percent of students answered questions: 1, 2, 7, and 8 correctly, while 56.80 to 86.50 percent answered questions: 3,4,5,6, and 9 correctly during the pre-test. The percent change demonstrated an increase in knowledge ranging from 8.10 to 48.70 percent change.

## Composite (37)

## Child Oral Health

<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Question 1	2.70%	43.20%	40.50%
Question 2	10.80%	59.50%	48.70%
Question 3	56.80%	67.60%	10.80%
Question 4	62.20%	81.10%	18.90%
Question 5	86.50%	95.90%	9.40%
Question 6	81.10%	89.20%	8.10%
Question 7	16.20%	37.80%	21.60%
Question 8	43.20%	81.20%	38.00%
Question 9	62.20%	91.90%	29.70%
<b>Total</b>	<b>46.86%</b>	<b>71.93%</b>	

Table 2. Pre and Post-test Knowledge Questionnaire

Similarly, Group 3 in Table 3 demonstrated similar results to Group 2. About 5.70 to 48.60 percent of students answered questions: 1, 2, 7, and 8 correctly, 51.40

to 77.10 percent answered questions: 3,4,5,6, and 9 correctly during the pre-test.

The percent change demonstrated an increase in knowledge ranging from 11.40 to 42.90 percent change.

Composite (35)

Child Oral Health

<b>Group 3:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
<b>Question 1</b>	<b>5.70%</b>	<b>48.60%</b>	<b>42.90%</b>
<b>Question 2</b>	<b>20.00%</b>	<b>57.10%</b>	<b>37.10%</b>
Question 3	51.40%	77.10%	25.70%
Question 4	62.90%	82.90%	20.00%
Question 5	74.30%	85.70%	11.40%
Question 6	54.30%	88.60%	34.30%
<b>Question 7</b>	<b>38.60%</b>	<b>57.10%</b>	<b>18.50%</b>
<b>Question 8</b>	<b>31.40%</b>	<b>60.00%</b>	<b>28.60%</b>
Question 9	77.10%	94.30%	17.20%
<b>Total</b>	<b>46.19%</b>	<b>68.71%</b>	

Table 3. Pre and Post-test Knowledge Questionnaire

Group 4 demonstrated similar results to Groups 2 and 3. About 11.40 to 40.00 percent of students answered questions: 1, 2, 7, and 8 correctly, while 62.90 to 80.00 percent answered questions: 3,4,5,6, and 9 correctly during the pre-test. However, the percent change demonstrated a slightly lower increase in knowledge ranging from -2.80 to 22.90 percent change.

Composite (35)

Child Oral Health

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Question 1	11.40%	14.30%	2.90%
Question 2	38.60%	48.60%	10.00%
Question 3	62.90%	68.60%	5.70%
Question 4	68.60%	77.10%	8.50%
Question 5	80.00%	91.40%	11.40%
Question 6	62.90%	65.70%	2.80%
Question 7	25.70%	22.90%	-2.80%
Question 8	40.00%	62.90%	22.90%
Question 9	80.00%	85.70%	5.70%
<b>Total</b>	<b>52.23%</b>	<b>59.69%</b>	

Table 4. Pre and Post-test Knowledge Questionnaire

### Child Oral Health – Individual Group Confidence:

Table 5 illustrates the confidence levels of Group 1 to perform oral examinations on young children. The pre-test showed 5.60 percent felt very confident in their abilities, 19.40 percent felt confident, and 19.40 percent somewhat confident. About 55.60 percent of students did not feel confident in their abilities. The percent change demonstrated a 44.50 percent decrease in “Not Confident” and a 19.50 to 22.30 percent increase in confident and somewhat confident respectively.

Composite (36)

Child Oral Health

<b>Group 1:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	5.60%	8.30%	2.70%
Confident	19.40%	38.90%	19.50%

Somewhat Confident	19.40%	41.70%	22.30%
Not Confident	55.60%	11.10%	-44.50%

Table 5: How confident do you feel performing oral examinations on infants and toddlers?

Group 2 in Table 6 illustrated similar results. The pre-test showed 0.00 percent felt very confident in their abilities, 8.10 percent felt confident, and 27.00 percent somewhat confident. About 64.90 percent did not feel confident in their abilities, a higher percentage than Group 1. The percent change demonstrated a 48.70 percent decrease in “Not Confident” and 18.90 to 27.10 percent increase in confident and somewhat confident respectively.

Composite (37)

Child Oral Health

<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	0.00%	2.70%	2.70%
Confident	8.10%	27.00%	18.90%
Somewhat Confident	27.00%	54.10%	27.10%
Not Confident	64.90%	16.20%	-48.70%

Table 6: How confident do you feel performing oral examinations on infants and toddlers?

Group 3 in Table 7 demonstrated similar results to Group 2. The pre-test showed 2.90 percent felt very confident in their abilities, 14.30 percent felt confident, and 20.00 percent somewhat confident. About 65.70 percent of students did not feel confident in their abilities. The percent change showed that 20.00 to



28.60 percent increase in confident and somewhat confident respectively, but demonstrated a 60.00 percent decrease in “Not Confident”.

Composite (35)

Child Oral Health

<b>Group 3:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	2.90%	11.40%	8.50%
Confident	14.30%	42.90%	28.60%
Somewhat Confident	20.00%	40.00%	20.00%
Not Confident	65.70%	5.70%	-60.00%

Table 7: How confident do you feel performing oral examinations on infants and toddlers?

Group 4 in Table 8 demonstrated similar results to Group 3. The pre-test showed 2.90 percent felt very confident in their abilities, 5.70 percent felt confident, and 28.60 percent somewhat confident. About 62.90 percent did not feel confident in their abilities. The percent change demonstrated a 57.20 percent decrease in “Not Confident” and a 20.00 to 42.80 percent increase in confident and somewhat confident respectively.

Composite (35)

Child Oral Health

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	2.90%	2.90%	0.00%
Confident	5.70%	25.70%	20.00%
Somewhat Confident	28.60%	71.40%	42.80%
Not Confident	62.90%	5.70%	-57.20%

Table 8: How confident do you feel performing oral examinations on infants and toddlers?

Table 9 demonstrates the confidence levels of Group 1 to provide education to young children and their parents/caregivers. The pre-test showed 16.70 percent felt very confident in their abilities, 33.30 percent felt confident, and 33.30 percent somewhat confident. About 16.70 percent of students did not feel confident in their abilities. The percent change showed 11.10 percent decrease in “Not Confident” and a 00.00 to 8.40 percent increase in confident and somewhat confident respectively.

Composite (36)

Child Oral Health

<b>Group 1:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	16.70%	19.40%	2.70%
Confident	33.30%	41.70%	8.40%
Somewhat Confident	33.30%	33.30%	0.00%
Not Confident	16.70%	5.60%	-11.10%

Table 9. How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

Group 2 in Table 10 demonstrated 8.10 percent felt very confident in their abilities, 21.60 percent felt confident, and 40.50 percent somewhat confident. About 27.00 percent did not feel confident in their abilities. The percent change showed 18.90 percent decrease in “Not Confident” and a 10.80 to 16.30 percent increase in confident and somewhat confident respectively. Interestingly, there was a 5.40

percent decrease in “Very Confident” indicating that students determined that they were not as confident in their abilities as they originally perceived.

Composite (37)			
Child Oral Health			
<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	8.10%	2.70%	-5.4
Confident	21.60%	32.40%	10.80%
Somewhat Confident	40.50%	56.80%	16.30%
Not Confident	27.00%	8.10%	-18.90%

Table 10. How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

Group 3 in Table 11 showed 8.60 percent felt very confident in their abilities, 20.00 percent felt confident, and 37.10 percent somewhat confident. About 34.30 percent did not feel confident in their abilities. The percent change showed 31.40 percent decrease in “Not Confident” and -8.50 to 31.40 percent increase in confident and somewhat confident respectively.

Composite (35)			
Child Oral Health			
<b>Group 3:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	8.60%	17.10%	8.50%
Confident	20.00%	51.40%	31.40%
Somewhat Confident	37.10%	28.60%	-8.50%
Not Confident	34.30%	2.90%	-31.40%

Table 11. How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

Group 4 in Table 12 showed 8.60 percent felt very confident in their abilities, 20.00 percent felt confident, and 51.40 percent somewhat confident. About 17.10 percent did not feel confident in their abilities. The percent change showed 17.10 percent decrease in “Not Confident” and 0.00 to 20.00 percent increase in confident and somewhat confident respectively. Interestingly, there was a 2.90 percent decrease in “Very Confident” indicating that students determined that they were not as confident in their abilities as they originally perceived.

Composite (35)

Child Oral Health

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	8.60%	5.70%	-2.90%
Confident	22.90%	42.90%	20.00%
Somewhat Confident	51.40%	51.40%	0.00%
Not Confident	17.10%	0.00%	-17.10%

Table 12. How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

**Oral Health in the Pregnant Patient - Individual Group Knowledge:**

Table 13 illustrated the average of correctly answered questions for both the pre and post-test on Oral Health in the Pregnant Patient of Group 1. Similar to Child Oral Health, questions demonstrate where students are weakest and strongest.

About 11.10 to 44.40 percent of students answered questions: 1, 2, 3, 4, 6, and 7

correctly, while 50.00 to 77.80 percent answered questions: 5, 8, and 9 correctly during the pre-test. The percent change demonstrated an increase in knowledge ranging from 2.80 to 52.80 percent change.

## Composite (36)

## Oral Health in the Pregnant Patient

<b>Group 1:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Question 1	27.80%	69.40%	41.60%
Question 2	44.40%	72.20%	27.80%
Question 3	11.10%	50.00%	38.90%
Question 4	27.80%	80.60%	52.80%
Question 5	77.80%	80.60%	2.80%
Question 6	13.90%	25.00%	11.10%
Question 7	41.70%	61.10%	19.40%
Question 8	50.00%	83.30%	33.30%
Question 9	77.80%	94.40%	16.60%
<b>Total</b>	<b>41.36%</b>	<b>68.51%</b>	

Table 13. Pre and Post-test Knowledge Questionnaire

Group 2 in Table 14 demonstrated about 21.60 to 48.70 percent of students answered questions: 1, 2, 3, 4, 6, 7, and 8 correctly, while 59.40 to 78.40 percent answered questions: 5 and 9 correctly during the pre-test. The percent change demonstrated an increase in knowledge ranging from 5.70 to 54.10 percent change.

## Composite (37)

## Oral Health in the Pregnant Patient

<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Question 1	35.10%	59.50%	24.40%

Question 2	35.10%	67.60%	32.50%
Question 3	21.60%	59.50%	37.90%
Question 4	21.60%	75.70%	54.10%
Question 5	59.40%	70.30%	10.90%
Question 6	24.30%	30.00%	5.70%
Question 7	27.00%	51.40%	24.40%
Question 8	48.70%	70.30%	21.60%
Question 9	78.40%	94.60%	16.20%
<b>Total</b>	<b>39.02%</b>	<b>64.32%</b>	

Table 14. Pre and Post-test Knowledge Questionnaire

Group 3 in Table 15 showed similar results. About 18.20 to 45.50 percent of students answered questions: 1, 2, 3, 4, 6, 7, and 8 correctly, while 72.70 percent answered questions: 5 and 9 correctly during the pre-test. The percent change demonstrated an increase in knowledge ranging from 9.10 to 45.40 percent change.

## Composite (33)

## Oral Health in the Pregnant Patient

Group 3:	Pre-test	Post-test	% Change
Question 1	27.30%	54.50%	27.20%
Question 2	45.50%	69.70%	24.20%
Question 3	18.20%	45.50%	27.30%
Question 4	36.40%	81.80%	45.40%
Question 5	72.70%	81.80%	9.10%
Question 6	24.20%	51.50%	27.30%
Question 7	36.40%	57.60%	21.20%
Question 8	42.40%	63.60%	21.20%
Question 9	72.70%	93.90%	21.20%

**Total** **41.76%** **66.66%**

Table 15. Pre and Post-test Knowledge Questionnaire

Group 4 in Table 16 demonstrated about 11.40 to 35.30 percent of students answered questions: 1, 2, 3, and 6 correctly, while 50.00 to 76.50 percent answered questions: 4, 5, 7, 8 and 9 correctly during the pre-test. However, the percent change demonstrated a fluctuation in knowledge ranging from -8.80 to 29.40 percent change.

Composite (34)

Oral Health in the Pregnant Patient

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Question 1	8.80%	2.90%	-5.90%
Question 2	35.30%	64.70%	29.40%
Question 3	8.80%	35.30%	26.50%
Question 4	61.80%	85.30%	23.50%
Question 5	70.60%	88.20%	17.60%
Question 6	26.50%	29.40%	2.90%
Question 7	50.00%	41.20%	-8.80%
Question 8	50.00%	52.90%	2.90%
Question 9	76.50%	91.20%	14.70%
<b>Total</b>	<b>43.14%</b>	<b>54.57%</b>	

Table 16. Pre and Post-test Knowledge Questionnaire

**Oral Health in the Pregnant Patient – Individual Group Confidence:**

Table 17 illustrated the confidence levels of Group 1 to identify early signs of oral conditions related to pregnancy in dental patients. The pre-test showed 0.00

percent felt very confident in their abilities, 25.00 percent felt confident, and 8.30 percent somewhat confident. About 66.70 percent of students did not feel confident in their abilities. The percent change demonstrated a 64.90 percent decrease in “Not Confident” and 16.70 to 47.30 percent increase in confident and somewhat confident respectively.

## Composite (36)

## Oral Health in the Pregnant Patient

<b>Group 1:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	0.00%	0.00%	0.00%
Confident	25.00%	41.70%	16.70%
Somewhat Confident	8.30%	55.60%	47.30%
Not Confident	66.70%	2.80%	-63.90%

Table 17. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Group 2 in Table 18 demonstrated similar results. The pre-test showed 0.00 percent felt very confident in their abilities, 2.70 percent felt confident, and 18.90 percent somewhat confident. About 78.40 percent of students did not feel confident in their abilities. The percent change demonstrated a 59.50 percent decrease in “Not Confident” and 18.90 to 40.60 percent increase in confident and somewhat confident respectively.

## Composite (37)

## Oral Health in the Pregnant Patient

<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
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Very Confident	0.00%	0.00%	0.00%
Confident	2.70%	21.60%	18.90%
Somewhat Confident	18.90%	59.50%	40.60%
Not Confident	78.40%	18.90%	-59.50%

Table 18. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Group 3 in Table 19 demonstrated similar results. The pre-test showed 0.00 percent felt very confident in their abilities, 9.10 percent felt confident, and 24.20 percent somewhat confident. About 60.60 percent of students did not feel confident in their abilities. The percent change demonstrated a 57.60 percent decrease in “Not Confident”, but a -6.00 to 30.30 percent increase in confident and somewhat confident respectively.

Composite (33)

Oral Health in the Pregnant Patient

<b>Group 3:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	0.00%	9.10%	9.10%
Confident	9.10%	39.40%	30.30%
Somewhat Confident	24.20%	18.20%	-6.00%
Not Confident	60.60%	3.00%	-57.60%

Table 19. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Group 4 in Table 20 demonstrated 0.00 percent felt very confident in their abilities, 8.80 percent felt confident, and 8.80 percent somewhat confident. About

82.40 percent of students did not feel confident in their abilities. The percent change demonstrated a 73.60 percent decrease in “Not Confident”, but a 8.80 to 64.70 percent increase in confident and somewhat confident respectively.

## Composite (34)

## Oral Health in the Pregnant Patient

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	0.00%	0.00%	0.00%
Confident	8.80%	17.60%	8.80%
Somewhat Confident	8.80%	73.50%	64.70%
Not Confident	82.40%	8.80%	-73.60%

Table 20. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Table 21 illustrates the confidence levels of Group 1 to provide education to pregnant patients on the importance of maintaining their oral health during pregnancy. The pre-test showed 8.30 percent felt very confident in their abilities, 16.70 percent felt confident, and 33.30 percent somewhat confident. About 41.70 percent of students did not feel confident in their abilities. The percent change demonstrated a 41.70 percent decrease in “Not Confident” and 25.00 to 19.50 percent increase in confident and somewhat confident respectively. Interestingly, there was a 2.30 percent decrease in “Very Confident” indicating that students determined that they were not as confident in their abilities as they originally perceived.

## Composite (36)

## Oral Health in the Pregnant Patient

<b>Group 1:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	8.30%	6.00%	-2.30%
Confident	16.70%	41.70%	25.00%
Somewhat Confident	33.30%	52.80%	19.50%
Not Confident	41.70%	0.00%	-41.70%

Table 21. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

Group 2 in Table 22 demonstrated similar results. The pre-test showed 5.40 percent felt very confident in their abilities, 18.90 percent felt confident, and 24.30 percent somewhat confident. About 51.40 percent of students did not feel confident in their abilities. The percent change demonstrated a 43.30 percent decrease in “Not Confident”, however a 13.50 to 35.20 percent increase in confident and somewhat confident respectively. Interestingly, there was a 5.40 percent decrease in “Very Confident” indicating that students determined that they were not as confident in their abilities as they originally perceived.

## Composite (37)

## Oral Health in the Pregnant Patient

<b>Group 2:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	5.40%	0.00%	-5.40%
Confident	18.90%	32.40%	13.50%
Somewhat Confident	24.30%	59.50%	35.20%
Not Confident	51.40%	8.10%	-43.30%

Table 22. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

Group 3 in Table 23 demonstrated 3.00 percent felt very confident in their abilities, 12.10 percent felt confident, and 48.50 percent somewhat confident. About 36.40 percent of students did not feel confident in their abilities. The percent change demonstrated a 36.40 percent decrease in “Not Confident” and 15.20 to 6.00 percent increase in confident and somewhat confident respectively.

Composite (33)

Oral Health in the Pregnant Patient

<b>Group 3:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	3.00%	18.20%	15.20%
Confident	12.10%	27.30%	15.20%
Somewhat Confident	48.50%	54.50%	6.00%
Not Confident	36.40%	0.00%	-36.40%

Table 23. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

Group 4 in Table 24 demonstrated 0.00 percent felt very confident in their abilities, 17.60 percent felt confident, and 26.50 percent somewhat confident. About 55.90 percent of students did not feel confident in their abilities. The percent change demonstrated a 47.10 percent decrease in “Not Confident” and 17.80 to 29.40 percent increase in confident and somewhat confident respectively.

Composite (34)

Oral Health in the Pregnant Patient

<b>Group 4:</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>% Change</b>
Very Confident	0.00%	0.00%	0.00%
Confident	17.60%	35.40%	17.80%
Somewhat Confident	26.50%	55.90%	29.40%
Not Confident	55.90%	8.80%	-47.10%

Table 24. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

### Child Oral Health – Overall Pre-test:

The overall score for the knowledge questionnaires with the Child Oral Health pre-test presented in Table 25 showed a total of 47 percent correct answer and 53 percent incorrect answers.

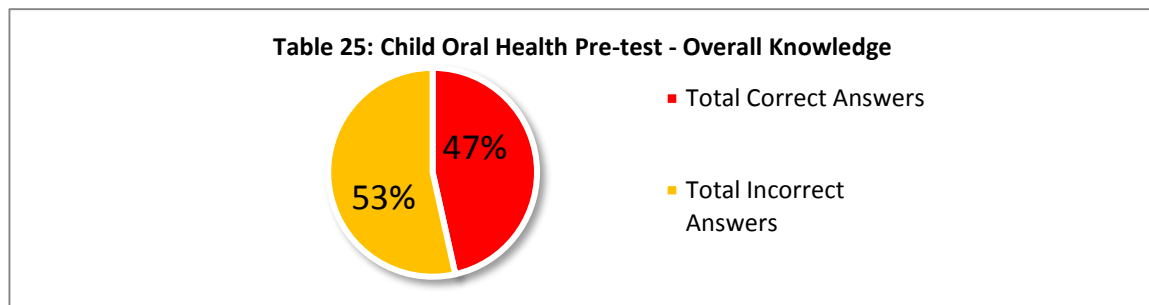


Table 25: Overall Knowledge

Table 26 illustrated how confident students felt performing oral examinations on infants and toddlers. 3 percent stated very confident, 12 percent confident, 25 percent somewhat confident, and 60 percent not confident.

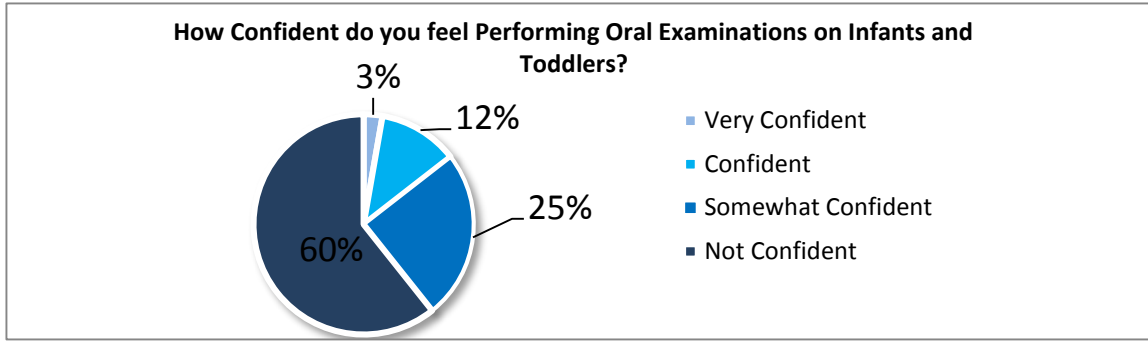


Table 26: How confident do you feel performing oral examinations on infants and toddlers?

Table 27 illustrated how confident students felt providing education to young children and their parents/caregivers. 11 percent stated very confident, 25 percent confident, 41 percent somewhat confident, and 23 percent not confident.

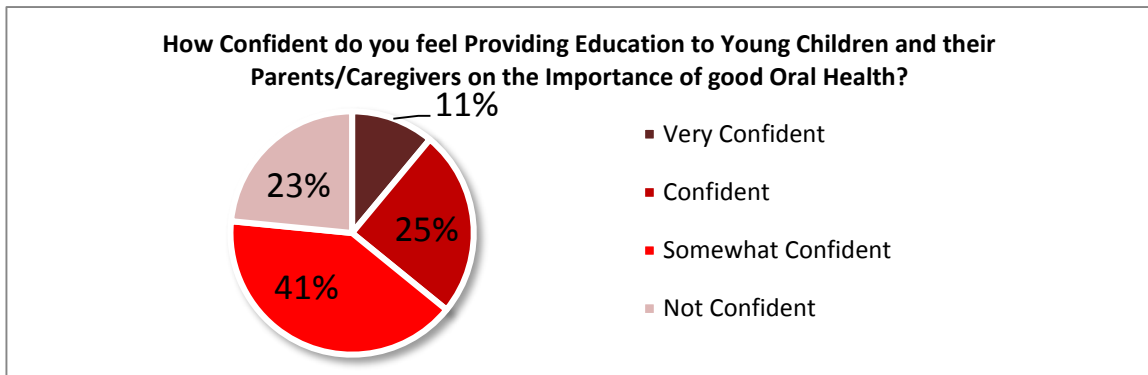


Table 27: How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

Table 28 showed that 32 percent had prior experience working with children in a dental setting and 68 percent had no prior experiences.

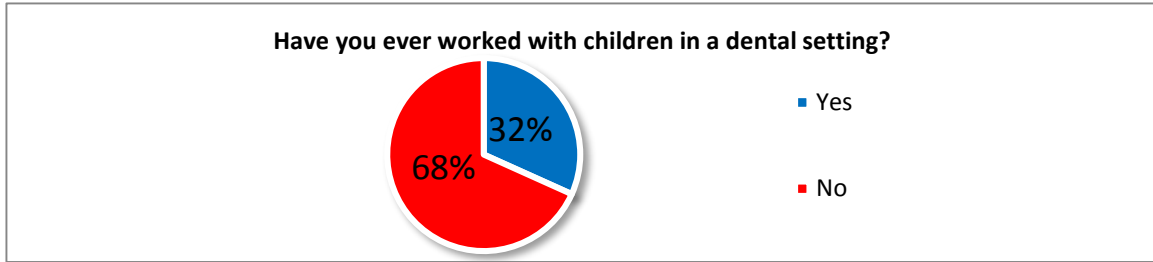


Table 28: Prior Experience

**Child Oral Health – Overall Post-test:**

The overall score for the knowledge questionnaires with the Child Oral Health post-test presented in Table 29 showed a total of 70 percent correct answer and 30 percent incorrect answers.

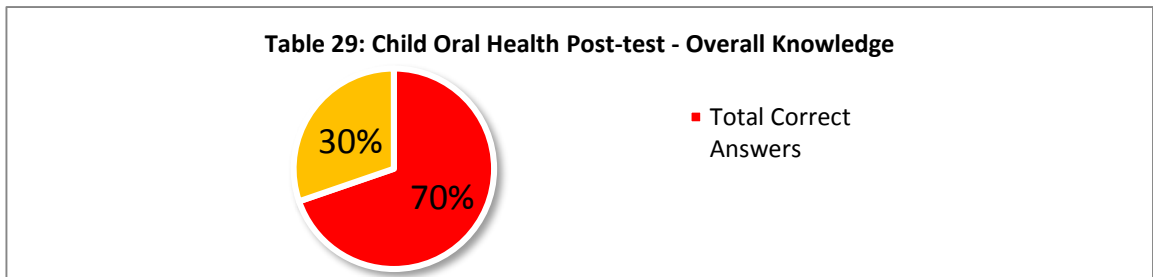


Table 29: Child Oral Health Overall Knowledge

Table 30 illustrated how confident students felt performing oral examinations on infants and toddlers. 7 percent stated very confident, 34 percent confident, 50 percent somewhat confident, and 9 percent not confident.

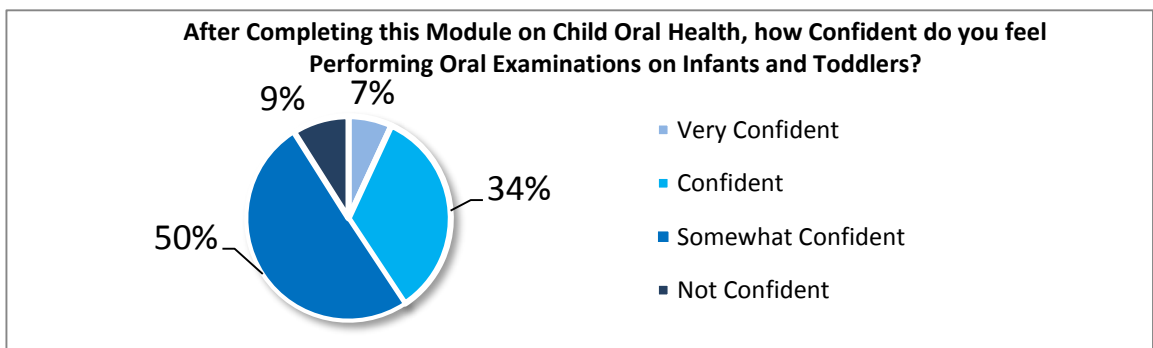


Table 30. How confident do you feel performing oral examinations on infants and toddlers?

Table 31 illustrated how confident students felt providing education to young children and their parents/caregivers. 7 percent stated very confident, 34 percent confident, 50 percent somewhat confident, and 9 percent not confident.

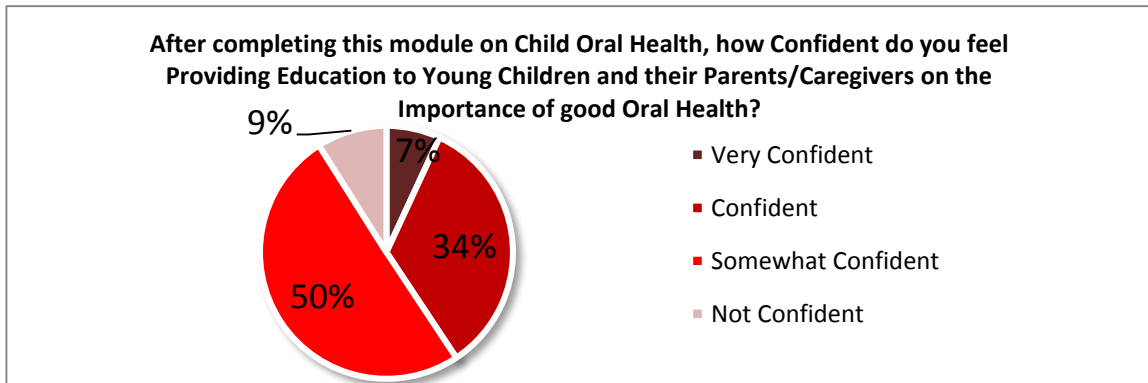


Table 31: How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?

Table 32 showed the responses on the evaluations, when asked how informative was the learning module on Child Oral Health, 27 percent very informative, 59 percent informative, 13 percent somewhat informative, and 1 percent not informative.

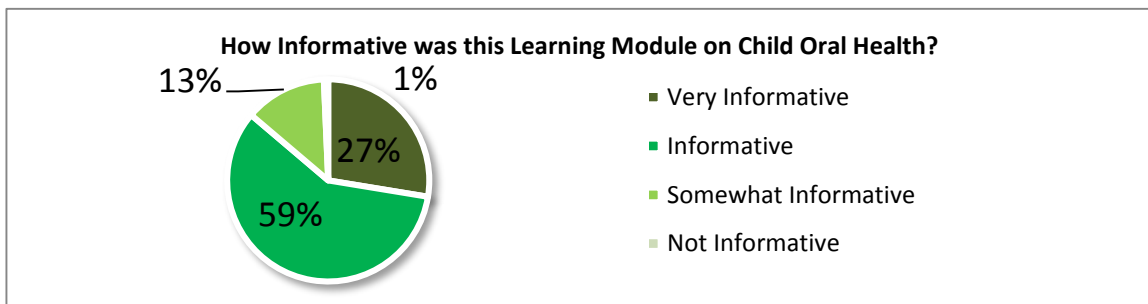


Table 32. How informative was the learning module on Child Oral Health?



Table 33 showed how relevant the information provided by the learning module was towards their ICS I Workshop. 27 percent stated very informative, 59 percent informative, 13 percent somewhat informative, and 1 percent not informative.

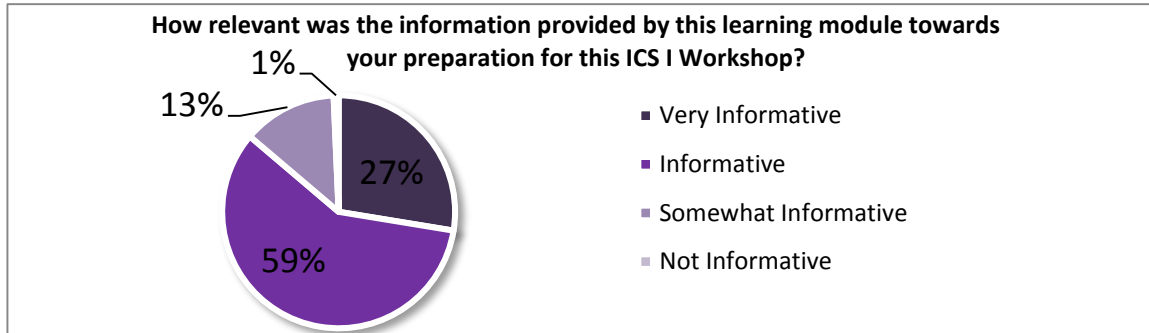


Table 33. How relevant was the information provided by this learning module towards your preparation for this ICS I Workshop?

Table 34 demonstrated is students have ever heard of the term, “Early Childhood Caries”. 39 percent stated “Yes” and 61 percent “No”.

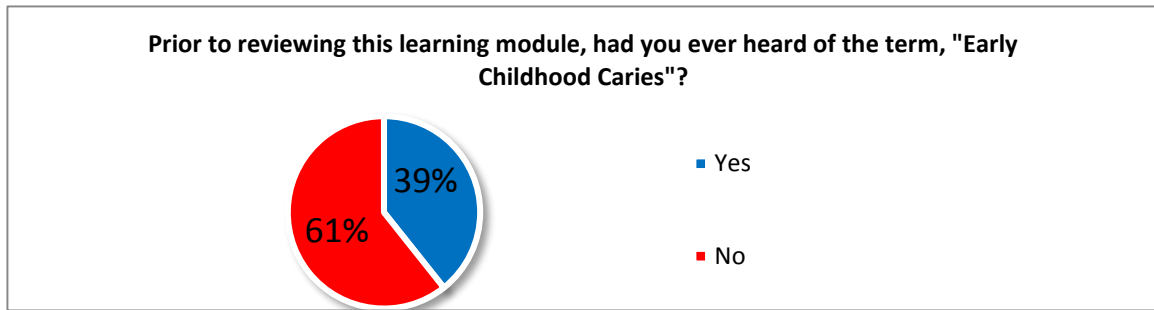


Table 34. Prior to reviewing the learning module, had you ever heard of the term, “Early Childhood Caries”?

**Oral Health in Pregnant Patients – Overall Pre-test:**

Table 35 showed the overall score for the knowledge questionnaires of Oral Health in Pregnant Patients. 40 percent correct answer and 60 percent incorrect answers.

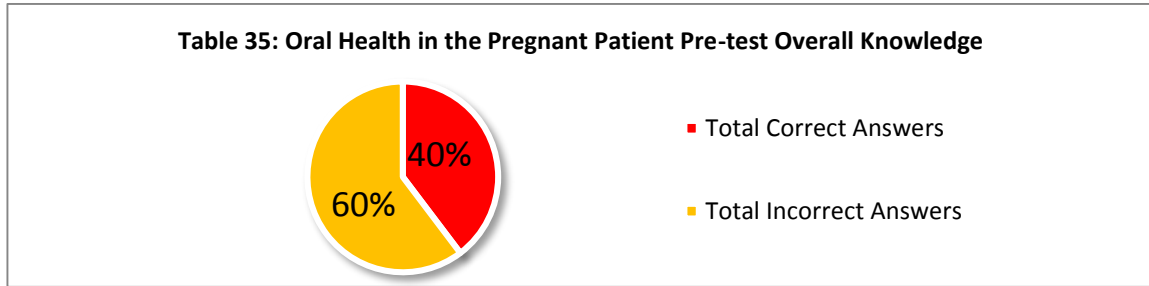


Table 35. Oral Health in the Pregnant Patient Overall Knowledge

Table 36 showed how confident students felt in identifying early signs of oral conditions related to pregnancy in dental patients. 0 percent stated very confident, 12 percent confident, 16 percent somewhat confident, and 72 percent not confident.

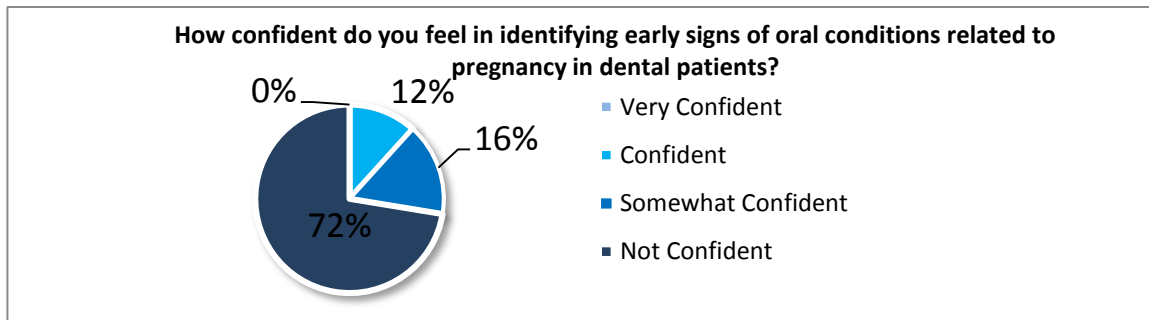


Table 36. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Table 37 illustrated how confident students felt educating pregnant patients. About 4 percent stated very confident, 17 percent confident, 34 percent somewhat confident, and 45 percent not confident.

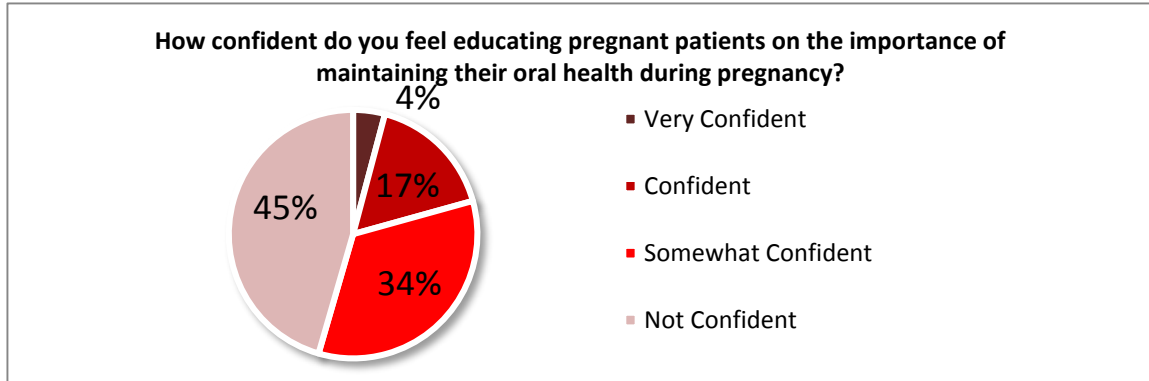


Table 37. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

Table 38 showed students’ prior experiences working with pregnant/nursing patients. 16 percent stated “Yes” and 84 percent stated “No”.

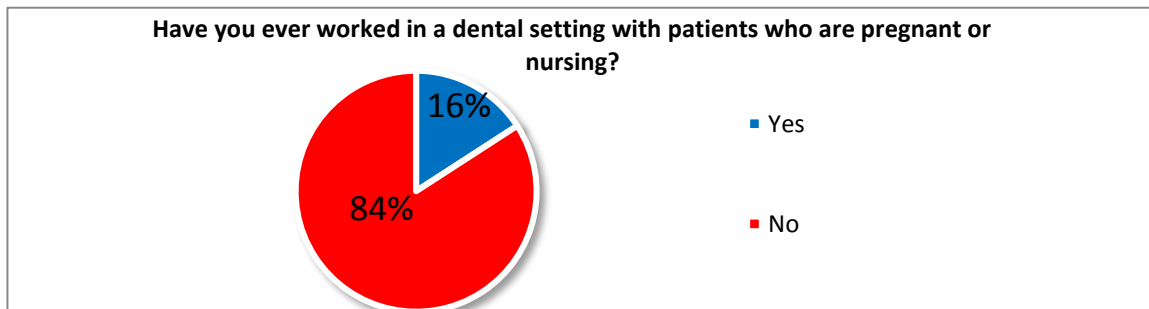


Table 38. Prior Experience

**Oral Health in the Pregnant Patient – Overall Post-test:**

Table 39 showed the overall score for the knowledge questionnaires of Oral Health in Pregnant Patients. A total of 62 percent correct answer and 38 percent incorrect answers.

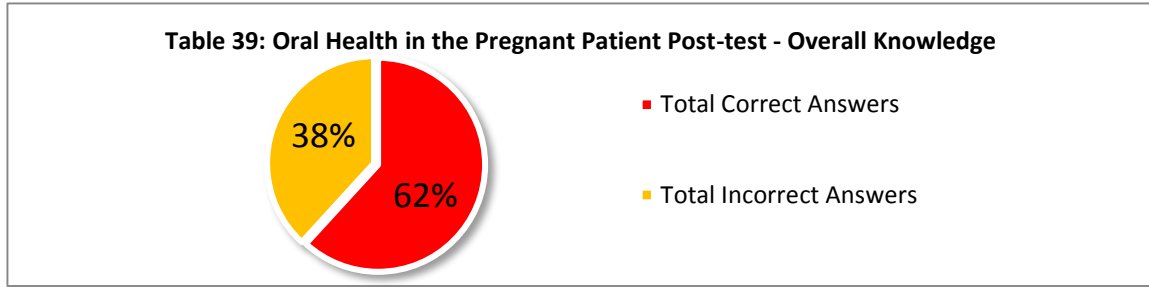


Table 39. Oral Health in the Pregnant Patient Overall Knowledge

Table 40 showed how confident students felt identifying early signs of oral conditions related to pregnancy in dental patients. 3 percent stated very confident, 30 percent confident, 58 percent somewhat confident, and 8 percent not confident.

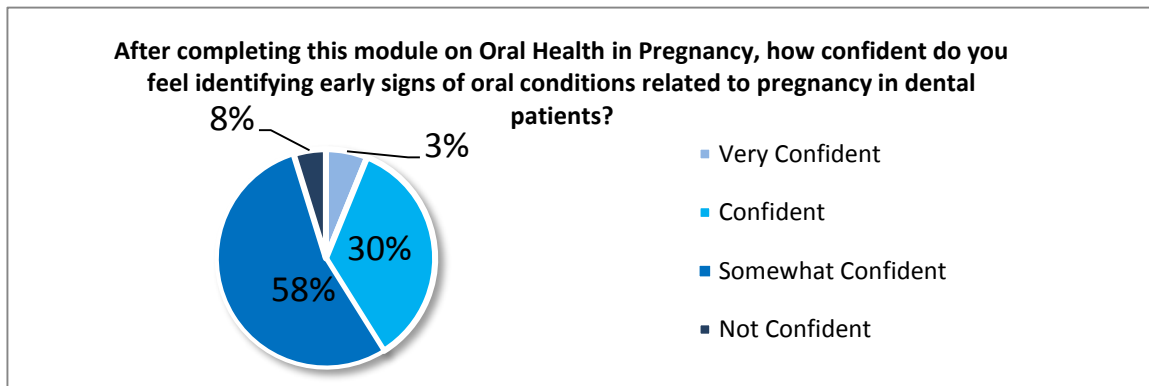


Table 40. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?

Table 41 showed how confident students felt educating pregnant patients. 6 percent stated very confident, 35 percent confident, 54 percent somewhat confident, and 5 percent not confident.

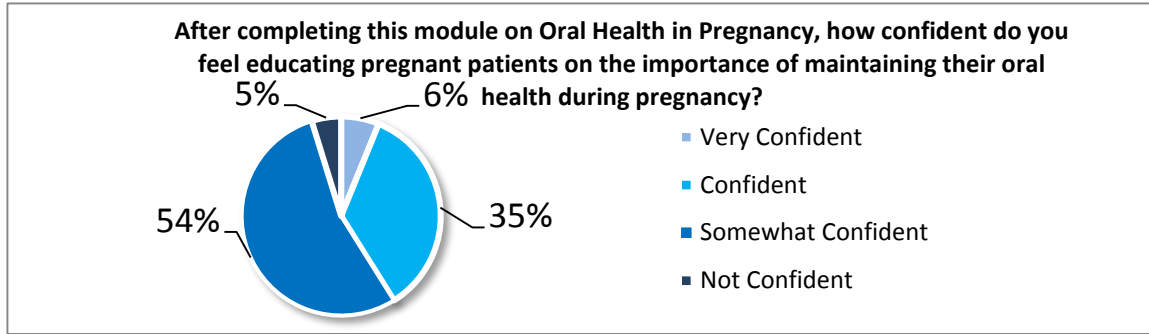


Table 41. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?

Table 42 showed how informative was the learning module on Oral Health in Pregnancy. 27 percent stated very informative, 58 percent informative, 14 percent somewhat informative, and 1 percent not informative.

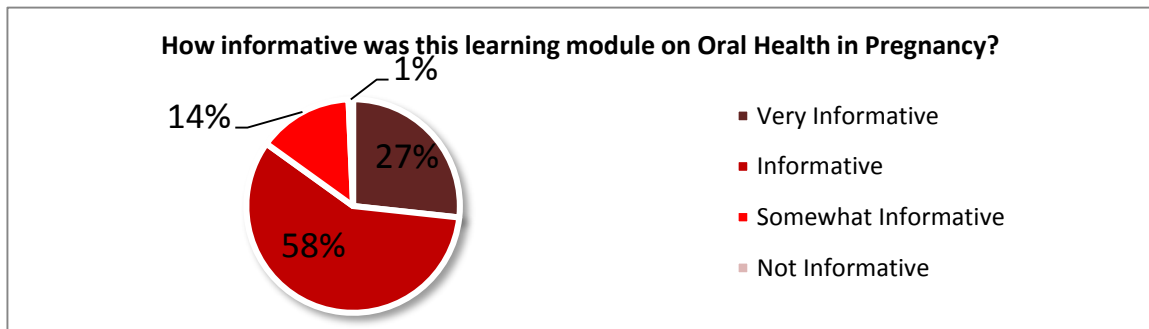


Table 42. How informative was this learning module on Oral Health in Pregnancy?

Table 43 showed how relevant the information provided by the learning module was towards their ICS I Workshop. 26 percent stated very informative, 62 percent informative, 10 percent somewhat informative, and 2 percent not informative.

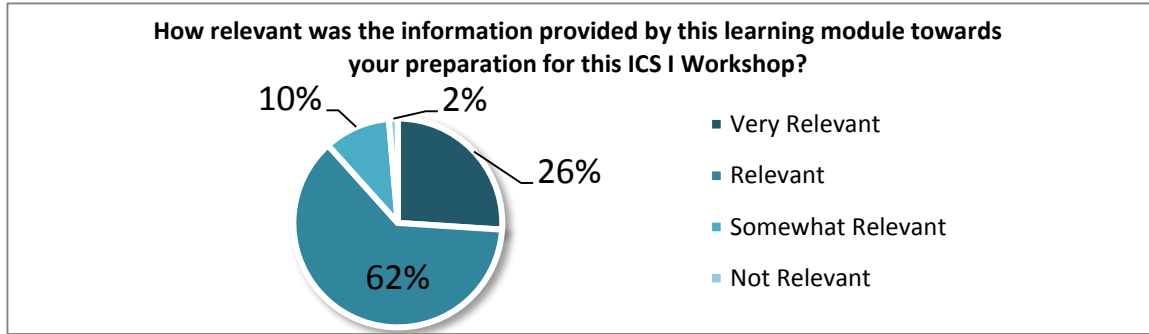


Table 43. How relevant was the information provided by this learning module towards your preparation for this ICS I Workshop?

Table 44 demonstrated if students knew that pregnant women could get dental x-rays and dental treatment done safely at anytime during their pregnancy. 23 percent stated “Yes” and 77 percent “No”.

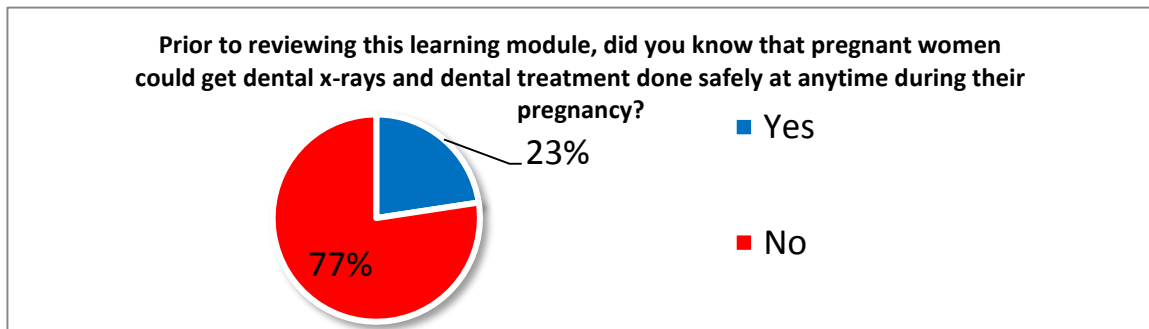


Table 44. Prior to reviewing the learning module, did you know that pregnant women could get dental x-rays and dental treatment done safely at anytime during their pregnancy?

**Overall Evaluation:**

Table 45 illustrated how much the modules contribute to the students’ learning in their ICS I Workshop. 16 percent stated “Extremely helpful; an excellent use of my time”, 77 percent “Helpful; a good use of my time”, 6 percent “Neither helpful nor unhelpful”, and 1 percent “Not at all helpful; a poor use of my time”.

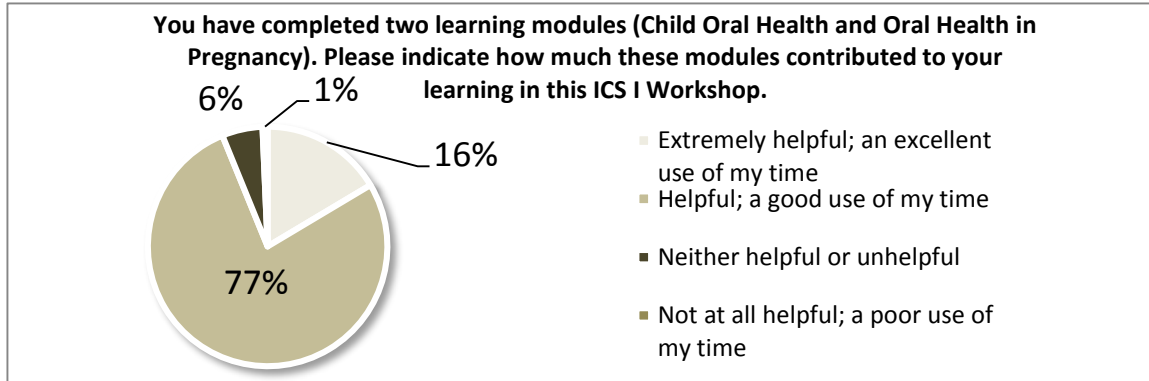


Table 45. Overall Evaluation

Table 46 showed students’ response to which other learning modules they would be interested in completing. 96 students stated “The Relationship of Oral to Systemic Health”, 89 “Adult Oral Health”, 124 “Dental Emergencies”, 78 “Caries Risk Assessment, Fluoride Varnish and Counseling”, 68 “Geriatric Oral Health”, and 75 “The Oral Examination”.

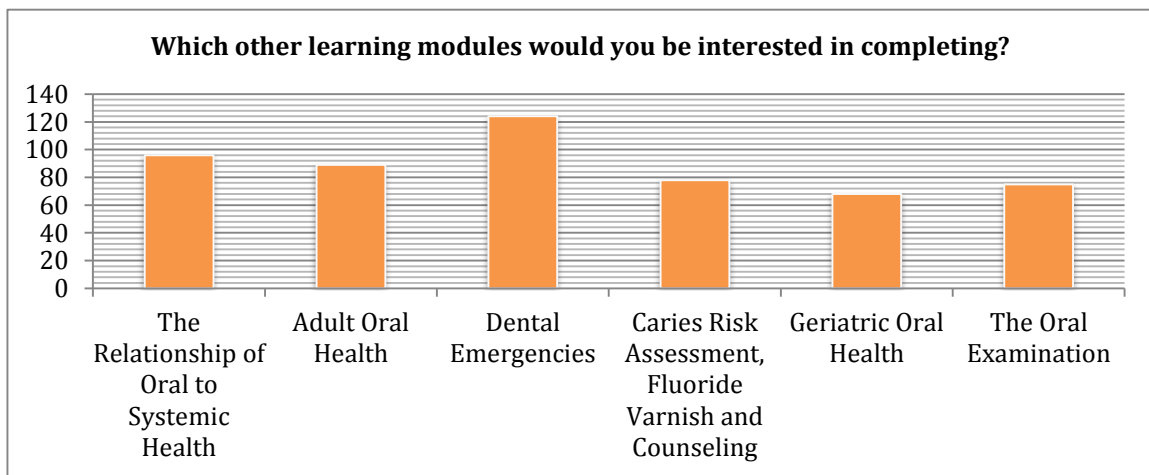


Table 46. Which other learning modules would you be interested in completing?

**Implication:**

The study demonstrated that first year dental students could use oral health learning modules developed for family practice residents to increase their knowledge and confidence levels to provide oral health education and practice clinical skills to both young children and pregnant patients. The study is the first step to implementing an inter-professional education curriculum among other health professions. These learning modules are free and can easily be implemented into the learning curriculum of other health professions. Based on the study, the learning modules can successfully be used on a different profession to improve their current knowledge and skills pertaining to dental practices for selected populations. Furthermore, given the learning modules, students in the study were able to increase their knowledge by 20 to 50 percent in areas that were lacking. In addition, the number of students who did not feel confident increased their confidence and somewhat confidence responses by 20 to 30 percent.

In part, implementing educational material of other health disciplines can increase their knowledge and clinical skills. Healthcare services are better equipped with the knowledge and clinical skills to provide efficient education, evaluations, and referrals. Although health professions might not be trained to the level of other disciplines, distributing the general concepts and clinical practices seeks to improve the delivery of patient care. Providing health professions the knowledge and clinical skills fills the gaps that conventional primary practice overlooks. Including the extended knowledge of other disciplines, practitioners are able to better address patient concerns more efficiently with the appropriate information. It institutes opportunities that can drive the delivery of unmet healthcare services for



communities by establishing a system that introduces a collective approach to identifying various conditions. Integrating basic health care services of various disciplines into primary care can establish effective methods of improving the overall health statuses of communities (Mabry & Mosca, 2006). Inter-disciplinary partnership associates different responsibilities and knowledge from various disciplines from diverse backgrounds of healthcare services to address patient needs from different perspectives.

**Recommendation:** It is recommended that UOP incorporate these learning modules and other learning modules into their first-year curriculum. Based on the findings, students have demonstrated strength in grasping constructs of objective dentistry and have made improvements in understanding conceptual and analytical dentistry. Though students still do not feel confident in their abilities to practice clinical skills to assist children or pregnant patients, they do feel more confident to provide oral health education. Based on the subjects of interest, all subjects were fairly distributed with greater interest in dental emergencies being the highest. Although the students are eager to begin practicing real dentistry, their responses to their confidence levels and evaluations of other learning modules that they would be interested in suggest that they are eager to learn more about clinical oral health but lack the confidence to practice it.

To continue the progression of the students and to enforce the development of future oral practitioners, introducing interactive learning objectives in a clinical setting, students will receive a hands-on experience on how to correctly perform

clinical practices taught from the learning modules. Facilitating active engagement from the students, instructors are ensuring that students will be able to correctly perform the skills during clinic. In addition to interactive engagements, including visual materials helps students to identify the oral diseases in the mouth. Because it is often agreed that students learn in different ways, including videos, and pictures or models are highly encouraged to properly demonstrate how clinical skills are used.

Detailing the overall responses to the confidence levels between practicing clinical skills to providing education, students feel more comfortable providing oral health education but lack the confidence when entrusted to teach their patients. To enforce the learning behaviors of the students, key concepts from the Social Cognitive Theory can be drawn to help students connect why oral health behaviors are important (Crosby, 2013). Facilitating their own reflection on the importance of oral health, students will be able to confidently teach their patients drawing from their own beliefs. Introducing activities that utilize concepts such as the Reciprocal Triadic Causation, students connect and relate to the environmental, behavioral, and personal elements of practicing proper oral hygiene. Additionally, because many of them will be serving a variety of patients who do not practice proper oral health, integrating concepts of outcome expectations, goal formation, and understanding social-structural factors will support their objectives of oral health education. Practicing the concepts in the Social Cognitive Theory will be a great value when they begin treatment planning with their patients. Moreover, they will develop a clinical practice that centers on the patients needs and abilities.

To maximize the availability of the inter-professional education materials, UOP can incorporate the learning modules into their inter-disciplinary programs. As previous studies of inter-professional oral health education have demonstrated and drawing from the implications of the pilot study, other healthcare professions are interested in learning more about oral health and find it significantly relative to patient care. The learning modules used in the study can be implemented into future inter-professional education courses, where dental students, medical students, practicing nurses, and behavioral health specialists can learn methods of oral health education, evaluation and clinical practices as a collected group of healthcare providers.

Organizing future inter-professional oral health courses should include dental practitioners or dental hygienists as lead instructors to provide more support in the course. Additionally, courses should be held within clinical settings to provide a realistic environment. Detailing courses of oral health treatment for specific populations or innovative oral health practices, the learning modules can be introduced as preventative courses in a continuing educational course (CE). Courses should be made specific or general, depending on the participants attending the course. Such courses should facilitate role-playing of case studies with experienced oral healthcare workforces such as dental practitioners, hygienists, and assistants to encourage interaction and engagement of participants. Allowing the participants to practice hands-on with the oral healthcare team, participants' knowledge and skills are reinforced by clinical engagement. Supporting knowledge and skills with

experience and exercise helps participants understand how to properly evaluate, educate and refer patients.

Although the learning modules can be used as PowerPoint slides to introduce the topics and general information, videos and pictures should be presented to provide visual descriptions of the topic. It is important that the courses breakdown the topics into general details and provide sufficient resources. Ideally, many CE courses require participants to take a post-test upon receiving credit for completing the course. Post-tests should detail knowledge and conceptual aspects as well as interactive engagement. By having participants demonstrate what they have learned as part of a test, instructors are able to ensure that participants understand the procedures to carry out oral health engagement with patients. It is recommended that instructors evaluate their courses by measuring the participants' change in knowledge by presenting a pre-test prior to the CE course. Moreover, satisfactory evaluations should be conducted on the usefulness, informative of the CE course and other topics of interest.

Implementing the program is reflected from the problem statement, data and recommendations of the study. As indicated in the pilot study conducted on NP students at USF, future inter-professional courses can be held with other health professions. It is essential that as programs begin to facilitate inter-professional courses, key stakeholders should be identified and connections should be established to develop an ongoing curriculum with facilities. Furthermore, the

suggested pilot and key findings present the foundations to future implementations of inter-professional oral health education.

## **Discussion:**

### **Child Oral Health – Individual Knowledge:**

Analyzing the data of individual group performances in Child Oral Health, groups 1, 2, 3, and 4 demonstrated similar strengths and weaknesses in both conceptual and objective dentistry questions. Of the pre-test, questions 1, 2, and 7 had less than 50 percent answered correctly. Less than 50 percent of groups 2, 3, and 4 had answer question number 8 correctly, while group 1 had more than 50 percent of question 8 answered correctly. The average scores on the post-test were highly distributed from 60 to 75 percent. Groups 2 and 3 demonstrated a similar average score on the post-test, but group 1 scored the highest with a 76.23 percent average. Group 4 demonstrated the lowest at 59.69 percent. The average pre-test scores of groups 1, 2, and 3 stayed consistent between 42 to 46 percent. Surprisingly, the average pre-test score of group 4 was over 50 percent. Furthermore, group 4 demonstrated the lowest percent changes in all pre-test questions with less than 50 percent answered correctly. Group 4 answered questions 1, 2, and 7 with percent changes from -2.80 to 10 percent.

### **Child Oral Health – Individual Confidence:**

When students were asked about their confidence to perform oral examinations on infants and toddlers, groups 1, 3, and 4 showed 2 to 5 percent of the students felt very confident in their abilities. When analyzing the percentage of

students who did not feel confident, group 1 demonstrated the lowest percentage at 55.60 percent. Groups 2, 3, and 4 fluctuated between 62 to 65 percent of students not feeling confident. Based on the pre-test responses of students who felt confident or somewhat confident, groups 2, 3 and 5 demonstrated that majority of students felt somewhat confident. Interestingly, group 1 showed an even distribution of students who felt either confident or somewhat confident. Analyzing the percent change in students who did not feel confident, groups 3 and 4 demonstrated a higher percentage of students who did not feel confident in their abilities when compared to group 1 and 2. When examining the post-test responses of students who felt confident or somewhat confident, groups 2 and 4 showed a larger percentage of students who felt somewhat confident. Surprisingly, the post-test of group 3 demonstrated a larger percentage of students who felt very confident in their abilities.

When students were asked how confident they felt providing education to young children and their parents/caregivers on the importance of good oral health, the distribution was not so different compared to when they were asked how confident they felt practicing oral examinations. Groups 2, 3, and 4 showed a lower percentage of students who felt very confident in their abilities, while group 1 showed twice as many students who felt very confident in their abilities to provide oral health education. Comparing the groups who did not feel confident, groups 2 and 3 displayed a larger amount of students who did not feel confident, while groups 1 and 4 showed a lower percentage of students. Analyzing the groups of students who felt either confident or somewhat confident, groups 2, 3, and 4

showed that majority of students felt somewhat confident in their abilities. Group 1 demonstrated an even distribution of students who felt confident or somewhat confident. Group 3 demonstrated a larger percent change in students who did not feel confident. Surprisingly, groups 2 and 4 showed a decrease in percent change of students who felt very confident in their abilities. Analyzing the results of the post-test, groups 1 and 3 had more students who felt very confident in their abilities when compared to groups 2 and 4. Comparatively, groups 1 and 3 who showed a high percentage of students who felt very confident also showed a higher percentage of students who felt confident. Similarly, groups 2 and 4 showed a lower percentage of students who felt very confident but showed a higher percentage of students who felt somewhat confident.

#### **Child Oral Health – Overall Confidence:**

Based on the overall findings in the Child Oral Health module, students have generally shown an increase of confidence in the learning material. The pre-test demonstrated that majority of the students did not feel confident in their abilities to perform oral examinations on young children, but majority stated feeling somewhat confident to providing oral health education. The post-test confidence questionnaires demonstrated that students felt more confident or somewhat confident in their abilities to perform oral examinations on infants and toddlers. Similarly, when students were asked about their confidence to provide education to young children and their parents/caregivers on the importance of good oral health, majority of the students felt more confident or somewhat confident in their abilities

after presented with the learning modules. However, it is interesting to see the drop in the percentage of students who had originally felt very confident. This demonstrates that students had originally thought that they knew enough information about oral health for young children. However, based on the collected data of both post-test confident questionnaires, students felt more confident in their ability to provide education than to perform oral examinations on young children.

### **Prior experience vs. “Early Childhood Caries”:**

It is interesting to see that the number of students who had experience working with children in a dental setting correspond with the number of students who have heard of the term, “Early Childhood Caries” prior to the learning module. This could demonstrate that the students who have worked with children worked as dental assistants, hygienists, or were previously dentist from other countries. These students may have also been working on caries management or a high population of children with dental caries. Although, the data for those who have heard the term, “Early Childhood Caries” is slightly higher than the number of students who have experience working with children, this could also indicate that students had shadowed dental clinics that emphasized on “Early Childhood Caries”.

### **Oral Health in the Pregnant Patients – Individual Knowledge:**

The pre-test of Oral Health in the Pregnant Patient showed that all groups had lower percentages in similar questions with less than 50 percent answered correctly. Similarly, all groups showed higher percentages in similar questions with more than 50 percent answered correctly. Compared to their performance in Child



Oral Health, students had a higher percentage of questions answered correctly compared to their performance in this learning module. All groups had lower percentages in pre-test questions 1, 2, 3, 6, and 7. Groups 2, 3, and 4 also had a lower percentage in question 8, while group 1 had answered the question with 50.00 percent answering it correctly. Additionally, groups 1, 2, and 3 had lower percentages in question 4, while group 4 had answered the question with more than 50.00 percent answering it correctly. Groups 1, 2, and 3 had similar distributions of the percent changes. However, group 4 demonstrated the lowest percent change with some falling below 0.00 percent. Interestingly, group 4 demonstrated the most fluctuation in the average scores of both the pre and post-test. While the pre-test of groups 1, 2, and 3 distributed consistently between 39 to 41 percent, group 4 had an average score of 43.14 percent. Moreover, as the post-test of groups 1, 2, and 3 distributed consistently between 64 to 68 percent, group 4 had an average score of 54.57 percent.

Comparing both learning modules, students had higher percentages of correctly answered questions in the Child Oral Health learning module. Students had demonstrated higher average scores in both the pre and post-test of Child Oral Health. This may be because there were a higher percentage of students who have had prior experience working with young children in a dental setting than students who have had worked with pregnant or nursing patients. The percentage of students who have worked with young children is doubled that of students who have worked with pregnant or nursing patients.

**Oral Health in the Pregnant Patient – Individual Confidence:**

Based on the results of individual group confidence levels, the pre-test had a large variation of students who did not feel confident in their ability to identify early signs of oral conditions related to pregnancy in dental patients. The pre-test determined that group 1 had a higher value of students who felt confident rather than somewhat confident. In contrast, groups 2 and 3 had a higher value in responses to somewhat confident. Group 4 had an even distribution of responses between confident and somewhat confident. When analyzing the percent change in students who did not feel confident, groups 1, 2, and 3 had a percent change that distributed between 57 to 63 percent. However, group 4 had a larger percent change at -73.60 percent. Comparing the post-test of all groups, only group 3 demonstrated that 9.10 percent of students felt very confident in their ability to identify early signs of oral conditions related to pregnancy in dental patients.

When analyzing the students' responses to how confident they felt educating pregnant patients on the importance of maintaining their oral health during pregnancy, a number of students felt very confident in the pre-test. Groups 1, 2, and 3 had a distribution of 3 to 8 percent of students indicating that they felt very confident in their abilities, while group 4 demonstrated that 0 percent. Analyzing the percentage of students who felt either confident or somewhat confident, majority of students in each group stated that they were somewhat confident. Group 3 indicated a higher percentage of students who felt somewhat confident, but a lower percentage of students who felt confident. When analyzing the

percent changes of each group, the percent changes varied between confident and somewhat confident. However, the post-test demonstrated that majority of students felt somewhat confident in their abilities. Surprisingly, when analyzing the percent changes in students who felt very confident, groups 1 and 2 demonstrated a decrease in students, but group 3 demonstrated a large increase in students by 15.20 percent increase in the post-test.

### **Oral Health in the Pregnant Patient – Overall Confidence:**

Based on the overall findings in the Oral Health in the Pregnant Patients module, students have generally increased in confidence of the material. The post-test confidence questionnaires indicated that students felt more confident or somewhat confident in their abilities to identifying early signs of oral conditions related to pregnancy in dental patients. However, there was a decrease in students who felt very confident during the pre-test when compared with the post-test. Again, this demonstrates that students primarily believe that they know enough information about the materials. Similarly, when students were asked about their confidence to provide education to pregnant patients on the importance of maintaining their oral health during pregnancy, majority of the students felt more confident or somewhat confident after being presented with the learning module. Both pre-test confident questionnaires showed that students felt more confident in their ability to provide education than to identifying early signs of oral conditions related to pregnancy in dental patients.

### **Prior experience vs. x-rays during pregnancy:**

The number of students who have had experience working with pregnant or nursing patients corresponded with the number of students who knew that pregnant women could get dental x-rays and dental treatment done safely at anytime during their pregnancy. This could demonstrate that the students who have worked with pregnant or nursing patients worked as dental assistants, hygienists, or were previously dentist from other countries.

### **Other Learning Module Evaluation:**

Given a list of learning modules at the end of the post-test, a majority of the students determined that Dental Emergencies were more interesting. Comparatively, students determined that Geriatric Oral Health was the least interesting learning module. Additionally, students equally rated both The Relationship of Oral to Systemic Health and Adult Oral Health as the second and third most interesting. Similarly, students equally rated Caries Risk Assessment, AFluoride Varnish and Counseling and The Oral Examination as the least interesting.

### **Pilot Study:**

To demonstrate future implementation of inter-professional education into different health professions, a pilot study was conducted at the University of San Francisco. The learning modules were introduced to first-year nurse practitioner students (NPS) and the pre and post-test were used to analyze their change in knowledge and confidence. Implementation methods were kept the same and students were given the pre-test and learning modules to complete during the 7-day period before the post-test. Interestingly, NPS demonstrated similar strengths in

knowledge as first-year dental students who have just entered dental school. Although NPS demonstrated a lower percentage of correctly answered questions on the pre-tests of both modules, their post-test showed that the percentage of correctly answered questions had increased from 75-100 percent. NPS demonstrated a similar pattern as dental students. Majority of the questions answered incorrectly were conceptual and analytical dental questions and questions that were answered correctly were more objective dental questions. When analyzing their confidence levels in both modules, NPS had felt confident or somewhat confident after being introduced to the learning modules. Additionally, students felt more comfortable to provide education rather than performing clinical skills. It is very interesting to see the same level of interest of NPS in the learning materials compared to the dental students. Expectations of NPS's enthusiasm have stayed consistent with other inter-professional education studies performed with other health professions. Though the subject of oral health is beyond their curriculum, it is compelling to see students of other health professions interested in learning more about professions outside of their own discipline.

Although the pilot study was limited to only studying NPS, the inter-professional oral health curriculum demonstrated that it could be adopted and implemented within any health profession or healthcare workforce. For implementation within other health professions, programs should consider interactive exercises or activities to provide participants a hands-on experience of the clinical skills. Developing an inter-professional course where members are encouraged to participate facilitates an active learning environment to enforce the

knowledge and confidence of participating professions. Moreover, including diagrams or videos of clinical skills increases visual understanding of how examinations are carried out as well as how to identify oral diseases. Furthermore, it is possible to include other oral health modules listed in the study to focus on disease prevention in populations or emphasize in innovative oral health strategies.

**Limitation:** A limitation of the study was that we could not determine whether the students had studied the learning modules or not. Because the learning modules were posted onto their student accounts, there was no way to determine if they had reviewed the materials prior to taking the post-test. Another limitation was that because the dental school is the only school that offers a 3-year dental program, administering the intervention is different compared to other schools that have a 4-year program. Lastly, we could not control when the students took the pre-test and learning modules in the recommended time period. Since the pre-test and learning modules were available on the student accounts within the 7-day period, some students had completed the pre-test on the day of the post-test. Additionally, having had completed the pre-test the day of the post-test, it indicated that some students did not look at the learning modules.

**Further Research:** Further research is recommended on implications of other learning modules provided by Smiles for Life with first-year dental students. Further studies should be conducted on the affects of the learning modules within other health professions such as nurse practitioners and primary care providers.

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## Appendix A

### SWOT Analysis:

	<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>• Enhance knowledge in oral health for children, pregnant patients and oral examinations.</li> <li>• Enhance confidence levels in presenting information in oral health for children, pregnant patients and oral examinations</li> <li>• Identifies if prior experiences in oral health affect knowledge and confidence levels</li> </ul>	<p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>• No funding available</li> <li>• Limited access to dental students</li> <li>• Limited access to preceptor</li> </ul>
<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>• Well-established university</li> <li>• Full access to dental students during their workshops</li> <li>• Direct interaction with faculty and students</li> <li>• Opportunity to enhance oral health education for dental students</li> </ul>	<p><b>Strategies to make use of opportunities with our strengths:</b></p> <ul style="list-style-type: none"> <li>• Continue to read other related scientific articles.</li> <li>• Ask faculty at UOP for any resources for the fieldwork</li> <li>• Work with preceptor to improve survey questions</li> </ul>	<p><b>Strategies to prevent threat through our strengths:</b></p> <ul style="list-style-type: none"> <li>• Host weekly meetings with preceptors.</li> <li>• Develop a hardcopy of all documents upon reviewing them during meetings.</li> <li>• Update USF instructor on the progression of the fieldwork.</li> </ul>

<b>Weaknesses:</b>	<b>Strategies to make use of opportunities to minimize weaknesses:</b>	<b>Strategies to minimize our threats and weaknesses:</b>
<ul style="list-style-type: none"> <li>• Only at UOP once a week.</li> <li>• Limited existing surveys</li> <li>• Conflicting Interests.</li> <li>• I will be the only one working on the fieldwork.</li> </ul>	<ul style="list-style-type: none"> <li>• Have preceptors and USF faculty review pre/post surveys and demographics.</li> <li>• Have USF faculty review consent forms and IRB forms.</li> </ul>	<ul style="list-style-type: none"> <li>• Have weekly meetings with fieldwork preceptors</li> <li>• Update USF faculty upon class discussion</li> <li>• Develop and weekly update of fieldwork progress</li> </ul>

Appendix B

GNAT Chart:

Inter-Professional Education: Gnat Chart																								
Course	2014												2015											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
UOP ICS I Workshop (1st Quarter)																								
Identify Hypothesis of the project																								
Research Literature Review on Inter-professional Education																								
Research IPE oral health learning modules																								
Develop intervention																								
Develop Goals and Objectives																								
Develop a summary of the project																								
Write the Problem Statement																								
Write the Literature Review																								
UOP ICS I Workshop (2nd Quarter)																								
Write the Agency Background																								
Write the Target Population																								
Obtain oral health learning module test																								
Develop Confidence Questionnaires																								
Develop Evaluation Questionnaires																								
Develop Prior Experience Questionnaire																								
Organize the Procedure of the project																								
Develop a rough draft of pre and post-test																								
Obtain oral health learning modules																								
UOP ICS I Workshop (3rd Quarter)																								
Write the Methods																								
Upload final draft of pre and post-test on to Qualtrics																								
Upload learning modules and pre-test on to Sakai																								
Begin the intervention																								
Upload the post-test																								
Collect data from pre and post-test																								
Analyze the data collected																								
Analyze pre and post-test																								
Analyze pre-test vs. Prior Experience Questionnaire																								
Write the Findings																								
Write the Discussion																								
Write the Executive Summary																								
Capstone Write-up																								
Present Fieldwork Project																								

## Appendix C

### Child Oral Health: Pre-test

#### Module 2: Child Oral Health

The following questions are based on your knowledge and confidence levels in children's oral health. You must fully complete this questionnaire in order to receive workshop credit, however, **this pre-test questionnaire is not a quiz examination and will NOT affect your grade.**

Please enter you **three-digit** student number

#### Knowledge|

1. What is Early Childhood Caries?
  - a. Dental decay in children from 2–10 years of age
  - b. **An infectious chronic disease**
  - c. Deformities in a child's teeth that are caused by excessive fluoride
  - d. Dental decay caused by a lack of fluoride in a child's diet
  
2. Oral bacteria and dietary sugars are two of the three parts of the "Etiology Triad" of Early Childhood Caries. What is the third part of the triad?
  - a. **The enamel and dentin of teeth, which is vulnerable to demineralization**
  - b. Bacterial toxins, which attack the teeth's calcium matrix
  - c. Saliva, which provides a moist environment for the cariogenic oral bacteria
  - d. Genetic predisposition to colonization by cariogenic oral bacteria
  
3. What is a risk factor for developing Early Childhood Caries?
  - a. High fat diet
  - b. A patient's age

- c. Excessive levels of fluoride
  - d. Caries in siblings or caretakers
4. How can primary care clinicians prevent Early Childhood Caries?
- a. Counsel a child's caregivers about the child's diet
  - b. Apply dental sealants to the teeth of young patients
  - c. Prescribe fluoride to every young patient
  - d. Refer children to a dentist at age 5
5. What does this photograph of a child's mouth depict?



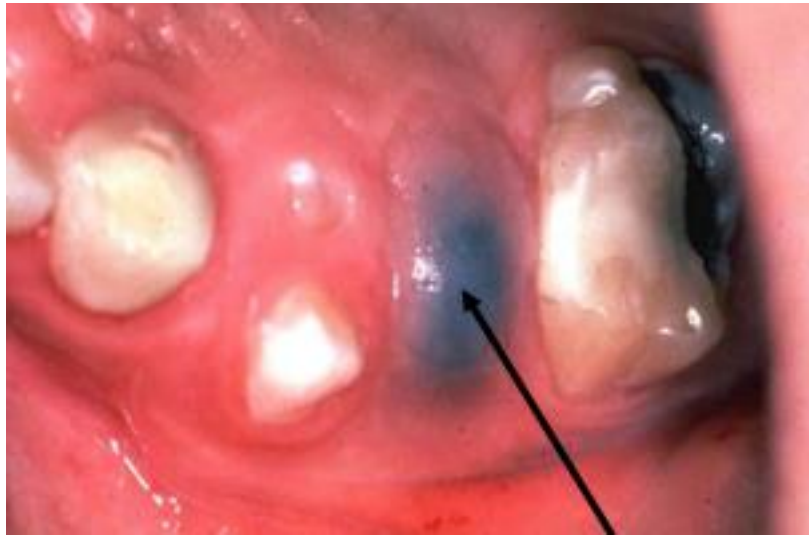
- a. Fluorosis
  - b. White spots
  - c. Moderate Early Childhood Caries
  - d. Iron staining
6. To what is the arrow on this photograph of a child's mouth pointing?





- a. A normal tooth
  - b. Fluorosis
  - c. White spots
  - d. Severe Early Childhood Caries
7. What is the first step in performing a knee-to-knee oral examination of a child's mouth?
- a. Have the caregiver hold the child on their lap facing the examiner
  - b. Have the caregiver hold the child facing them in a straddle position
  - c. The examiner looks in the child's mouth
  - d. Have the caregiver separate the child's jaws
8. What guidance about teething should a primary care clinician provide to a toddler's caregiver?
- a. Teething can cause ear infections and diarrhea
  - b. The caregiver should bring the toddler to the office if the child starts to drool
  - c. Teething sometimes causes upper respiratory infections
  - d. A child who is teething may be fussy

9. The arrow is pointing to a darkened feature in a child's mouth. What is this feature called?



- a. Fluorosis
- b. An avulsed tooth
- c. An eruption hematoma
- d. Early childhood caries in an unerupted tooth

#### **Prior Experience|**

1. Have you ever worked with children in a dental setting?
- a. Yes
  - b. No

#### **Confidence|**

1. How confident do you feel performing oral examinations on infants and toddlers?
- a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident

2. How confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?
  - a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident

## Appendix D

### Child Oral Health: Post-test

#### Module 2: Child Oral Health

The following questions are based on your knowledge and confidence levels in children's oral health. You must fully complete this questionnaire in order to receive workshop credit.

Please enter your **three-digit** student number

#### Knowledge|

1. What is Early Childhood Caries?
  - a. Dental decay in children from 2–10 years of age
  - b. **An infectious chronic disease**
  - c. Deformities in a child's teeth that are caused by excessive fluoride
  - d. Dental decay caused by a lack of fluoride in a child's diet
  
2. Oral bacteria and dietary sugars are two of the three parts of the "Etiology Triad" of Early Childhood Caries. What is the third part of the triad?
  - a. **The enamel and dentin of teeth, which is vulnerable to demineralization**
  - b. Bacterial toxins, which attack the teeth's calcium matrix
  - c. Saliva, which provides a moist environment for the cariogenic oral bacteria
  - d. Genetic predisposition to colonization by cariogenic oral bacteria
  
3. What is a risk factor for developing Early Childhood Caries?
  - a. High fat diet
  - b. A patient's age
  - c. Excessive levels of fluoride

d. Caries in siblings or caretakers

4. How can primary care clinicians prevent Early Childhood Caries?

- a. Counsel a child's caregivers about the child's diet
- b. Apply dental sealants to the teeth of young patients
- c. Prescribe fluoride to every young patient
- d. Refer children to a dentist at age 5

5. What does this photograph of a child's mouth depict?



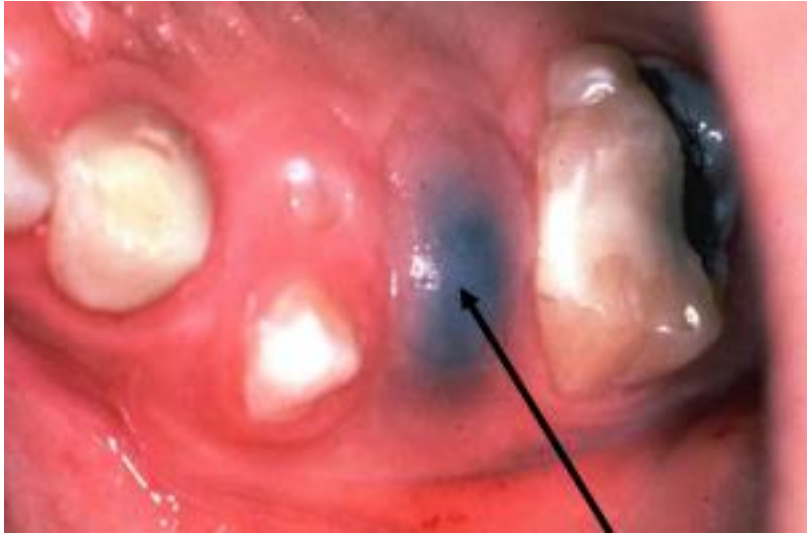
- a. Fluorosis
- b. White spots
- c. Moderate Early Childhood Caries
- d. Iron staining

6. To what is the arrow on this photograph of a child's mouth pointing?



- a. A normal tooth
  - b. Fluorosis
  - c. **White spots**
  - d. Severe Early Childhood Caries
7. What is the first step in performing a knee-to-knee oral examination of a child's mouth?
- a. Have the caregiver hold the child on their lap facing the examiner
  - b. **Have the caregiver hold the child facing them in a straddle position**
  - c. The examiner looks in the child's mouth
  - d. Have the caregiver separate the child's jaws
8. What guidance about teething should a primary care clinician provide to a toddler's caregiver?
- a. Teething can cause ear infections and diarrhea
  - b. The caregiver should bring the toddler to the office if the child starts to drool
  - c. Teething sometimes causes upper respiratory infections
  - d. **A child who is teething may be fussy**

9. The arrow is pointing to a darkened feature in a child's mouth. What is this feature called?



- a. Fluorosis
- b. An avulsed tooth
- c. An eruption hematoma
- d. Early childhood caries in an unerupted tooth

### Confidence|

1. After completing this module on Child Oral Health, how confident do you feel performing oral examinations on infants and toddlers?
  - a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident
  
2. After completing this module on Child Oral Health, how confident do you feel providing education to young children and their parents/caregivers on the importance of good oral health?
  - a. Very Confident
  - b. Confident
  - c. Somewhat Confident

- d. Not Confident

**Evaluation|**

1. How informative was this learning module on Child Oral Health?
  - a. Very Informative
  - b. Informative
  - c. Somewhat Informative
  - d. Not Informative
  
2. How relevant was the information provided by this learning module towards your preparation for this ICS I Workshop?
  - a. Very Relevant
  - b. Relevant
  - c. Somewhat Relevant
  - d. Not Relevant
  
3. Prior to reviewing this learning module, have you ever heard of the term, “Early Childhood Caries”?
  - a. Yes
  - b. No



## Appendix E

### Oral Health in the Pregnant Patient: Pre-test

#### Module 5: Oral Health in Pregnancy

The following questions are based on your knowledge and confidence levels in a pregnant patient's oral health. You must fully complete this questionnaire in order to receive workshop credit, however, **this pre-test questionnaire is not a quiz examination and will NOT affect your grade.**

Please enter you **three-digit** student number

#### Knowledge|

1. Which of the following is a TRUE statement:
  - a. Mothers with caries pass their genetic predisposition for caries on to their babies
  - b. Mother with caries pass caries-causing bacteria to their babies in utero
  - c. **Mother with caries pass caries-causing bacteria to their infants early in life via saliva transmission**
  - d. All of the above
  
2. A pregnancy granuloma:
  - a. Has malignant potential and should be biopsied
  - b. Should be excised during pregnancy even if asymptomatic to avoid complications
  - c. **Can be observed**
  - d. Is not likely to recur if excised
  
3. A pregnant patient asks you for guidance about having dental treatment during her pregnancy. What would you say?

- a. Dental treatment should only be done during the second and third trimester
  - b. Dental treatment should only be done during the third trimester because organogenesis is complete
  - c. Dental treatment should only be done during the second trimester for comfort and safety reasons
  - d. **Dental treatment can be done during any trimester**
4. What guidance should you give a pregnant patient about having dental x-rays during her pregnancy?
- a. Dental x-rays should be avoided during pregnancy
  - b. Dental x-rays should be limited to only one film per pregnancy
  - c. **Dental x-rays should be taken as necessary to reach a full diagnosis**
  - d. Dental x-rays are rarely needed during pregnancy
5. What oral health guidance should you give a pregnant woman?
- a. Brush twice daily with fluoridated toothpaste
  - b. Use chlorhexidene mouthwash three times per day
  - c. Avoid sugary drinks and snacks between meals
  - d. Take fluoride dietary supplements
  - e. **A and C only**
6. All of the following conditions can cause worsening gingivitis EXCEPT:
- a. Onset of puberty
  - b. Monthly menses
  - c. **Menopause**
  - d. Use of oral contraceptives
  - e. Pregnancy
7. If a pregnant woman has an oral abscess in the first trimester, what should she do regarding its treatment?

- a. Take antibiotics and pain medication only and wait until her second trimester to see the dentist
  - b. Avoid x-rays for further diagnosis
  - c. Have the tooth treated or extracted under local anesthesia immediately
  - d. Delay definitive treatment until after delivering her baby
8. Amalgam restorations placed during pregnancy can lead to which negative outcome in the fetus?
- a. Birth defects
  - b. Neurologic sequelae
  - c. Spontaneous abortions
  - d. None of the above
9. What could pregnant women do after vomiting to reduce the risk of enamel erosion?
- a. Swish with baking soda and water
  - b. Vigorously brush her teeth
  - c. Immediately take a dose of a proton pump inhibitor
  - d. Immediately take 3-4 antacid tablets

### **Prior Experience|**

1. Have you ever worked in a dental setting with patients who are pregnant or nursing?
  - a. Yes
  - b. No

### **Confidence|**

1. How confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?
  - a. Very Confident

- b. Confident
  - c. Somewhat Confident
  - d. Not Confident
2. How confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?
- a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident

## Appendix F

### Oral Health in the Pregnant Patient: Post-test

#### Module 5: Oral Health in Pregnancy

The following questions are based on your knowledge and confidence levels in children's oral health. You must fully complete this questionnaire in order to receive workshop credit.

Please enter your **three-digit** student number

#### Knowledge|

1. Which of the following is a TRUE statement:
  - e. Mothers with caries pass their genetic predisposition for caries on to their babies
  - f. Mother with caries pass caries-causing bacteria to their babies in utero
  - g. **Mother with caries pass caries-causing bacteria to their infants early in life via saliva transmission**
  - h. All of the above
  
2. A pregnancy granuloma:
  - i. Has malignant potential and should be biopsied
  - j. Should be excised during pregnancy even if asymptomatic to avoid complications
  - k. **Can be observed**
  - l. Is not likely to recur if excised
  
3. A pregnant patient asks you for guidance about having dental treatment during her pregnancy. What would you say?

- m. Dental treatment should only be done during the second and third trimester
  - n. Dental treatment should only be done during the third trimester because organogenesis is complete
  - o. Dental treatment should only be done during the second trimester for comfort and safety reasons
  - p. Dental treatment can be done during any trimester
4. What guidance should you give a pregnant patient about having dental x-rays during her pregnancy?
- q. Dental x-rays should be avoided during pregnancy
  - r. Dental x-rays should be limited to only one film per pregnancy
  - s. Dental x-rays should be taken as necessary to reach a full diagnosis
  - t. Dental x-rays are rarely needed during pregnancy
5. What oral health guidance should you give a pregnant woman?
- u. Brush twice daily with fluoridated toothpaste
  - v. Use chlorhexidene mouthwash three times per day
  - w. Avoid sugary drinks and snacks between meals
  - x. Take fluoride dietary supplements
  - y. A and C only
6. All of the following conditions can cause worsening gingivitis EXCEPT:
- z. Onset of puberty
  - aa. Monthly menses
  - bb. Menopause
  - cc. Use of oral contraceptives
  - dd. Pregnancy
7. If a pregnant woman has an oral abscess in the first trimester, what should she do regarding its treatment?

- ee. Take antibiotics and pain medication only and wait until her second trimester to see the dentist
  - ff. Avoid x-rays for further diagnosis
  - gg. Have the tooth treated or extracted under local anesthesia immediately
  - hh. Delay definitive treatment until after delivering her baby
8. Amalgam restorations placed during pregnancy can lead to which negative outcome in the fetus?
- ii. Birth defects
  - jj. Neurologic sequelae
  - kk. Spontaneous abortions
  - ll. None of the above
9. What could pregnant women do after vomiting to reduce the risk of enamel erosion?
- mm. Swish with baking soda and water
  - nn. Vigorously brush her teeth
  - oo. Immediately take a dose of a proton pump inhibitor
  - pp. Immediately take 3-4 antacid tablets

### Confidence|

1. After completing this module on Oral Health in Pregnancy, how confident do you feel in identifying early signs of oral conditions related to pregnancy in dental patients?
- a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident

2. After completing this module on Oral Health in Pregnancy, how confident do you feel educating pregnant patients on the importance of maintaining their oral health during pregnancy?
  - a. Very Confident
  - b. Confident
  - c. Somewhat Confident
  - d. Not Confident

### **Evaluation|**

1. How informative was this learning module on Oral Health in Pregnancy?
  - a. Very Informative
  - b. Informative
  - c. Somewhat Informative
  - d. Not Informative
  
2. How relevant was the information provided by this learning module towards your preparation for this ICS I Workshop?
  - a. Very Relevant
  - b. Relevant
  - c. Somewhat Relevant
  - d. Not Relevant
  
3. Prior to reviewing this learning module, did you know that pregnant women could get dental x-rays and dental treatment done safely at anytime during their pregnancy?
  - a. Yes
  - b. No
  
4. You have completed two learning modules (Child Oral Health and Oral Health in Pregnancy). Please indicate how much these modules contributed to your learning in this ICS I Workshop.



- a. Extremely helpful; an excellent use of my time
  - b. Helpful; a good use of my time
  - c. Neither helpful nor unhelpful
  - d. Not at all helpful; a poor use of my time
5. Which other learning modules would you be interested in completing? Select all that apply.
- a. The Relationship of Oral to Systemic Health
  - b. Adult Oral Health
  - c. Dental Emergencies
  - d. Caries Risk Assessment, Fluoride Varnish and Counseling
  - e. Geriatric Oral Health
  - f. The Oral Examination





### Integrated Clinical Sciences I: Orientation to the Clinical Practice of General Dentistry

10. Demonstrate the ability to interact in a non-judgmental manner with your patient specifically about mechanical plaque control, with a focus on brushing and flossing.
11. Demonstrate and describe doctor-patient positioning that promotes interaction with your patient during the disease prevention education session.
12. Give 5 examples of "body language" that indicate "I am listening". E.g. SLANT
13. Define an "open-ended" question and give 3 examples of good questions to begin your patient interview.
14. Demonstrate how to use the iPad with the DDS GP software specifically focused on the perio-gingivitis page.

#### Workshop B: Professional Presentation

This exercise is conducted in 2 hours for each Group, e.g. 1A, 1B, etc. Each student will be assessed on the level of competency of his or her presentation skills per the *Presentation Guide Rubric* [posted on Sakai in the Prevention Workshop folder], as well as, the quality of information included in the presentation.

#### Preparation PRIOR to Workshop B:

- ❖ **BRING your computer fully charged**
- ❖ **PREP for the Quiz** from the reading both Workshops A and B
- ❖ **READ *Bright Futures in Practice: Oral Health Pocket Guide***
  - "Components of Oral Health Supervision" pgs 9-18
  - "Infancy & Early Childhood Guidelines" pgs 26-48
- ❖ **COMPLETE the 2 QUALTRICS Pre-Test Questionnaires BEFORE reviewing the *Smiles For Life* pdf Modules** (listed below)
  - These questionnaires can be accessed via links in SAKAI (in the same location as your other resources for this Workshop).
    - These links will be made available to you one week prior to your Monday Workshop, so be sure to check Sakai during this time
    - You must fully complete these TWO questionnaires PRIOR to the Workshop and PRIOR to reviewing the *Smiles for Life* pdf modules in order to get credit for this Workshop.
- ❖ **REVIEW *Smiles for Life*: pdf Modules about "Child Oral Health" and "Oral Health for Women" (ONLY AFTER you have completed the QUALTRICS PRE-TEST QUESTIONNAIRE)**

#### Workshop B Learning Objectives:

Students are expected to present a presentation created in the Workshop:

1. Customize and complete the PowerPoint presentation (5-7 slides), which shall include information regarding:
  - a. Definition of "Early Childhood Caries"
  - b. Importance and benefits of oral disease prevention in children
  - c. Oral health care recommendations for infants and young children
2. Deliver an informative oral presentation to your partners in a clear, effective manner
3. Define and list each Component of Oral Health Supervision (pg. 10)

#### Performed during this Summer Workshop B:

You will work in assigned groups for this exercise. Each group will divide into ~ 2 pairs and prepare a 5-7 slide PowerPoint presentation based on the slide template posted on SAKAI. In the Workshop, you will create your slide presentation using the template and practice for ~ 1 hour. Use the information found in the assigned reading material (which you will have read before this workshop) to customize and complete your presentation.

The presentations will consist of similar information but should be intended for 2 different audiences. Both presentations should discuss "Oral Health Care for Infants and Children". The two different audiences for which you will design these presentations are:

- ❖ An audience of nursing professionals
- ❖ An audience of grandparents who are caregivers for their grandchildren on a daily basis, but have minimal knowledge of dental disease prevention and care

**Appendix H:****Workshop B - Professional Presentation:**

7/24/2015

**BASIC INSTRUCTIONS**

For this workshop, you will be creating a PowerPoint presentation (approx. 5-7 slides) about dental disease prevention which you will present to ONE of two small groups - nurses who treat children or home caregivers (parents, grandparents, relatives) of a young child. On the day of class, the faculty will assign you which audience group.

Use information gleaned from the reading material and online resources to customize the following PowerPoint template to create a presentation specific to your assigned audience.

Include relevant text and pictures/images in your PowerPoint.

The audience will be a small group so that you will be able to engage them in your presentation via questions/discussion/"Did you know?" lead-ins. In other words, don't just talk at them.

You will be assessed on the content of your PowerPoint and the quality of your presentation delivery (refer to the Workshop Content Guide for details).

**A Presentation on Caring for  
Children's Teeth**

1

7/24/2015

- Discuss why baby teeth are important

(What questions can you ask your audience to determine their level of oral health knowledge at the beginning of the presentation in order to engage them for the remainder of lecture?)

- Define and explain the cause of “Early Childhood Caries” (look online)
- What are other terms for this disease?

(Ask audience if they are familiar with this term before you give the definition. Remember to use audience-appropriate language – explain any technical dental terminology in “lay” terms to improve comprehension and interest)

2

7/24/2015

- Describe different methods of oral health care for infants and children (ages 0-4) - use several slides to cover various dental disease prevention techniques.
- Remember to customize this section to the audience – for instance:
  - 1) Give options to the nurses on how to guide the parent's/caregiver's behavior regarding oral health care via Anticipatory Guidance review, dental screenings (not exams), etc.
  - 2) Take into consideration different oral health care regimens based on various household circumstances (i.e., grandparents as caregivers, multi-family households, cultural considerations)

3