Dental Health Promoter: A Paradigm for Other Universities

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Abstract

In the world, there are many people who lack the ability and knowledge to take care of their oral health. In the United States, even though we are a first world country, many people have poor oral health due to having “a low-income, being uninsured, members of a racial/ethnic minority, an immigrant, or part of rural populations” (1). Due to all of these inequalities, there are strong risk factors that are even more prevalent within these communities due to their diet causing: gingivitis and periodontal disease, which can lead to heart disease, cancer, and diabetes. In efforts to close this gap, students from Saint Joseph’s University have implemented a Hispanic Health Promoter in order to provide dental care at no cost, and if needed, the dentists are able to refer out to surrounding dental schools for a lower cost. During this clinic, the students are able to teach proper brushing and flossing techniques to prevent plaque buildup and dental caries.

INTRODUCTION

When compared to their native-born counterparts, undocumented immigrants within the U.S. tri-state area (Pennsylvania, New York, New Jersey, etc.) have a greater rate of dental illnesses and underutilization of dental treatment due to their lack of health insurance. Immigrants from the top five countries of origin - Mexico, India, the Philippines, China (excluding Hong Kong and Taiwan), and Vietnam - accounted for 45.3% of all of the foreign born in the United States (2). According to 2009 data from the Migration Policy Institute, 52% of foreign-born people had private health insurance, 15% had public health insurance (Medicare, Medicaid, and the Children's Health Insurance Program), and 33% were uninsured (3). These population statistics are significant because immigrant and refugee families bring cultural influences and health experiences from their home countries, which may have a significant impact on children's oral health and overall well-being.

Oral health is frequently a major health concern for everyone. When compared to US-born citizens, noncitizens were much less likely to have at least one dental appointment within a year. Furthermore, naturalized citizens and noncitizens had a lower proportion of thorough examination visits among users than US-born citizens. Additionally, when compared to US-born individuals, noncitizen dental appointments were also more likely to include tooth extraction. The severity of the dental illnesses varies by country of origin, as well as cultural attitudes that might prevent people from seeking treatment even when it is accessible. It should be recognized by pediatricians and primary care physicians that oral health is vital and has an influence on overall health. For instance, the undocumented typically face malnutrition, which is a health issue that affects every part of the body, including the gums and teeth. A study conducted by Child Trends in 2009 showed that undocumented immigrants are nearly twice as likely as the general population to experience food insecurity (24 percent compared to 14 percent) (4). Oral health and malnutrition are closely related to one another since the bones need lots of minerals like calcium, phosphorus, and vitamin D to stay strong. The minerals listed above, in particular, are vitamins that assist in building enamel, which protects the teeth from decay and dental caries, which is the most common chronic disease in children in the US. Damage to a tooth done by decay-causing bacteria in the mouth producing acids that destroy the tooth's surface, or enamel, is known as dental caries. This can result in a cavity, which is a tiny hole in a tooth. If left untreated, dental decay can lead to discomfort, infection, and even tooth loss. According to the 2011-2016 National Health and Nutrition Examination Survey, approximately 23% of children aged 2 to 5 years had dental caries in their primary teeth (5). Prevalence is higher in Mexican American children (33%) and non-Hispanic Black

children (28%) than in non-Hispanic White children (18%) (5). Dental caries in early childhood are associated with pain, loss of teeth, impaired growth, decreased weight gain, negative effects on quality of life, poor school performance, and future dental caries. Therefore, the undocumented people that reside in the tri-state area need to be ensured with proper food security. That is, everyone should have physical and economic access to sufficient, safe, and nutritious food to suit their dietary needs and food choices for an active and healthy life at all times, especially since a healthy diet can lead to better oral health. Undocumented people without a residency visa, one of society's most disadvantaged groups, face the same socioeconomic factors that are linked to poor oral health: material hardship, educational achievement, origin, professional standing, and a lack of a social network. In worldwide research, these characteristics are primarily identified as predictors of negative oral health outcomes.

To overcome knowledge gaps in high-risk areas, healthcare practitioners should be able to diagnose oral health concerns, make appropriate referrals, and communicate effectively with families. Because of their high poverty rates and lack of income as a result of having low-paying jobs, undocumented immigrants cannot afford health care, as they are ineligible for most federal and state healthcare programs. Their lack of dental insurance has been linked to a decrease in the use of preventative dental care. Therefore, non-citizens should be given access to oral health benefits so that they can get better preventative treatment. Especially since, according to the United Nations International Bill of Human Rights (1966), every individual has the right to “urgent medical care”, including dental care, whether he or she has a residence status or not (6).

EDUCATION

The Health Promoter was designed in order to create a free of charge clinic to provide a place for undocumented patients, both uninsured and/or underinsured. The “Mercy Health Promoter” was designed to prevent complex diseases and management of chronic conditions through education and observation. In accordance with ICB, Institute of Clinical Bioethics, Graduate assistants and Pre-Dental students, the clinics are held twice a month on the second and fourth Sunday at two different locations. Pre-dental students show how to effectively brush and floss teeth in order to prevent disease and plaque buildup. Next, Dentists and Dental students from surrounding schools volunteer to assess the patients and, if needed, refer them out to the surrounding dental schools for a relatively low cost.

The importance of effectively communicating dental education to patients at the Health Promoter decreases the risks of oral health issues as well as non-oral infections that have been linked to dental cavities and gum disease. To aid in this process, student translators from the Spanish Department at Saint Joseph’s University assist the dental clinic to ensure proper care to non-English speaking patients. In addition to an oral examination, the patient is given detailed instructions on how to maintain their oral health which is scientifically proven to improve the level of oral hygiene within the patient (7). Each patient is given a kit containing a toothbrush, toothpaste, floss, mouthwash, a two minute hourglass, and baby tooth carrying case for pediatric patients. Every patient is instructed on how to use each material in order to remove plaque and prevent dental caries. Patients are also given pamphlets that are translated into Spanish that give detailed descriptions on prevention and different types of diseases.

Patients were instructed to brush their teeth for at least two minutes using a fluoride containing toothpaste at least twice a day and shown how to correctly brush each surface of the tooth to effectively remove plaque. The proper brushing and flossing techniques were demonstrated to each of the patients at the dental clinic through the dental puppet model and it was recommended to floss at least once a day to prevent gum disease and plaque buildup. In addition, the use of mouthwash was demonstrated for patients to rinse their mouths out for at least 20 seconds once a day to kill mouth bacteria that can contribute to plaque, gingivitis, and tooth decay (8). For pediatric patients a puppet model was used to demonstrate correct tooth brushing techniques in order to prevent diseases caused by not brushing the teeth properly. The pediatric patients were able to see the teeth in the maxilla and mandible and recognize the different tooth structures like incisors, canines, and molars. The use of the toothbrush was demonstrated on the model by using vertical, horizontal, and circular motions to brush surfaces facing the lips/cheek, tongue, and the chewing area in equal parts of time amounting to two minutes total. The use of dental floss was demonstrated by threading the floss carefully in between the puppet teeth in a “sawing” motion to effectively maneuver the floss in between the gums to collect debris. The puppet was an efficient way for the children to learn since they could play and be motivated to learn (9).

It was recommended to maintain a regular balanced diet. In addition, avoiding sugary foods and drinks which fuel

plaque causing bacteria in the mouth. Plaque can accumulate on the teeth causing calculus (tartar) and function as a colony for acid producing bacteria, eventually leading to the erosion of enamel, known as a dental carie (10). Plaque can also cause gingivitis and periodontal (gum) disease that can lead to tooth loss or other health related issues such as heart disease, cancer, and diabetes. Gingivitis occurs when tartar collects above the gum line and causes the tissue to swell and bleed easily (10). If not treated, gingivitis can develop into advanced gum disease, when the gums start to pull away from the teeth. In addition to an in-person explanation, all dental care instructions as well as oral health education facts were handed out as pamphlets on endodontic, periodontal, and prosthodontic treatments as well as guides so the patient could take it home to implement in their daily health routine.

Figure 1

It was also recommended that patients receive the provided fluoride varnish treatment of 5% sodium fluoride, that is applied topically to the teeth using a small brush by the dentist. It is a mineral that can repair the beginning stages of decay and prevent cavities from forming. Fluoride once applied to enamel makes teeth stronger and more resistant to acid that weaken tooth enamel. When the mouth becomes acidic with increased bacteria activity, fluoride can ionize to form fluorine ions which bond with nearby hydrogen ions and form compounds. These compound(s) get absorbed into the bacterial cell and ionize again which creates a cycle of ions inhibiting the enzyme activity of the bacteria to overall reduce the bacteria's ability to consume sugars and produce acids. It is proven that applying an oral fluoride treatment biannually, on top of maintaining an oral health routine, effectively prevents dental caries by incorporating the fluoride into the surface layer of the tooth, making it more resistant to decay (11).

PREVENTION

The most effective way to combat oral disease is to use proper prevention methods to control infection progression. The majority of dental diseases can be avoided with daily proper oral hygiene. Of these oral diseases, gingivitis (inflammation of the gums) is the most common. Susan O. Griffin, et al. in the article, "Periodontal Diseases in the United States Population." show how previous studies state over 50% of adults in the United States had gingivitis on an average of 3 to 4 teeth (12). Gingivitis is caused by the accumulation of dental plaque on tooth surfaces. It is reversible inflammation that can be resolved within one week if adequate plaque control is instituted. Dental plaque has been determined as the main etiological factor for gingivitis and periodontitis, and therefore plaque control is the central target of prevention techniques.

Mechanical plaque control via brushing and flossing the teeth is one of the easiest ways for patients to remove food and bacterial build up. The design of the toothbrush selected should have soft rounded bristle-ends to prevent excessive scratches on the gingiva. Soft bristles clean better than hard bristles because they are more flexible, reach further onto the proximal surfaces of the teeth, and can better reach under the gingival margin. Griffin also states in her article that 67% of the US population with gingivitis had subgingival calculus present (12). Therefore this area should be effectively reached and cleaned with the proper soft bristle brush and sulcular brushing technique. To ensure bristles remain flexible and soft, patients should replace a toothbrush every two to three months. When using the tooth brush, the amount of force used should be minimal. Aggressive brushing can lead to hard and soft tissue damage including abrasion, gingival recession, and ulcerations. The bass technique (sulcus brushing method) is used to ensure the bristles brush beneath the gingival margin and into the sulcus (the space between the teeth and the gums). It is achieved by positioning the toothbrush at a 45 degree angulation towards the apex of the tooth up in the gums. The patient will then use short back and forth circular motions whilst moving the brush from the apex of the tooth down to the coronal. A typical pattern of brushing is one quadrant at a time starting from the upper right to the upper left, and then from the lower left to the lower right. When addressing daily brushing, it is important to consider that an electric toothbrush is more effective than a manual. According to Jongenelis and Wiedemann, a study on plaque reduction in children, an electric toothbrush provided an overall 46% decrease in plaque accumulation in comparison to a manual

toothbrush providing only a 25% decrease (13). The use of an electric toothbrush eliminates the patient's need for a special technique because it uses oscillating, pulse, vibration or rotating motions on its own and generates hydrodynamic shear forces that disrupt plaque. The head of the brush is placed next to the teeth at the gingival margin, and used in the same quadrant by quadrant pattern around the mouth. Patients who benefit the most from using an electronic oscillating version of a toothbrush include children and teens, patients with physical and mentally disabilities, poor dexterity, braces, and who are poorly motivated. The overall efficacy of tooth brushing for better oral health is mainly based on regular repetition. There is a positive correlation between the length of time of tooth brushing and overall gingival health. Brushing twice a day for two minutes a day is the recommended standard.

A toothbrush alone is not effective for removing dental plaque from the interdental areas (the area in between the teeth). Therefore other tools must be used in addition to the toothbrush such as dental floss, toothpicks, and irrigating devices. According to the American Dental Association, floss is the most commonly used method of interdental cleaning and studies show it provides up to 80% of interdental plaque removal (14). To achieve the best cleaning, the floss should be held between the patients two index fingers and inserted between the teeth. When inserted move the floss against the surface of one tooth and slide down until it is subgingival. Repeat this sliding up and down movement for multiple strokes and then complete the same motion on the adjacent tooth. This movement can also be used for disposable floss sticks, which provide a similar difference in the reduction of plague and may be more comfortable for the patient. Toothpicks are an easy to use interdental cleaning method that is easily learned by patients. The tip is triangularly shaped and inserted between the teeth with the base of the triangle resting on the gingiva and the sides in contact with the proximal tooth surfaces. The patient then completes a gentle back and forth motion, pulls out and repeats for the adjacent tooth. The toothpick is most used for dislodgement of food in the interdental area. Another popular method is gingival irrigation with water (Waterpik). A Waterpik is an irrigation device that provides a continuous pulsating stream of water that aims to displace plaque and bacteria. When using an irrigation system, the patient should direct the pulsating stream of water towards the tooth surfaces by placing the jet tip right above the gingival margin. The patients that may benefit the most with this method are those that have orthodontic appliances (braces) and fixed prostheses that have inaccessible areas hard to reach with floss or a pick. Plaque control should be performed at least once daily with a toothbrush and a fitting interdental device.

Chemical plaque control via mouth rinses, disclosing agents, and fluoride play a tremendous role in preventing and delaying re-colonization by pathogenic microorganisms on the teeth. The overall goal of these agents is to prevent biofilm formation without affecting the biological equilibrium of the oral cavity. Chemical plaque control can be especially useful for noncompliant patients, patients that are handicapped and have trouble using mechanical plaque control methods, patients with acute infections, prior to treatment to reduce risks, and following surgeries. One of the most widely used chemical antiplaque agents are mouth rinses with chlorhexidine or essential oils. Patients should thoroughly brush their teeth first before pouring the best suited oral rinse into a cup (typically between 3-5 teaspoons). Next the patient empties the cup into their mouth but does not swallow the solution. For thirty seconds the rinse should be swished and gargled in the mouth and then spit out into a sink. Chlorhexidine Gluconate is a commonly prescribed medication mouthwash that is used twice daily. It works by damaging the cell wall of bacteria that cause plaque, decreasing its adherence capabilities and thus reducing the build up of calculus. In a recent study reviewing effectiveness of post brushing rinses, chlorhexidine was noted as the best antiplaque and antigingivitis agent (16). The research also showed a statistically significant reduction in plaque and gingivitis when patients used any oral rinse compared to without (16). An essential oil rinse, for example Listerine, is an over the counter mouthwash that contains alcohol. It is an antiseptic that aims to kill bacteria causing bad breath, and reduce plaque and gingivitis. It is recommended to use an essential oil rinse like Listerine twice daily. A disclosing agent can be used to show the presence of plaque on the teeth by staining bacterial deposits. The dye can be used as a motivational tool to improve patient efficiency of plaque control.

Fluoridation is a key component to obtaining good oral health and disease prevention. Topical fluoride is found in dental varnishes (sealant) and toothpastes. The mechanism of action of the topical application aims to inhibit tooth enamel demineralization, promote remineralization, and make cariogenic bacteria less able to produce acid from carbohydrates. The most recognizable source of topical fluoride is toothpaste. When used properly, brushing with a

fluoride toothpaste is safe and effective at preventing and reversing the cavitation process. The fluoride toothpaste should be applied directly to the tooth surface with the brushing technique and then spit out. Fluoride varnish, or dental sealant, is a treatment used to prevent cavitation. The fluoride mixture is painted onto the tooth to provide a barrier that seals and protects the tooth. The procedure is typically recommended for children once they have their permanent dentition, and is applied about two to four times a year depending on the risk of the patient. Systemic fluoride is found via the public water supply. The fluoride in the water reduces the acid solubility of enamel by incorporating itself into the enamel, promotes remineralization, and inhibits demineralization of early caries. The optimal fluoride level of water recommended by the World Health Organization is 0.5-1.0ppm (17). This level of water fluoridation varies by city and state and has a direct correlation to a reduction in tooth decay trends. Many food and beverage options are made with community fluoridated water.

Along with the plaque control methods, proper nutrition is essential for caries prevention. The diet of a patient is directly correlated with their risk of cavitation. To optimize the health of the oral cavity, a healthy eating pattern should include daily servings of fruits, vegetables, dairy, protein, grains and oils. This healthy eating pattern aims to limit the amount of sugar intake. Reducing the amount of ingested sugar is very significant because plaque building bacteria uses sugar to produce acids that will break down the tooth enamel. Therefore the key targets for dental providers when talking about nutrition include snacking and sugary drinks or juice. Snacking on fruits and vegetables instead of snacks high in processed sugar or carbohydrates will greatly reduce the risk of caries. The frequency of snacking should be limited (1-2 snacks a day) to avoid continuously eating throughout the day. This is important to allow the oral cavity to re-establish its normal pH. A more acidic environment produced by the sugars ingested increase the risk of enamel breakdown. It is also recommended to rinse the mouth after eating/snacking or brush regularly. Juice and other sugar-containing drinks can greatly increase the risk of tooth decay. It is recommended to limit the amount of these sugary drinks and substitute with water or milk.

PROGRAM DESIGN/IMPLEMENTATION

Saint Joseph's University is based in the Philadelphia region, and according to the Pew Research Center, "there are approximately 50,000 unauthorized immigrants," which pose a large number of issues for the US HealthCare System and themselves (18). The design of the Health Promoter Program that was developed by the Institute of Clinical Bioethics at Saint Joseph's University, was to ensure a basic health screening for the undocumented and uninsured patients, and provide them with the best care possible. Not only does this provide security for their health, but it also keeps them out of the US HealthCare emergency rooms when there is no emergency. Usually the undocumented immigrants will go to the emergency rooms for a minor health concern because there they are allowed to be seen with or without insurance. By implementing our Health Promoter Program, we are able to give free of charge services for basic needs, and refer out to local hospitals that accept undocumented immigrants and the unisured.

Implementation and Patient eligibility

This study was based directly upon the need for dental care around the country, and the world, due to regular dental visits and dental school visits not being covered by insurance, and are an extraneous amount paying out of pocket, which is what problem occurs with most of the undocumented immigrants. Saint Joseph's University has implemented the dental hygiene program in accordance with the Health Promoter Program. We have implemented this program at the Guatemalan Consulate, the Mexican Consulate with a focus on the Hispanic community, and within the St. Cyprian Church. Each selected location is visited 1-2x a month for 5 hours. This was able to be conducted through emails, phone calls, and meetings with the Head Console and the head faculty member of the project. All community members within and outside of the Consulates and St. Cyprian Church are welcomed. Adults and children, with a guardian, are able to attend. All languages are welcomed as there are multiple different translators, who speak various languages, who volunteer for the Health Promoter Program.

Participants

The Health Promoter is a student-run clinic that is ran through the Consulates, Saint Joseph's students, PCOM Medical school students, doctors, Temple Dental students, and dentists along with the Institute of Clinical Bioethics and Delta Delta Sigma, the Pre-Dental Society of Saint Joseph's University that oversee all operations to ensure all runs smoothly for the undocumented immigrants. Dentists, Dental Students, Pre-Dental Students, and dental supplies were all provided through the Health Promoter Program through recruitment from the surrounding dental schools,

including Temple and The University of Pennsylvania, which allows aid for a student who is looking to obtain more volunteer and clinic hours. Pre-Dental students are recruited to volunteer and assist with disinfecting and cleaning of the chairs and tools while providing assistance to the Dentists and Dental students when needed. At each Health Promoter, there are a total of 2 Dentists or Dental students, and 3-4 Pre-Dental Students.

Dental tools and equipment

All dental tools and equipment were provided by funds from the Institute of Clinical Bioethics. The dental clinic is able to run based off of having the following items: toothbrushes, floss, mouthwash (oral rinse), toothpaste for children and adults, disposable mirrors, disposable explorers, fluoride varnish, three sets of non-disposable dental cleaning equipment, an autoclave, cleaning products for chairs and trays, 2 dental chairs, trays, and gloves.

Procedures

Upon entry to the dental clinic, a Pre-Dental student, within the Pre-Dental club Delta Delta Sigma, goes over the basic hygiene routine of brushing your teeth and the proper way to floss. The emphasis on the importance of brushing and flossing everyday is discussed by the Pre-Dental student and interpreted by the interpreters if needed. Once basic hygiene is discussed, they move to see the Dentist/ Dental Student where a complete oral exam will take place. This was performed by using the proper sterile tools and new gloves with each patient, disposable mirrors, and disposable explorers for cleaning. Headlamps and Specs were brought to the Health Promoter Program by the Dentists/Dental Students. A basic oral examination consisted of an oral cancer screening, an assessment of pain, swelling, infection, bite classification, or oral pathology, and an examination of all teeth and surfaces for missing, decayed, filled teeth, and teeth with cavities, exposed root canals, or anything out of the ordinary. If any concern is brought up due to pain and or discomfort to the patient, the Dentist or Dental Student will carefully examine the tooth/teeth. Due to not having implemented air, suction and water, the Health Promoter Program is unable to perform deep cleanings and major surgeries, extractions, and fillings. With the support of the Pre-Dental Society, Delta Delta Sigma at Saint Joseph's University, students were able to obtain Fluoride varnish to place on the teeth of the patients after cleanings. The fluoride varnish is able to be placed after cleanings topically onto the teeth by the dental students.

Lastly, Mouth Guards are able to be fitted to prevent grinding of the teeth during sleeping and also for athletes in need of them for sports. The mouth guards are pre made and just need to be molded to the teeth by boiling water. When severe cases are presented within the Health Promoter, we have been referring the community members out to Temple Dental School, University of Pennsylvania Dental School, and Rutgers Dental School, based on their location of residence, to allow for the maximum amount of care at the lowest possible cost. Papers with their contact information were given to both schools in order to make an appointment for a consultation or a deep cleaning.

ETHICAL ARGUMENTS

In the last four decades, this nation has been trying to improve the quality of our health care delivery system. Despite the efforts to increase the quality in health care, disparities continue to be prevalent and have led to unjust consequences for racial and ethnic minorities. Advances in technology and a better understanding of the disease process have greatly improved due to research in the field of medicine and dentistry. This has contributed to better management of the disease process, which has in turn improved the morbidity and mortality rates of many patients and increased life expectancy in this country. Unfortunately, this effect is being seen predominantly among white Americans while other ethnic groups are still vulnerable, especially inner-city Hispanic and African populations (19). Even though, our health care system, in principle, is considered to be the best in the world it has its own flaws and has left millions of Americans as well as documented and undocumented individuals with inadequate health care or no access to basic health care services, which includes dental care. As health care providers, our duty is to improve the health of the community we serve. To achieve this goal, it is important to understand the diseases prevalent in this community and to develop services tailored to meet these needs. This is certainly a medical problem, but it is also an ethical problem for all Americans. To allow race and ethnicity to play any role in providing health care to our fellow brothers and sisters goes against the basic principles of morality. It will be argued that—according to the ethical principles of respect for persons, beneficence/nonmaleficence, and justice—action must be taken immediately to address these concerns. Such action will not only save lives but will also do much to rebuild a sense of trust between the minority community and the medical establishment.

Respect for Persons

This principle incorporates two ethical convictions: first, that persons should be treated as autonomous agents; and second, that persons with diminished autonomy are entitled to protection. The principle of respect for persons thus divides into two separate moral requirements: the requirement to acknowledge autonomy and the requirement to protect those with diminished autonomy (20). Respect for human persons refers to the right of a person to exercise self-determination and to be treated with dignity and respect. All people deserve autonomy and to be treated with dignity and respect. Failure to provide any person with adequate health care, regardless of their race, creed, color, national origin, sexual orientation, etc., violates this basic right of respect for persons. Fear that undocumented individuals will be turned over to the Immigration and Naturalization Service (INS) if they seek medical/dental care violates personal freedom. It subjects all undocumented persons to the most terrible form of slavery, to be constantly afraid, not knowing their condition or fate, and constantly fearing not living. This way of living does not promote human rights, it violates them.

Second, minorities in this country, especially the undocumented, are the most vulnerable people. When Hispanic and African refugees, asylees and immigrants arrive, they are often traumatized and shocked. They usually have no jobs and no financial support on which to fall back. In addition, they are in poor health, often because they have moved from town to town or from one refugee camp to another. The children may have not been in school for several years, or they may have not been to school at all. As is often the case in refugee-producing situations, women and children become the most vulnerable members of the refugee community. Statistics show that racial and ethnic minorities are generally poorer than whites and more likely to have family incomes below 200 percent of the federal poverty level. In 2002 more than half of African American, Hispanics and American Indians/Alaska Natives were poor or near-poor. Racial and ethnic minorities are more likely to be uninsured as well. In 2002 more than 30 percent of Hispanics were uninsured. Hispanics are the most likely of any racial and ethnic minority to be uninsured (21). This vulnerability compounded with racial disparities give these individuals diminished autonomy. In 2002, an Institute of Medicine (IOM) report, which was requested by Congress, reviewed more than 100 studies that documented a wide range of disparities in the United States healthcare system. This study found that racial and ethnic minorities in the United States receive lower health care than whites, even when their insurance and income levels are the same (21). The IOM report made it clear that disparities between whites and minorities exist in many disease areas (21). These disparities are even greater among the undocumented population. Giselle Corbie-Smith, MD, and her colleagues found that minorities were “more likely to believe that their physicians would not explain research fully or would treat them as part of an experiment without their consent.” (22). Medical abuses have come to light through the oral tradition of minority groups and published reports. Minorities believe that their physicians cannot be trusted, that physicians sometimes use them as guinea pigs in experiments, and that they are sometimes not offered the same medical procedures that whites are offered, even though they have the same clinical symptoms (22). This fear and mistrust among the minority population in the United States is magnified with documented and undocumented individuals. The result is that many undocumented and even documented Hispanic immigrants in the Philadelphia area are not seeking medical care until they are in the last stages of their disease. The reason for this, according to those who work with this population and have gained their trust, is a mistrust of the medical establishment and a fear that if they present to an Emergency Department and are found to be undocumented that they will be turned over to the INS for deportation. Unfortunately, this has happened in several cases. Even though Catholic hospitals in the Philadelphia area will not contact INS in these situations, there is still a great fear among this population. Because of this fear, these individuals enter the medical system only out of desperation, when they can no longer stand the pain or have collapsed in a public setting. In most cases, the disease has progressed to the extent that treatment is often futile or extremely expensive. This sense of fear among the undocumented population violates the basic principles of respect for persons. Failure of the medical establishment to give this population adequate health care or to withhold treatment that is the “standard of care” because the individual is undocumented or unable to afford said treatment is denying these individuals their basic rights of dignity and respect. The medical profession is based on treating all people with dignity and respect. Until we can show an improvement in the overall quality of care and work to aggressively promote public health interventions on such diseases as hypertension, diabetes, obesity and even HIV for minorities in general and the undocumented specifically, we will never gain the trust of the minority communities and will never close the ever-

widening gap in quality of care.

The failure of the medical profession to be proactive in addressing the medical needs of this most vulnerable population is causing needless suffering and even death. This clear form of prejudice clearly violates the ethical principle of respect for persons. Minority patients' autonomy and the basic respect they deserve as human beings are being violated because they are allowed to endure pain, suffering, and even death when such hardships could be alleviated. All hospitals, and especially Catholic hospitals, governed by the Ethical and Religious Directives for Catholic Health Care Services, have a moral and ethical obligation to address the medical disparities that exist in minority communities (22). If Catholic hospitals are committed to treating every person with dignity and respect, then the barriers to health care must be lifted to ensure this commitment, and emphasis must be placed on patient dignity and empowerment.

Beneficence/Nonmaleficence

The principle of beneficence involves the obligation to prevent, remove, or minimize harm and risk to others and to promote and enhance their good. Beneficence includes nonmaleficence, which prohibits the infliction of harm, injury, or death upon others. In medical ethics, this principle has been closely associated with the maxim primum non nocere ("Above all, do no harm"). Allowing a person to endure pain and suffering that could be managed and relieved violates the principle of beneficence, because one is not preventing harm and, therefore, not acting in the best interest of the patient. The duty to act in the patient's best interest must take preference over a physician's self-interest.

Physicians have, as moral agents, an ethical responsibility to treat their patients in a way that will maximize benefits and minimize harms. Failure to adequately assess and manage medical conditions, for whatever reason, is not in the best interest of the patient. According to the 2011-2016 National Health and Nutrition Examination Survey, approximately 23% of children ages 2 to 5 years had dental caries in their primary teeth. Prevalence is higher in Mexican-American children (33%) and non-Hispanic Black children (28%), than in non-Hispanic white children (18%). Dental caries in early childhood is associated with pain, loss of teeth, impaired growth, decreased weight gain, negative effects on quality of life, poor school performance, and future dental caries. These statistics are based on facts; the statistics on the undocumented Hispanic and African populations are unknown. One can assume that if the situation is as bad as it is with minority citizens, the situation with the undocumented foreign population must be even worse.

It is clear, after reviewing these statistics and identifying the biases and stereotyping that exist in the dental profession, that disparities in U.S. health care expose minority patients, especially the undocumented Hispanics and Africans, to unnecessary risks, including possible injury and even death. Physicians/Dentists have a moral responsibility to do what is good for their patients. Should a physician/dentist be impeded in the exercise of his or her reason and free will because of prejudice or bias on the part of the medical establishment, then that physician/dentists has an ethical responsibility to overcome that impediment and do what is demanded by the basic precepts of medicine—seek the patient's good. Hospitals and dental clinics also have a responsibility to their communities. If medical issues like hypertension, diabetes, obesity, and HIV and dental issues like gingivitis, poor oral health, gum diseases, etc. are major issues in the undocumented community of people that a particular hospital/dental clinic serves, then it is the ethical responsibility of hospital administrators and health care professionals to formulate programs that address this immediate need. Failure to recognize prejudice and bias is a failure not only of the test of beneficence; it may also be a failure of the test of nonmaleficence.

Justice

This principle recognizes that each person should be treated fairly and equitably and be given his or her due. The issue of medical disparities among minorities and especially among the undocumented also focuses on distributive justice: the fair, equitable, and appropriate distribution of medical resources in society. At a time when reforming healthcare in this country has become a high priority, failure to initiate preventative measures that would save medical resources in the long-run violates the principle of distributive justice. The justice principle can be applied to the problem under discussion in two ways.

Inequality concerning adequate health care for Americans is a well-documented fact. For years this inequality was attributed to socioeconomic causes resulting in a lack of access to care. With the publication of the 2002 IOM report, however, it is apparent that subtle racial and ethnic prejudice and differences in the quality of health plans are also among the reasons why even insured members of minorities sometimes receive inferior care. Prejudice and negative racial and ethnic stereotypes may be misleading physicians

and other healthcare professionals. Whether such bias is explicit or unconscious, it is a violation of the principle of justice. It has been documented that members of minority groups are not receiving the same standard of care that whites are receiving, even when they have the same symptoms. This lack of care among minorities can be applied to the undocumented Hispanic and African population and the rates will probably be even higher. This is a blatant disregard of the principle of justice.

The principle of justice also pertains to the fair and equitable allocation of resources. "In the United States, people are more likely to have poor oral health if they are low-income, uninsured, and/or members of racial/ethnic minority, immigrant, or rural populations who have suboptimal access to quality oral health care. As a result, poor oral health serves as the national symbol of social inequality. There is increasing recognition among those in public health that oral diseases such as dental caries and periodontal disease and general health conditions such as obesity and diabetes are closely linked by sharing common risk factors, including excess sugar consumption and tobacco use, as well as underlying infection and inflammatory pathways. Hence, efforts to integrate oral health and primary health care, incorporate interventions at multiple levels to improve access to and quality of services, and create health care teams that provide patient-centered care in both safety net clinics and community settings may narrow the gaps in access to oral health care across the life course" (24). If undocumented Hispanics and Africans are twice as likely to have more oral diseases and dental problems that can translate into serious medical issues because of a lack of adequate medical/dental treatment, then the principle of distributive justice would dictate that programs should be implemented to screen, assess and treat these individuals not only for their benefit but also to benefit society as a whole.

We Americans espouse the belief that all men and women are created equal. Equality has also been a basic principle of the medical profession. If we truly believe in equality, we should insist that all men and women must receive equal medical treatment and resources. Denying certain minorities medical/dental treatment, when whites receive them as a standard of care, is an unjust allocation of resources and violates a basic tenet of justice. Physicians and the medical profession have an ethical obligation to use available resources fairly and to distribute them equitably. Failure to do so is ethically irresponsible and morally objectionable. To compromise the basic ethical foundations upon which medicine stands is destructive not just to minority patients but to society as a whole.

To address these medical and ethical concerns, Trinity Health Midatlantic in conjunction with the Institute of Clinical Bioethics at Saint Joseph's University in Philadelphia have designed a comprehensive education and prevention model that will meet the needs of the Philadelphia area undocumented Hispanic and African communities. The Health Promoter Program is an initiative whose foundation is based on an established program in developing nations, which has not only increased medical care in these areas but has also saved countless lives. As the undocumented population continues to increase in the United States, and health care costs continue to skyrocket, this new initiative can become a paradigm for all hospitals and clinics in the United States. Racial and ethnic disparities in health care constitute a complex issue that pertains to individuals, institutions, and society as a whole. Unless we Americans address these disparities and begin to eradicate them, we will never attain the goal of equitably providing high-quality health care in the United States. The Health Promoter model will not only save valuable medical resources; it will also save precious human lives and prevent further disease. If we do not make this a priority now, everyone will pay a price in the future.

CONCLUSION

In the United States, there is an increasingly vast number of undocumented immigrants that have poor oral health in the past decade. Statistics show that racial and ethnic minorities are generally poverty-stricken than whites and more likely to have family incomes below 200 percent of the federal poverty level. In 2002, more than half of African American, Hispanics and American Indians/Alaska Natives were poor or near-poor. Racial and ethnic minorities are more likely to be uninsured as well. Due to the lack of resources and knowledge to take care of their oral health, they are more prone to risk factors such as periodontal disease and gingivitis. These oral diseases can lead to life-threatening issues such as heart disease, cancer and diabetes if untreated. When compared to US-born citizens, noncitizens were much less likely to have at least one dental appointment within a year. The Health Promoter was designed in order to create a free of charge clinic to provide a place for undocumented patients, both uninsured and/or underinsured. The Health Promoter is a student run clinic that is run through the Consulates, Saint Joseph's University students, PCOM Medical school students, doctors, Temple Dental students,

University of Pennsylvania dental students and dentists along with the Institute of Clinical Bioethics and *Delta Delta Sigma*, the Pre-Dental Society of Saint Joseph's University that oversees all operations to ensure all runs smoothly for the undocumented immigrants. The Institute of Clinical Bioethics sees on average over a hundred adult patients and seventy-five pediatric patients during a three hour health promoter event. Many of the patients that find themselves at the dental station have never been properly educated to take care of their oral health and are not familiar with certain brushing techniques that the American Dental Association recommends to the general public. The Dental Health Promoter Program allows the undocumented immigrants to learn about their health while being in a safe and comfortable setting of their country's consulate. The proper brushing and flossing techniques were demonstrated to each of the patients at the dental clinic through the dental puppet model and it was recommended to floss at least once a day to prevent gum disease and plaque buildup. Mechanical plaque control via brushing and flossing the teeth is one of the easiest ways for patients to remove food and bacterial build up. It was recommended to maintain a regular balanced diet. In addition, avoiding sugary foods and drinks which fuel plaque causing bacteria in the mouth (10). Plaque can cause gingivitis and periodontal (gum) disease that can lead to tooth loss or other health related issues such as heart disease, cancer, and diabetes. In addition to an in-person explanation, all dental care instructions as well as oral health education facts were handed out as pamphlets on endodontic, periodontal, and prosthodontic treatments as well as guides so the patient could take it home to implement in their daily health routine. It was also recommended that patients receive the provided fluoride varnish treatment of 5% sodium fluoride, that is applied topically to the teeth using a small brush by the dentist. It is a mineral that can repair the beginning stages of decay and prevent cavities from forming. Fluoride once applied to enamel makes teeth stronger and more resistant to acid that weaken tooth enamel. Fluoridation is a key component to obtaining good oral health and disease prevention. The mechanism of action of the topical application aims to inhibit tooth enamel demineralization, promote remineralization, and make cariogenic bacteria less able to produce acid from carbohydrates. The majority of dental diseases can be avoided with daily proper oral hygiene and if programs in different universities implement this program, they could assist more undocumented immigrants to improve their oral health dramatically and guide them on how to approach their dental care needs with dental school referrals. The dental health promoter program can be implemented into any major cities where universities reside to help its surrounding communities fight the struggle of access to oral health care. Many minority communities would benefit from these programs to improve their overall oral hygiene and allow them the right resources to take care of their immediate dental ailments. Many universities around the United States are surrounded by poverty-stricken communities which would extremely benefit from the focus of oral hygiene as an early effort to curb diseases such as heart disease and oral cancer before it's too late. The ability to change a community's health with minimal funds by creating awareness of oral hygiene will not only benefit their dental health but their overall health. Many of these communities have never been introduced to the brushing and flossing techniques that the regular public was trained on from resources where they had access to such as the internet or a better education system. In the National Health and Nutrition Examination Survey, the Hispanic pediatric patients were more likely to have dental caries in their primary teeth than white children by 15 percent. There are additional minority groups such as African-Americans, and other Latino groups that need attention that a dental promoter program can outreach to their organized communities in order to bring access to opportunities. These opportunities would be jobs with medical or dental insurance and a guide on how to practice good oral hygiene. This program is extremely beneficial to both the university system and the community because it allows for students and university members to learn about the disparities of their own community and allows the patients to gain free of charge dental advice on their oral health.

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