Dentistry 4 BQL

Better Quality of Life

Dentistry not only for better oral health but mainly for Better Quality of life (BQL): Changing the perception and/or misconception of patients about the importance, value, and benefit of dental care.

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Introduction

For several decades, the dental field has been working hard to improve oral health around the world by developing relationships that emphasize prevention and positive oral health care results over the long term. [1,2, 3] However, the rate of oral disease in all age groups is high and is directly related to the fact that some people continue seeking preventive dental care throughout their lives while others are lifelong irregular users and still others discontinue regular use after retirement or relocation to a new community or long-term care facility. [4, 5, 6] For this to happen, there have been identified different factors that are considered barriers to improve oral health and based on the epidemiological and psychosocial literature available on this topic, the barriers discussed include cohort and age, race and ethnicity, income and education, availability of dental and medical insurance, urban vs. rural residence, physical access to a dental office, and systemic and functional health. [5, 7] However, the cost of dental services has been one of the most common factors considered a barrier to access dental care. [1] Cost is what consumers are willing to pay for any particular services and they will be considered expensive or not depending of the value that the "product" has for them in their life. The word on the street, regardless the individual income, is that seeing a dentist is considered expensive, so many people seek care only when the disease is advanced and the pain is unbearable. [1, 2 8] There are high rates of oral disease in all age groups, but low-income Americans of any age are more likely than higher-income Americans to have oral health problems, therefore, the cost is an issue. [1] During all these years of practicing dentistry (mostly with not high income population) I have witnessed that in many occasion dental patients do express their disagreement, concern or dislike in regards to the cost of dental care and end up not getting the appropriate treatment recommended. However, it has also been surprising to me that in many occasions these same patients drive wonderful cars, use expensive cell phones and/or also use expensive technology. It has also come to my attention that the broken appointment rate among patients (new or established under treatment) that have their "free", governmental dental insurance is very high and even higher than uninsured patients. This concur with a study that reported that providing people with dental insurance (governmental insurance such as Medicare, Medicaid), to help in regards to cost and access to dental care, does not necessarily mean that they will use it and seek dental care. [11] All this scenarios make anybody wonder if the reason of this phenomenon is not only the cost but also related to the perception that people have in regards to the importance, value and/or benefit that dental care have or give to their life. This same research report [11] suggests that outreach and education are needed to ensure that people value their dental health and use their coverage to seek appropriate dental care. This finding has a particular value in this era of health reform, and the researchers hope that policymakers will use the findings in designing future programs, initiatives, some inducements, some promotional campaign to change people's attitudes and beliefs in regard to the value of dental care in their quality of life.[12-17] Patient beliefs about the importance of dental visits has been reported as one of the main reason for not to visit the dentist. [18] There is a need to start a process of a new way of presenting dental care and oral diseases to people in order to change the value that both represent for their life as well as new way of thinking about the problem of dental care use to explore some specific determinants of persons' dental service utilization. [19. 20]

The goal of this project is to review the literature related to the relationship of oral health and the impact in the general health and quality of life. The findings will be used to develop educational material to improve the perception, attitudes, belief and knowledge about the values and impact that has oral health in the general health and quality of life.

Background

Historically diseases of the oral cavity have been viewed separately from those of the rest of the body and most clinical and epidemiological studies on oral heath have used clinical parameters as a strategy to evaluate health conditions. [21-25] However, those parameters only evaluate the physical conditions based on judgments established by professionals, normative assessment, reflecting the end point of the disease processes, giving no indication about the impact of the disease process on function or psychosocial well-being of the oral conditions. [21, 26] Today more than ever before, the dental field agreed that ideally, the way how individuals perceive and evaluate their health, their symptoms, and consequently their treatment needs, should be included in health surveys to evaluate the oral health-related impact on quality of life (OHRQoL). [27, 29] Once the shortcoming of the disease-oriented or biomedical approach has been recognized, the researchers can investigate the impact resulting from the oral health clinical conditions on the quality of life. Since the oral cavity has a multitude of functions in relation to daily life such as food intake, speech, social contact and appearance, in recent years efforts have been made to recognize oral health as an integral part of overall health. [29, 30] As social interactions, self-esteem, dietary choices, and nutrition are enhanced by good oral health; poor oral health has also the potential of hampering the quality of life. The notion that dental aesthetics constitutes an important dimension of OHRQoL has been widely accepted and this is especially true, since the Interest in appearance and desire for physical attractiveness does not decline with age.[31] Also, systemic diseases can influence oral health, and oral health has an impact on overall health. This is especially true now days when people live longer and chronic diseases are more likely to appear. [32 -33] Despite that oral health has improved significantly over the past few decades, problems still remain. Oral and dental disease is a persistent, but silent epidemic that is not reversible, but it is preventable. Regular preventive care helps people avoid the pain and cost associated with more invasive acute dental care.

Dental caries (DC) and OHRQoL

DC the most important global oral health burden, is largely preventable, but remains the most common chronic disease among children and adolescents.[34-38] Caries during childhood may have a negative impact on OHRQoL of young children and their parents. [39-44] The consequences of untreated dental caries on the quality of life include discomfort or toothache, weight loss, decreased appetite, chewing difficulties, sleeping difficulties, low growth, worsening of the nutritional status as well as changes in behavior and the cognitive development of preschool children, and are also related to their hospitalization and emergency dental visits. [39-49] While poor dental status among

children has all the above mentioned negative effect, it may also have a socially stigmatizing effect in adolescents, adults and elderly affecting social acceptance. [31, 45] Poor dental health and untreated dental conditions, including caries, can have a significant impact on quality of life, and increase the risk of other chronic conditions such as cardiovascular diseases (CVD). [32-33] Poor oral health, including decayed teeth, leads to poor nutrition, and both these factors create a vicious cycle, which may lead to the overall deterioration of health. Also, some patients with systemic diseases, those who undergo extensive dental procedures, were found to be at risk for development of health complication if prophylactic antibiotic therapy was not implemented in a timely manner. The presence of caries could also bring the attention to the predisposition of other health condition such as obesity which shares common risk factors. [46]

Periodontal Disease (PD) and OHRQoL.

PD is the most common oral disease affecting adults.[47-49] This disease is largely preventable, yet it remains the major cause of poor oral health worldwide and is the primary cause of tooth loss in older adults. [50-52] Accumulation of microbial dental plaque is the primary etiological factor for both periodontal disease and caries.[52-56] Susceptibility to periodontal disease is also influenced by the host's defense mechanisms to bacterial infection and other risk factors such as calculus, smoking or different systemic conditions. [57-60] Periodontal disease affects tissues surrounding and supporting the teeth and is classified into two broad categories: gingivitis and periodontitis. **Gingivitis** is an inflammatory reversible condition that is clinically characterized by bleeding at the gingival margin which is associated commonly to bad mouth taste and halitosis. It is a pre-requisite for periodontitis and is also a risk indicator for caries progression. [52] **Periodontitis** is the irreversible destruction and loss of the supporting periodontal structures (periodontal ligament, cementum and alveolar bone). [51] The result, besides the gingivitis symptoms, is unsightly gingival recession, sensitivity of the exposed root surface, root caries (decay), mobility and drifting of teeth and, ultimately, tooth loss. Effective self-care (tooth brushing and interdental aids) for plaque control, oral hygiene advice, and removal of risk factors such as calculus, which can only be removed by periodontal instrumentation (PI), are considered necessary to prevent and treat periodontal disease thereby maintaining periodontal health. [54, 55] In addition psychological interventions to improve adherence to oral hygiene instruction in adults with periodontal disease seem to help with improvements in oral hygiene related behaviours and self-efficacy beliefs. [55] PD is a chronic disease that may have great impact on daily life, even though symptoms may be weak or not obvious for patients. Still there is a scarcity of studies investigating patients' experiences of periodontal disease and treatment, even though patients' involvement in the treatment is of crucial importance for a successful result. To achieve a comprehensive understanding of the periodontal conditions, it is consequently necessary to supplement the assessment performed by dental professionals with patients' experiences of disease and oral health. Assessment of OHRQoL may hereby be of interest. OHRQoL has obtained a growing interest in periodontology. [61-69] Several of the studies reported that patients with more severe periodontitis rated their OHRQoL as poorer than those who had less severe periodontitis. In addition, periodontal treatment seems to improve OHRQoL. [67, 68, 72, 73]

However, a relationship between periodontal disease and OHRQoL emphasized the importance of using patient-related outcomes because there is a lack of linear association between patients' reports and periodontal pockets. Although periodontal disease is prevalent, its impact on quality of life of populations is contested. Although destructive periodontal diseases in adults had significant negative impacts on quality of life, gingival inflammation, the most common periodontal diseases in children and adolescents, provoked mild or no impacts when used generic OHRQoL measures that reflect impacts on quality of life due to oral diseases in general and not related specifically to periodontal disease. Studies using condition-specific (CS) OHRQoL measures had better discriminative ability than generic measures to differentiate between groups with different oral levels of the disease. [64, 65] Besides the positive association found when these measuring questionnaires are used, there is another important way in which PD can be related to people's quality of life. PD has also been linked to systemic conditions such as diabetes, CVD, kidney disease, atherosclerosis, pneumonia, rheumatoid arthritis and adverse pregnancy outcomes. [66-69] The level of evidence varies according to the condition but in the case of diabetes, it is reported that there is a bidirectional relationship such that patients with diabetes are at higher risk for periodontal disease and patients with periodontal disease may be at higher risk for diabetes. Due to the fact that is estimated that half of all Americans have periodontal disease and that, in persons over sixty-five years of age, the prevalence increases to 80 percent, the potential relationship between oral and systemic disease call for a closer attention. Especially when some reports have shown that PD is commonly under diagnosed and not referred early enough for proper management. [70-72]

Extractions, partial tooth loss or edentulism and OHRQoL

The end point result of untreated dental caries and/or periodontal disease is tooth loss due to dental extractions. [73-80] Mutilating dental treatment (extraction) indicates that oral healthcare measures were either inexistent or failed wholly, reflecting decades of dentistry centered on non-conservative curative procedures. Tooth loss or edentulism increase with age and tooth mortality rates among the elderly can be unusually high. However, in general edentulism in older adults is becoming less common in the developed world and this is likely to relate to improvements in factors affecting oral health over the whole life course. [55,56,58] There is a wide range of edentulism rates in healthy older adults across the world, even within single countries rates may vary considerably both over time and from place to place. [73, 77, 81-84.]

Tooth loss can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image, and a poorer quality of life; especially for older people.[85-90] Tooth loss has been associated with changes in food preference, a low intake of essential nutrients (with lower intake of energy, protein, vitamins, minerals) and dietary fiber, and impaired chewing ability. Past research has shown a strong association between remaining natural teeth and chewing ability. [98, 99] However, it has been concluded that the presence of 20 or more well-spaced teeth does not impair chewing ability. [100] Use of dentures has also shown reduced chewing ability due to substantially lower bite forces.[95] Chewing ability has

been related not just to diet, but also associated with OHRQoL, self-rated general health and well-being. In addition, tooth loss and edentulism result in compromised masticatory function, reducing the quality of diet and increasing the risk of various health problems like CVD, obesity, malnutrition, physical disabilities and even death. [101-108]

A 4.3-year follow-up study of 4425 people aged 65 years or older showed that persons with 19 or fewer teeth and with eating difficulty had a significantly higher risk of CVD and respiratory disease than did persons with ≥20 teeth. [109] Another 15-year follow-up study of 5730 community residents aged 40–89 years showed that men with <10 functional teeth had a significantly higher rate of mortality from heart disease than did men with ≥10 functional teeth. That study was the only study including middle-aged Japanese people, but the effects of potential confounding factors were not considered in that study.[110] However, not all studies are consistent and the effects of potential confounding factors were not considered. [108,111, 112]

Knowledge on the influence of edentulism over the quality of life of elderly individuals is important and should be produced and shared by the entire healthcare team, as good health does not exist without good oral health. All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment. [108, 109]All this is especially true since several studies and systematic reviews have demonstrated that partial (implant-supported, fixed or removable) and conventional complete dentures to replace lost teeth, significantly improved OHRQoL, especially concerning aesthetics and function. [113–119]

Malocclusion and OHRQoL

The orofacial region is usually an area of significant concern for the individual because it draws the most attention from other people in interpersonal interactions and is the primary source of vocal, physical and emotional communication. [121] Facial esthetics affects how people are perceived by society and how they perceive themselves.[122] Malocclusion (or maloccluded teeth) can greatly affect facial esthetics. Malocclusion is one of the most common dental problems globally, together with dental caries, gingival disease and dental fluorosis. However, Malocclusion is not a disease but, rather, a variation from an accepted societal norm that can lead to functional difficulties or concerns about dentofacial appearance for a patient. [123] As a result, malocclusion falls under the World Health Organization's framework of functioning, disability, and health, which considers the psychologic and sociologic in addition to the purely biologic aspects of disability.[124] Therefore, it can be suggested that malocclusion might be a chronic disability that is amenable to treatment that can render a patient back to a state of oral health.

Maloccluded teeth is a common occurrence in children and adolescents that not only can potentially cause disturbances of oral function, such as mastication, swallowing, speech and a greater susceptibility to trauma but also psychosocial problems related to

impaired dentofacial esthetics which exert an impact on quality of life. [125-129] Any deviation from the 'norm' can stigmatize a person and potentially make him/her less socially acceptable. [130] Evidence suggests that individuals with unpleasant occlusal traits can attract unfavorable social responses, and such experiences early in life can leave an indelible imprint.[131,132] Thus, the perceptions of young patients and their parents regarding malocclusion should not be overlooked.[133] It has also shown that patients with severe malocclusion have significantly more oral health effects compared with general population, and severe malocclusions impair patients' quality of life more than many other oral conditions.[131–133] After orthodontic treatment, occlusion and oral effects were correlated, those with more insufficient occlusion reported more oral effects. [134-136]

Malocclusion differs from the majority of medical and dental conditions in that it is 'a set of dental deviations' rather than a disease, and orthodontic treatment does not cure a condition but rather corrects variations from an arbitrary norm. [137] This has led to debate about defining the point at which the extent of variation means that orthodontic treatment is desirable. [138] Further, it has been suggested that the majority of oral health measures developed in dentistry are not applicable to orthodontic patients because most malocclusions are asymptomatic and related to esthetic challenges, as opposed to loss of function. [137,139] Additionally, a malocclusion can be perceived differently by the affected person, and a person's degree of awareness of their malocclusion might not be related to its severity. [140] Therefore, when evaluating the impact of a malocclusion, it is important to consider the different domains that can be affected and their relationships to the severity of malocclusion. Some people with a severe malocclusion are satisfied with or indifferent to their dental esthetics, whereas others are concerned about minor irregularities. [140] Therefore, the understanding of the relationship between quality of life and malocclusion, as well as the impact of treatment, is important for clinicians and patients seeking treatment. When occlusion is improved, OHRQoL improves in general.[139-141] The mean PAR (Peer Assessment Rating) reduction that was achieved was 78.1 percent, an improvement of more than 70 per cent being considered a good standard of orthodontic treatment. [142] Appearance of the teeth is an important aspect of facial attractiveness and attractive persons are thought to be more capable, intelligent, responsible, and socially well integrated; they have more prestige and are happier and more successful than those who are less attractive.[143-149] Therefore, patients with corrected teeth malposition can potentially do better in job interviews, finding better jobs and have more and better dates. [150]

Halitosis and OHRQoL

Halitosis or bad breath is an oral health condition characterized by unpleasant odors emanating consistently from the oral cavity. [151, 152] The origin of halitosis may be related both to systemic and oral conditions, but a large percentage of cases, about 85%, are generally related to an oral cause and the most common causes are related to poor oral hygiene and related conditions such as tongue coating, gingival pathologies, untreated caries, oral infections, peri-implant disease, pericoronitis, mucosal ulcerations,oral

cancer, and impacted food or debris. [153-156] Other causes include certain foods, improper cleaning of dentures, dry mouth, tobacco products, alcohol abuse, and medical conditions. These medical or Non-oral causes are ear-nose-throat, bronchi and lungs, gastrointestinal tract, liver, kidney, metabolic disorders like diabetes mellitus and hormonal causes.[156] Dry mouth (xerostomia) has also been thought to promote oral malodor, although a correlation is not always observed. [157]

At least 50 per cent of the population suffers from halitosis, and approximately 25% of these individuals experience such a severe problem that it affects their social functioning. [156] For example, individuals may feel nervous and embarrassed in the presence of other people and may avoid social contacts and intimate relationships.[157,158] Thus, halitosis is referred to as an impairment that can lead to a decrease in the quality of life. [158–160] However, halitosis therapy improve OHRQoL by causing patient's satisfaction which is mainly due to an awareness of improvement in social life. [161]

Conclusions:

The concept of dentistry for better quality of life could potentially improve the perception, attitudes, belief and knowledge of people about the value and impact that has the oral health in the general health and quality of life. (Appendix 1-7) Today more than ever is clear that good health does not exist without good oral health and that all individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment. Poor dental health and untreated dental conditions such as caries, periodontal disease, tooth loss, malocclusion and/or bad breath can have a significant impact on the quality of life and can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image. The notion that dental aesthetics constitutes an important dimension of OHRQoL has been widely accepted and this is especially true since the Interest in appearance and desire for physical attractiveness does not decline with age. Inability to chew or bite properly have been associated with changes in food preference, a low intake of essential nutrients (with lower intake of energy, protein, vitamins, minerals) and dietary fiber, and impaired chewing ability. Poor oral health has been associated to many other medical conditions such as diabetes, CVD, kidney disease, atherosclerosis, pneumonia, rheumatoid arthritis, adverse pregnancy outcomes and even death. With some conditions like diabetes, there is a bidirectional relationship such that patients with diabetes are at higher risk for periodontal disease and periodontal disease increase the risk for diabetes. Also, tooth loss has been associated to a higher risk of death. Not without mentioning that due to cosmetic implications, individuals who seek employment, having missing, broken, or decayed teeth may be a deterrent to being hired, and may detract from the interview process. At the other hand, a more attractive smile obtained thru a corrected malocclusion or teeth replacement thru dentures can help to do better in job interviews, finding better jobs and have more and better dates.

Mission statement:
Our mission is to do dentistry that will give better smiles with better bites for better life

Vision statements:
Our vision is to increase the number of people that want to have dental care because they have a better perception and a higher value of oral health in their quality if life

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Appendix 1

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Poor dental health and untreated dental conditions

can have a significant impact on quality of life

can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image

have been associated with changes in food preference, a low intake of essential nutrients (with lower intake of energy, protein, vitamins, minerals) and dietary fiber, and impaired chewing ability.

have been associated to many other medical conditions such as diabetes, cardiovascular disease, kidney disease, atherosclerosis, pneumonia, rheumatoid arthritis and adverse pregnancy outcomes

Increase the risk of other chronic conditions such as diabetes

Can increase the risk of death. The fewer teeth you have the higher is the risk of death.

make the chances to find a job a lot lower and may have a negative impact during the interview process

Appendix 2

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Gum disease (gingivitis and periodontitis)

can have a significant impact on quality of life

patients with more severe gum disease have rated their impact on the quality of life similar to less severe condition

treatment improve quality of life

is a common reason for bad breath

have been associated to many other medical conditions such as diabetes, cardiovascular disease, kidney disease, atherosclerosis, pneumonia, rheumatoid arthritis and adverse pregnancy outcomes

can put at higher risk for diabetes and there is a bidirectional relationship such that patients with diabetes are at higher risk for periodontal disease

is the most common reason because people losses teeth and the fewer teeth you have the higher is the risk of death.

Appendix 3

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Tooth loss and total edentulism

can have a significant impact on quality of life

can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image

result in compromised masticatory function, reducing the quality of diet/nutrition and increasing the risk of various health problems like cardiovascular diseases, obesity, malnutrition, physical disabilities and even death

Can increase the risk of death. The fewer teeth you have the higher is the risk of death

Decrease the quality of life but also have demonstrated that teeth replacements with dentures significantly improved Quality of life, especially concerning aesthetics and function

make the chances to find a job a lot lower and may have a negative impact during the interview process

Appendix 4

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Malocclusion or teeth malposition

can impair patients' quality of life more than many other oral conditions

can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image

can stigmatize a person and potentially make him/her less socially acceptable. Individuals with unpleasant occlusal traits can attract unfavorable social responses, and such experiences early in life can leave an indelible imprint.

can potentially cause disturbances of oral function, such as mastication, swallowing, speech and aesthetics

treatment improve in general the oral health-related quality of life

is one of the most common reason for teasing. Teasing due to malocclusion causes more distress that teasing due to other reasons.

can help to do better in job interviews, finding better jobs and have more and better dates

Appendix 5

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Cosmetic awareness

can impair patients' quality of life more than many other oral conditions

can have a profound impact on health and well-being, leading to embarrassment, social constraints and low self-esteem and self-image

can stigmatize a person and potentially make him/her less socially acceptable.

In Individuals with unpleasant occlusal traits can attract unfavorable social responses, and such experiences early in life can leave an indelible imprint.

Interest in appearance and desire for physical attractiveness does not decline with age

treatment improve in general the oral health-related quality of life

can help to do better in job interviews, finding better jobs and have more and better dates

Appendix 6

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Bad Breath or Halitosis

is an unpleasant odors emanating consistently from the oral cavity that can have a significant impact on quality of life

At least 50 per cent of the population suffers from halitosis, and approximately 25% of these individuals experience such a severe problem that it affects their social functioning.

may feel individuals nervous and embarrassed in the presence of other people and may avoid social contacts and intimate relationships leading to low self-esteem

is generally related to poor oral hygiene and related conditions such as tongue coating, gum disease, untreated caries, oral infections, peri-implant disease, pericoronitis, mucosal ulcerations and impacted food or debris

could be the sign of other general health conditions such as ear-nose-throat, bronchi and lungs, gastrointestinal tract, liver, kidney, metabolic disorders like diabetes mellitus and hormonal causes

therapy improve the quality of life, especially to social functioning

Appendix 7

Dentistry 4 BQL
(Better Quality of Life)

What you should know about oral health and dental care

Good health does not exist without good oral health

All individuals should have adequate oral health that allows them to speak, chew, recognize flavors, smile, live without pain or discomfort and interrelate with others without embarrassment.

Untreated Decayed teeth in children

can have a significant impact on quality of life

can cause pain and/or discomfort

can decrease appetite, impair chewing ability causing weight loss.

can cause sleep difficulties

can interfere with children growth (low growth)

can decrease their nutritional status

can change their behavior and the cognitive development of preschool children

can interfere with school performance

can cause hospitalizations and emergency dental visits