

Journal

CALIFORNIA DENTAL ASSOCIATION



March 2018

Financial Considerations
for Sustainability

Absence Rates and Dental Pain

Barriers to Oral Health Care

The background of the cover is a dark field filled with a dense, chaotic pattern of thin, overlapping lines in various colors including red, blue, green, and yellow. In the center of this pattern is a semi-transparent, light-colored illustration of a tooth. Inside the tooth, there are several colored arrows: a yellow arrow pointing down from the crown, a blue arrow pointing up from the root, and a red arrow pointing towards the root canal area.

ADVANCING ORAL
HEALTH EQUITY WITH
INNOVATIVE DENTAL
APPROACHES

Marisa K. Watanabe
DDS, MS

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Tooth Fairy Science

Kerry K. Carney, DDS, CDE

It is easy to think that what you believe is what everyone else believes. That is one good reason to get out of your hometown environment every now and then. Traveling is one of life's best forms of education. It can teach you to evaluate your beliefs in a new context. It facilitates a more understanding view of what the world looks like to others and it teaches humility. Not knowing how to do simple things like how to pay for the bill in a café is the kind of culture shock that helps you realize you are not the most urbane person in the room.

Through travel, we can see that people are very alike, but their customs, beliefs and folklore can be very different. Take, for example, the Tooth Fairy. Years ago, I was trying to reassure a little girl from Central America that she could take the primary tooth we had just extracted and the Tooth Fairy might give her money for it. In my stilted Spanish, my story of a strange woman flying into her bedroom in the dark of night and sneaking under her pillow to exchange her tooth for money was unsettling for her. When our little patient's eyes became as big as saucers, my assistant explained to me that the appropriate folklore for our patient involved a friendly little tooth mouse that would come and take the girl's tooth, not some stranger breaking into her home. I understood my mistake.

Globally, there are many and various rituals surrounding primary tooth exfoliation. Thanks to the commercial popularization of fairies and elves in the U.S., the Tooth Fairy folklore took hold in American culture in the middle of the last century. Though the Deerfield, Ill., museum



When a patient tells me her previous dentist replaced all of her amalgams with composites to reduce her chance of getting multiple sclerosis, I think "Tooth Fairy Science."

dedicated to the Tooth Fairy is no more, her name has been expropriated into a world beyond dentistry.

Dr. Harriet Hall, a retired Air Force physician, coined the phrase "Tooth Fairy Science" to denote ideas and theories that rest on unsubstantiated but fervently held beliefs. There are other names for purported scientific beliefs (e.g., junk science, alternative science), but I think Tooth Fairy Science makes very clear that its driving force resides not in data but in a community standard of heartfelt beliefs.

The need for clinical medicine and dentistry to be based on evidence rather than fervent beliefs may seem to be generally accepted. But sometimes, the whole idea of evidenced-based clinical treatment can be hijacked by the Tooth Fairy, so to speak. Randomized controlled trials (RCT) are the gold standard of evidence-based reviews. But dealing with human subjects and therapeutic regimens can make RCTs difficult to execute.

The Cochrane Library is a respected source for unbiased and informed systematic reviews of published works on topics of interest in dentistry. It follows a rigid protocol for evaluating published data. However, good, valid, reliable data can be hard to find. A cursory review of its conclusions shows a frequent refrain. It often concludes something like: *Given the low quality of the body of evidence, there was insufficient evidence to support the use of*

[whatever the procedure in question]. It frequently closes with something like the following: *Well-designed, randomized trials investigating the most relevant outcomes are needed.* That is a justifiable conclusion but mischievous sophistry can turn it into a portal to Fairyland.

The problem occurs when some claim that the "lack of evidence" is the great equalizer. If there is no strong evidence for one thing then it is no more valid than another thing. Here is the mischievous nature of Tooth Fairy Science: It promotes a good story over scientific principles.

Magicians know that they can convince their audiences that they can bend a spoon with the power of their minds. They also know it is legerdemain, or sleight of hand, and not a magical triumph over the scientific principles governing matter and energy. Tooth Fairy Science is based on magical thinking. It proffers a good story but it is not good science.

So we have to move beyond evidenced based and incorporate science based into our understanding. "Science based" implies that the proposed relationship being tested must pass a "preplausibility" test. In other words, the proposed relationship cannot violate scientific theory whether evidence exists or not. It does not matter how much we want something to be true, it must be scientifically plausible.

Humans are not naturally logical animals. Our evolution rewarded pattern recognition, emotional responses and quick conclusions. Logic and science are relatively new inventions.

But as dentists, our training in the sciences prepared us to analyze, think critically and recognize the difference between good research and bad research.

It is incumbent on each of us as health care professionals, as scientists, to be able to distinguish between science-based concepts and concepts that are attractive but implausible. Tooth Fairy Science maintains that

science should be considered within the context of community standards and wishes. It is potentiated through confirmation bias and logical fallacies. Tooth Fairy Science is easily accessible, emotionally reassuring and ... wrong.

It is not necessary to disabuse every one of all the "Tooth Fairy Science" follies he/she enjoys but neither should we promote those same follies. When I read about a dentist who is promoting oregano to help a patient fight a sinus infection, I think "Tooth Fairy Science." When I hear about a dentist using homeopathic remedies or Reiki

to improve a patient's health, I think "Tooth Fairy Science." When a patient tells me her previous dentist replaced all of her amalgams with composites to reduce her chance of getting multiple sclerosis, I think "Tooth Fairy Science."

We have a duty to keep up to date with our continuing education, to stay skeptical in our evaluation of purported cause-and-effect associations and a duty to keep science as the basis of our profession.


Alternative medicine that has supporting clinical evidence and scientific plausibility is not called alternative medicine. It is called: medicine. The Tooth Fairy belongs in Fairyland. Do not help her climb over the wall of skepticism and into the realm of science. ■

RESOURCES

Tooth Fairy by Hingston M. Don't tell the kids: The real history of the tooth fairy. www.salon.com/2014/02/09/dont_tell_the_kids_the_real_history_of_the_tooth_fairy.
Harriet Hall: Science Based Medicine. www.youtube.com/playlist?list=PL8MfjLNsf_miVcNu6eJMNigAMNwGkk_B9.

The Journal welcomes letters

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Professional Blindness

David W. Chambers, EdM, MBA, PhD

Here’s a surefire conversation nonstarter, “Let’s talk about some of the unethical things we have been doing recently.” On the other hand, we often do enjoy a few minutes topping each other with reports of the corruption, cheating, misrepresentation and motivated political shenanigans of those not present. Funny thing about immorality — the farther it is from us, the more certain we are that it is going on.

In 1964, a woman named Kitty Genovese was abused, beaten and eventually murdered on the streets of Queens in New York City. Parts of the event, which lasted about half an hour, were witnessed by a confirmed 38 people. None of them took any initiative to stop the tragedy. None of them phoned the police.

Thanks to a series of ingenious experiments, we now know some useful things about moral blindness. In a typical study, research subjects complete a questionnaire (which really has nothing to do with the study) while being interrupted during this process with an “emergency” that would normally reframe the situation so that a civil response is expected. In one study, smoke was piped into the ventilation panel in the room where the questionnaire was being completed. In another, a female research assistant left the room and a loud noise was heard as though she had been hit or taken a fall. There was also a variation where an epileptic attack was simulated in the hall just outside the door. The question was whether the subject would stop doing the survey and take helpful action.

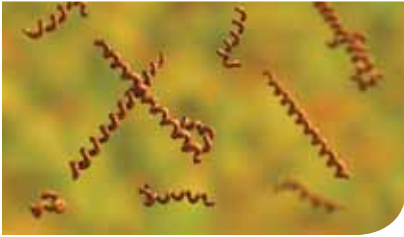
The answer is generally yes. In the three conditions described, the moral response of interrupting the routine and offering help was taken by 75 percent, 70 percent and 85 percent of the subjects when alone. But here is the twist. If there were three research subjects in the room, the probability that any of them would intervene in the first case (smoke) dropped to 38 percent. When there were two subjects in the case of the simulated fall, only 40 percent responded. When there were five subjects who heard the mock epileptic attack, only 40 percent responded. When subjects were paired with confederates who were instructed to ignore the moral call, the proportion of responsive subjects dwindled to the 10 percent range.

The lesson is that the more plausible it is to assume that others will do the right thing, the less likely we are to do it ourselves. Being part of a profession, especially one that takes a bold public stance favoring ethics, may actually impede seeing moral issues or acting to correct them. Patients (individuals who do not subscribe to a professional ethical code) are more likely to bring an action against a dentist for malpractice than are staff members, and they are more likely to initiate actions than are professional colleagues. ■

The nub:

1. Poor moral eyesight is a larger problem than ethical muscle cramps.
2. Belonging to a group that strongly professes ethical standards can be detrimental to acting morally.
3. Immorality that is not noticed is not corrected.

David W. Chambers, EdM, MBA, PhD, is a professor of dental education at the University of the Pacific, Arthur A. Dugoni School of Dentistry, San Francisco, and the editor of the American College of Dentists.



Oral Health May Have an Important Role in Cancer Prevention

The bacteria that cause periodontitis seem to also play a part in the onset of pancreatic cancer, according to researchers at the University of Helsinki and the Helsinki University Hospital, Finland, and the Karolinska Institutet, Sweden.

The researchers have investigated the role of bacteria causing periodontitis in the development of oral cancers and certain other cancers, as well as the link between periodontitis and cancer mortality on the population level.

The study, published in the *British Journal of Cancer* in November 2017, has for the first time proven the existence of a mechanism on the molecular level through which the bacteria associated with periodontitis, *Treponema denticola* (Td), may also have an effect on the onset of cancer. Researchers found that the primary virulence factor of the Td bacteria, the Td-CTLP proteinase (an enzyme), occurs also in malignant tumors of the gastrointestinal tract, such as in pancreatic cancer.

According to another study finding, the CTLP enzyme has the ability to activate the enzymes that cancer cells use to invade healthy tissue (pro-MMP-8 and -9). At the same time, CTLP also diminished the effectiveness of the immune system by, for example, inactivating molecules known as enzyme inhibitors.

And in another study, published in the *International Journal of Cancer*, it was proven that on the population

British Dentists Warn of Dental Health Disaster

Britain is being forced to turn to charities from the developing world amid a crisis in dentistry, according to a recent report in the national British newspaper *Daily Telegraph*.

In a letter to the newspaper, dentists said they were being swamped by red tape, without time or resources to prevent tooth disease, and warned of a “national health disaster” in dentistry. As a result, they said, patients are going untreated and charities from abroad are stepping in to provide aid.

The letter highlighted the expanding role of charities in Britain, such as Dentaid, which were originally set up to help developing countries, as well as proposals from the United States. The U.S. charity Remote Area Medical wants to set up mass temporary clinics in the U.K. offering free dental care, according to the report.

In the letter to the *Telegraph*, dentists said they were struggling in a system that was under-resourced and focused more on “experimental targets and tick-boxes” than patients.

Tony Kilcoyne, BDS, a dentist who coordinated the letter’s signatures from more than 400 dentists, said urgent action was needed to improve access to dentistry and prioritize prevention of tooth decay.

“It is a terrible situation when you have got charities looking at Britain and seeing there is a desperate need to provide basic care,” he said. “This letter is a wake-up call; we are urging government to act now to improve the state of dentistry and tackle the inadequacies in our system.”

Read more of this news report at www.telegraph.co.uk/news/2018/01/02/dental-crisis-leaves-britain-reliant-charity-developing-world.



level periodontitis is clearly linked with cancer mortality. An especially strong link to mortality caused by pancreatic cancer was found. Some 70,000 Finns took part in this 10-year follow-up study.

“These studies have demonstrated for the first time that the virulence factors of the central pathogenic bacteria underlying gum disease are able to spread from the mouth to other parts of the body, most likely in conjunction with the bacteria, and take part in

central mechanisms of tissue destruction related to cancer,” said Timo Sorsa, a professor at the University of Helsinki.

Researchers have come to the conclusion that a low-grade systemic inflammation related to periodontitis facilitates the spreading of oral bacteria and their virulence factors to other parts of the body.

Read more of this study in the *British Journal of Cancer* (2017); doi:10.1038/bjc.2017.409.

More Evidence of Link Between Periodontitis and Cancer

Data collected during a long-term health study provide additional evidence for a link between the increased risk of cancer in individuals with advanced gum disease, according to a new collaborative study led by epidemiologists at the Johns Hopkins Bloomberg School of Public Health and Kimmel Cancer Center.

The study, published in the *Journal of the National Cancer Institute* in

January, used data from comprehensive dental exams performed on 7,466 participants from Maryland, Minnesota, Mississippi and North Carolina as part of their participation in the Atherosclerosis Risk in Communities (ARIC) study. The participants were followed from the late 1990s until 2012. During the follow-up period, 1,648 new cancer cases were diagnosed.



The research team found a 24 percent increase in the risk of developing cancer among participants with severe periodontitis, compared to those with mild to no periodontitis at baseline. Among patients who had no teeth, which can be a sign of severe periodontitis, the increase in risk was 28 percent. The highest risk was observed in cases of lung cancer, followed by colorectal cancer.

When the researchers did subgroup analyses, they found that participants with severe periodontal disease had more than double the risk of developing lung cancer compared with no/mild periodontitis. An 80 percent increase in risk of colon cancer was observed for participants who were edentulous at baseline, which is consistent with prior findings. Among never-smokers, a twofold higher risk was noted for participants with severe periodontitis compared to those who had no/mild periodontitis.

“Additional research is needed to evaluate if periodontal disease prevention and treatment could help alleviate the incidence of cancer and reduce the number of deaths due to certain types of cancer,” said corresponding author Dominique Michaud, ScD, professor of public health and community medicine at the Tufts University School of Medicine.

Dr. Michaud noted that the findings were particularly interesting in light of research that determined that colorectal cancer tissues contain bacteria that are present in the mouth, including bacteria that have been associated with periodontal disease.

Read more about this study in the *Journal of the National Cancer Institute* (2018); doi.org/10.1093/jnci/djx278.

Medications Cause Dry Mouth in Older Adults

For older adults, xerostomia (dry mouth) can be a common side effect of prescribed medications. The condition can lead to problems chewing, eating, swallowing and talking. What’s more, dry mouth puts patients at higher risk for tooth decay and oral infections.

To learn more about the connection between medications and dry mouth in older adults, researchers examined 52 related studies of literature found in the databases Medline, Embase, Cochrane, Web of Science and PubMed from 1990 to 2016. Their findings were published in the *Journal of the American Geriatrics Society* in October 2017.

Study participants were people aged 60 and older who participated in intervention or observational studies investigating drug use and xerostomia or salivary gland hypofunction as adverse drug outcomes. According to the research, the risk of dry mouth was greatest for drugs used for urinary incontinence. In fact, medications used to treat urinary incontinence were nearly six times more likely to cause dry mouth than a placebo. Medications used to treat depression, insomnia and anxiety and diuretics used to treat high blood pressure also caused dry mouth.

The researchers suggested that health care providers should regularly monitor and review all medications to identify potential side effects and to adjust doses or change medications when necessary. They also recommended that future research develop a risk score for medication-induced dry mouth to assist with prescribing and medication management, according to the study.

Learn more about this study in the *Journal of the American Geriatrics Society* (2017); doi: 10.1111/jgs.15151.





New Adhesives Prevent Bracket Stains on Teeth

Researchers from Spain, England and Brazil have developed adhesive materials that will prevent white stains from appearing on the teeth of people who use brackets, according to a study published in the *Journal of Dentistry*.

The research was conducted by Spain's Universidad CEU Cardenal Herrera odontology teachers Salvatore Sauro, MD, and Santiago Arias, MD, in collaboration with the Universidade Federal do Rio Grande do Sul in Brazil and the King's College London Dental Institute, where Dr. Sauro is an honorary professor.

The white stains that orthodontic brackets often leave on teeth is a result of enamel demineralization caused by bacterial proliferation in the adhesive area, especially when accompanied by inadequate oral hygiene. Researchers compared the efficacy of three new types of experimental adhesives with bactericidal and enamel remineralization properties that could prevent the appearance of these white stains around the brackets.

The adhesives contained a bioactive nanomineral called halloysite whose nanotubes were loaded with triclosan, a strong antibacterial and fungicidal agent in different concentrations: 5, 10 and 20 percent. When tested in the laboratory, the adhesives demonstrated an ability to stop bacterial proliferation in the 24 hours following their use; but only the one with the highest concentration of triclosan, at 20 percent, maintained this property after 72 hours. As for the

Poor Dental Health Increases Risks of Frailty in Older Men

Research from the United Kingdom has found that dental issues are linked to developing frailty in older adults, according to a study published in the *Journal of the American Geriatrics Society*.

Frailty is the medical term for becoming more vulnerable to declining health or the inability to perform the activities of daily living. Frailty is a major health care challenge for older adults and caregivers. Someone who is frail can be weak, have less endurance and be less able to function well. Frailty increases the risk for falls, disability and even death.

Over a three-year period, researchers studied information from the British Regional Heart Study that included 7,735 British men. They were examined from 1978 to 1980 when the men were 40 to 59 years old. In 2010 to 2012, researchers invited 1,722 surviving participants to be reexamined. During that time period, the participants were 71 to 92 years old.

Participants were given physical exams, including a dental exam. Dental health professionals counted their natural teeth and measured the health of their gums and participants answered questions about their dental health, including if they had dry mouth.

Researchers also took note of the men's frailty status. Participants were considered frail if they had at least three of these issues: exhaustion, weak grip strength, slow walking speed, weight loss or low levels of physical activity.

The study showed that men with dental issues were more likely to be frail than men without those issues. Dental issues included having no teeth, having trouble eating, having dry mouth symptoms or rating oral health as "fair to poor."

The researchers also noted that complete tooth loss, dry mouth and additional oral health concerns were especially linked to developing frailty.

Learn more about this study in the *Journal of the American Geriatrics Society* (2017); doi: 10.1111/jgs.15175.



remineralizing effect, all three tested materials proved to be effective two weeks after their use in dental enamel samples submerged in experimental saliva, according to the study.

Researchers said these results are a promising step forward in the development of new adhesives that are capable of

preventing the appearance of the bacteria that demineralize the enamel surrounding brackets and, at the same time, remineralize the area and thus prevent the appearance of white stains on teeth.

Learn more about this study in the *Journal of Dentistry* (2017); doi: org/10.1016/j.jdent.2017.11.002.



Peter Rechmann, DMD, PhD, professor of preventive and restorative dental sciences in the UCSF School of Dentistry and lead author of the study, with a patient. (Credit: UCSF)

which was funded by the National Institutes of Health National Center for Advancing Translational Sciences, PacifiCare/United Healthcare, DentaQuest and the California Dental Association, appeared online in January in *Advances in Dental Research*.

“We put the 2012 UCSF clinical study into the real world and showed it works,” said lead author Peter Rechmann, DMD, PhD, professor of preventive and restorative dental sciences in the UCSF School of Dentistry. “The patients at high caries risk who used prescription products went down significantly over time in their risk level. Those in the control group also reduced their risk to a lesser degree, simply by using over-the-counter products that also protect teeth and affect the bacteria.”

The authors published their initial validation of CAMBRA for ages 6 through adult in 2006, followed by several additional years of data published in 2011, 2012, 2015 and 2016. Since then, more than half of the U.S. schools and colleges of dentistry have adopted CAMBRA in one form or another as part of their standard curriculum. The authors said now that this has been shown to be effective in a nonacademic clinical setting, there also is potential for insurance companies to reimburse CAMBRA and other preventive therapies for adults, thereby lowering patient costs.

Read more about this study in *Advances in Dental Research* (2018); doi.org/10.1177/0022034517737022.

Tooth Decay Effectively Reduced by CAMBRA

Caries Management by Risk Assessment (CAMBRA), an evidence-based approach to preventing or treating dental caries at its earliest stages, can dramatically reduce decay in community dental practices, according to a study by researchers at the University of California, San Francisco.

The findings, which support earlier research demonstrating positive results of the assessment and treatment method in a university setting, have the potential to transform dental care for high-risk patients at a lower cost to both patients and dental clinics and practices. Results of the study,

Study: ED Not a Major Source of Opioids; Dental, Other Outpatient Sources No. 2

Opioid prescribing has increased 471 percent from 1996 to 2012, according to a new *Annals of Emergency Medicine* study. But emergency departments are not a major source of opioid prescriptions. In fact, their share of opioid prescribing is small and declining.

Most patients receive opioid prescriptions from sources of care other than the emergency department, according to the study. The typical patient obtained 44 percent of his or her opioids from office-based prescriptions, 26 percent from dental or other outpatient sources, 16 percent from emergency departments and 14 percent from inpatient settings.

And more growth was seen in refills than one-time prescriptions. Opioid prescription refills originating from a doctor's office increased 446 percent while one-time prescriptions increased 277 percent during the period examined.

The share of opioids from doctor's office-based prescriptions rose from 71 percent to 83 percent during the 17 years analyzed. The share of prescription opioids originating from emergency departments declined from 7 percent to 4 percent in that same time frame. The analysis was based on the nationally representative Medical Expenditure Panel Survey (MEPS) data, administered to 15,000 patients annually.

“Policymakers and providers should match interventions with settings where they are most likely to be successful,” said Sarah Axteen, PhD, lead author and assistant professor of emergency medicine at the Keck School of Medicine, University of Southern California. “Efforts to reduce the quantity of opioid prescriptions should focus less on hospital-based prescribing and more on doctor's office-based prescribing practices, specifically addressing refills or chronic prescriptions.”

Learn more about this study in the *Annals of Emergency Medicine* (2017); doi.org/10.1016/j.annemergmed.2017.12.007.





Advancing Oral Health Equity With Innovative Dental Approaches

Marisa K. Watanabe, DDS, MS

GUEST EDITOR

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By 2025, the Health Resources and Services Administration Health Workforce estimated that California will have an overall shortage of 1,234 dentists due to the continued decline of U.S. dental graduates who practice in the state.¹ With the number of children eligible for the Medicaid dental coverage increasing to nearly 5 million after the introduction of the Affordable Care Act, there will be a provider deficit particularly in rural communities.² However, despite the increased child Medicaid population, a 2011 Milgrom study on Medicaid utilization and reimbursement cited that “larger proportions of children in states with higher Medicaid dental reimbursement rates see a dentist more often than children in states with lower reimbursement rates.”³ California ranked 49 out of 50 states in 2013 for one of the lowest Medicaid fee-for-service pediatric dental reimbursement schedules in the U.S.⁴ Further evidence illustrated that only 19 percent of Medicaid children aged 0–5 in California received a dental visit in 2007.⁵ Additionally, Kumar noted in the article “State-Based Oral Health Surveillance Program in the United

States” that fewer children in California had “excellent/very good” condition of teeth compared to the national statistics.⁶

Even though programs such as the California Pediatric Oral Health Access Program are available to support pediatric training of general dentists in underserved areas, the continued low Medicaid reimbursement rate creates difficulty in sustaining a successful dental practice.⁷ With children in California continuing to suffer from dental disease more than any other chronic childhood disease,⁶ it is imperative to review the needs from a community perspective and to seek alternative oral health delivery systems to advance oral health equity and access to care for early-childhood children, youths and adolescents in underserved communities.

This issue of the *Journal* begins by describing the utilization of a nontraditional dental care delivery model to provide comprehensive oral health care and a permanent dental home for early-childhood children, youths and adolescents. Josih Hostetler, MSW, and colleagues discuss the implementation of school-based oral health centers (SBOHC) along with potential sustainability models involving dental institutions,

private practices and community clinic organizations including federally qualified health centers (FQHC). With the Denti-Cal fee-for-service reimbursement rate remaining too low to financially support an SBOHC on its own, Huong Le, DDS, the dental director at the Asian Health Services Community Health Center in Oakland, Calif., suggested partnering with an FQHC and receiving a percentage of the FQHC prospective payment system (PPS) rate, a national encounter-based rate with geographic and additional adjustments, as a successful alternative for SBOHC sustainability.

To provide evidence in support of SBOHCs as an alternative oral health delivery system, the next article focuses on the direct impact an SBOHC has had on dental-related absences and reported dental pain for students grades K–8 on-site. Data showed that the presence of the SBOHC on school premises (from Aug. 1, 2011, to Jan. 31, 2015) had minimal impact on the overall total absences recorded at the school, with less than 1 percent of the total absences attributed to the SBOHC and the majority of dental-related absences due to outside dental practices. Additionally, the authors reported that 100 percent of students who reported dental pain to the school nurse *and* were already patients-of-record at the on-site SBOHC utilized the SBOHC to address the pain.

In the third article, Corey Stein, MS, and authors expand on reporting dental pain and provide an innovative outlook utilizing teledentistry to report and provide a 360-degree feedback loop for dental pain exhibited during any day, time and location. Through the teledental application, known as DentaCom, a school nurse, administrator, teacher, parent or even the patient can complete the web-based dental emergency triage reporting system via a cellphone, tablet, laptop or

computer with internet. The purpose of the application is to promote more direct communication between patient and dental provider, including the exchange of photographs of the concerned area, which will lead to improved, accurate preparation for the emergency patient and decreased chair time. Details piloting DentaCom with the medical health professional team in a school district will be featured in a subsequent manuscript.

At a more clinical level, Jamie Parado, DDS, and colleagues evaluated caries-risk assessment recommended on-time recare intervals and its effect on the development of new cavitations at an SBOHC over four years. The study suggests that children and adolescents who follow their caries-risk assessment recare interval, in conjunction with preventive dental services, can significantly reduce the odds of developing new cavitations. Furthermore, children and adolescents who delay their caries-risk assessment recommended recare interval more than two months will significantly increase their odds of developing a new cavitation.

The final article addresses an innovative oral health care delivery system that can be implemented successfully in a private practice setting. James Fedusenko, DDS, RN, and colleagues provide a perspective of integrating quality improvement drivers often associated with nontraditional dental clinics or safety net clinics into a private pediatric practice. They explore ways that a private practice can regularly evaluate specific quality improvement driver metrics, and that by doing so, can observe successful remineralization of carious lesions before the lesions develop into new cavitations requiring clinical treatment.

Hence, this issue of the *Journal* provides readers with a collaborative approach to advance oral health equity, particularly in pediatrics, through

utilization of nontraditional dental clinics such as SBOHCs. Furthermore, this issue offers insight into an innovative nontraditional private practice that integrates quality improvement drivers to continuously monitor the oral health improvement in the practice's patient population. According to the American Academy of Pediatrics, there is a need to create and develop integrated "health homes" that are not exclusive to primary and oral health care.⁸ By educating the family and child throughout the child's stages of life and in different environments, many oral diseases can be prevented. As all five areas of the social determinants of health (neighborhood and built environment, health and health care, social and community context, education and economic stability)⁹ contribute to a child's outcome of disease, there is a need to collaborate, coordinate and communicate among all sectors and levels in health care and in the community. ■

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Financial Considerations for Sustainability in School-Based Oral Health Centers

Josih T. Hostetler, MSW; Huong H. Le, DDS; Marisa K. Watanabe, DDS, MS; Jenny S. Tjahjono, DMD; Curtis H. Le, BS; and Steven W. Friedrichsen, DDS

ABSTRACT School-based oral health centers (SBOHC) provide access to oral health care for children most in need on K–12 campuses. This article provides an overview of options and examples for dental schools, private practice providers and community clinic organizations of how to sustain SBOHCs through grant, fee-for-service and federally qualified health center operations. Sustaining SBOHC models will provide continuity of care for children while maintaining increased oral health access and improved oral health outcomes.

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According to a 2000 report from the U.S. surgeon general, dental caries is the most common chronic childhood disease,¹ and while oral health is especially important to a child's overall health, a child's oral health should be considered in their social, cultural and environmental context.² Outside of the home, no other context may be more important to the development of a child than that of school, and oral health is a definite determining factor in a child's ability to learn.³ Poor oral health can lead to distractibility, problems with learning, speaking and eating and poor social relationships. These may result in reducing a child's ability to be productive and successful in later life.³ According to a 2012 survey, elementary and high school students who present

with toothaches within six months of being surveyed are almost six times as likely to miss school days because of oral health problems than their peers without toothaches.⁴ Consequently, it is important to understand what circumstances may contribute to a child's oral health status.

Racial and economic disparities also contribute to a child's oral health status. Latino and African American children, according to Pourat et al., are more likely to experience higher rates of tooth decay, less dental visits and longer intervals between dental visits.⁵ In California, 44 percent of low-income Asian Americans and Pacific Islander (AAPI) preschoolers had developed early childhood caries, one of the highest rates among all ethnic/racial groups.⁶ The U.S. surgeon general notes that poor children suffer twice as many caries as affluent peers and their disease remains untreated and at risk for future disease.¹

Recommendations from the U.S. surgeon general go on to outline the need for the establishment of a dental home where children can receive comprehensive care and preventive efforts can be maximized.² By creating school-based health centers (SBHC), these collaborative models of care are sensitive to the unique health needs of children and youths.⁷ SBHCs provide convenient, comprehensive and accessible health care services in school, where children spend most of their time.⁷ According to the 2007–2008 National School-Based Health Care Census, more than 70 percent of students in schools that contain SBHCs are of minority ethnic or racial backgrounds.⁸ Multiple studies have shown that preventive SBHC programs provide later savings to Medicaid by decreasing the number of operating- and emergency-room visits, hospitalizations and the need for prescription drugs.^{9,10}

A comparison of urban school- and community-based dental clinics by Larsen et al. found that school-based dental

clinics have definite advantages for both access and continuity of care for children.¹¹ A study by Heidenreich et al. reported that access to dental care by children often depended on the density of pediatric dentists in a local area.¹² This study also noted that improving oral health outcomes in areas with high Medicaid populations relied on increasing the numbers of pediatric dentists and other oral health care providers.¹² In order to improve oral health outcomes, SBOHCs were created to provide preventive and comprehensive dental care to children throughout their

Providers and school districts do not follow one set design for their SBOHCs, but work together to meet the needs of the local community.

K–12 education and to close the gap in access to care. Both didactic and clinical training of predoctoral dental students and pediatric dentistry residents in SBHCs familiarizes these future practitioners with this model of care. The available treatments are only limited by the scope of practice for practitioners, types of equipment used and permitting necessary for the dental clinics themselves.

Introduction of School-Based Oral Health Centers

Nationally and in California, preventive and comprehensive SBOHCs are growing as delivery-of-care models to help meet the oral health needs of children. Providers and school districts do not follow one set design for their SBOHCs, but work together to meet the needs of the local community

within the constraints of revenue and expenses to ensure sustainability. SBOHCs vary in the dental care provided. Most common are preventive programs, but many SBOHCs offer comprehensive dental care. The locations of SBOHCs can vary as well, from portable or mobile dental clinics on school campuses to school-linked clinics in community settings and some safety-net community clinics that provide screening services in classrooms and refer children for care in their associated dental clinic sites. Additionally, oral health can be linked in with primary care services through on-site, co-located, linked or a combination of sites thereof. Each model has its own advantages and disadvantages and can be implemented in differing ways. As described by Niederman et al., the benefits of improving oral health equity through SBOHCs can be seen through increased access and decreased costs.¹³ As shown by a study of the risk-based care model utilized at the Western University of Health Sciences, College of Dental Medicine (WesternU CDM) SBOHCs, caries risk for children is also significantly reduced using this model of care.¹⁴

Nationally, the Head Start program requires a dental screening prior to matriculation into the program for children, and each local Head Start program must provide the Health and Human Services agency with information through the Program Information Report (PIR).¹⁵ In California, the Education Code, Section 49452.8, otherwise known as the “Kindergarten Oral Health Screening,” mandates kindergarten “public school students to have an oral health assessment no later than May 31 of their first year of school enrollment,”¹⁶ and school districts in California then report the data to their county office of education and on to the California Department of Education.¹⁷ In order to incentivize comprehensive dental

care, school districts may offer space and utilities at a reduced or no-cost rent for dental providers in exchange for dental services provided in an SBOHC. However, it is important for providers to take into account the other costs of providing services, including, but not limited to, personnel, equipment upkeep and repair and clinical and office supplies. Sustainability in a comprehensive SBOHC also involves revenue streams through billing for services, grants or donations. Complicating the sustainability of SBOHCs through billing for services through Denti-Cal in California are the relatively low reimbursement rates received, as clearly laid out in the 2016 Little Hoover Commission report *Fixing Denti-Cal*.¹⁸

The purpose of this article is to provide options for how to sustain a successful SBOHC in order to promote patient continuity, maintain increased access to care for the children and continue to improve oral health outcomes. The examples presented in this article represent different sustainable models, taking into account both clinical operations and financial considerations that providers can use as a starting point when designing SBOHCs.

Sustainability Considerations in SBOHC Models

When considering what model to implement for an SBOHC, one of the most important determinants will likely be the consideration of sustainability. Plans for sustainability can vary and may change over time. While grant funding may provide start-up or capital costs, often there is limited funding to provide ongoing management and care.¹⁹ In university administered SBOHCs, revenue streams vary from 31–65 percent Medicaid revenue, 0–13 percent private insurance, 22–26 percent university funding and

0–42 percent foundation and government grants.^{20,21} Of importance, often school districts have policies preventing self-pay from students for care provided in the school district, however, that may not apply to parents providing copayments for their children's dental care.²² Although many children have dental insurance through Medicaid (Denti-Cal in California), findings in a 2015 report include that parents are not often aware of dental benefits for their children,²³ which would be an important consideration for community outreach navigators or patient

Often school districts have policies preventing self-pay from students for care provided in the school district.

navigator staff at SBOHCs in terms of patient education. While determining payer mix, it is also important to note what the average Medicaid rate is for dental care services. In a 2014 publication from the American Dental Association, California is listed at 29 percent in comparison to commercial reimbursement rates for pediatric dental services, while nationally this rate averages 48.8 percent.²⁴

Some providers have chosen to contract with local community clinics, federally qualified health centers (FQHC), to provide care at SBOHCs. Some FQHCs provide care directly through SBOHCs as “intermittent clinic” locations, which are paid per qualifying visit based on their assigned prospective payment system (PPS) rate. In a survey from the ADA Health Policy Institute, nearly two-thirds

of FQHCs do not offer comprehensive dental services, but among those that do, 8.9 percent of community clinics provide dental care solely off-site and 15 percent of FQHCs contract out to provide dental care.²⁵ Nationally, 43 percent of SBHCs are operated or sponsored by FQHCs.⁸ In addition, risk assessment models, such as caries management by risk assessment (CAMBRA), and other behavioral interventions can be included within the dental exam for billing purposes of the PPS rate.²⁶

There is no provision in the law that prevents an FQHC from contracting with a private practitioner or a dental school, which expands the opportunities available for FQHCs to provide services to additional patients.²⁷ Among a host of considerations for dental providers wishing to contract with FQHCs would be to ascertain if the FQHC is already providing dental services as part of its scope of project and if the FQHC will be prepared to offer existing dental services at the site the providers are contracting for, such as an SBOHC.²⁸ State dental societies, the Health Resources and Services Administration (HRSA), National Network for Oral Health Access (NNOHA) and state primary care associations, such as the California Primary Care Association (CPCA), serve as important sources of information for private practice dental providers wishing to contract with FQHCs.^{29–31}

WesternU CDM SBOHC Model

At the WesternU CDM, comprehensive SBOHC models are implemented in strong partnership with local school districts. The WesternU CDM SBOHCs were organized and setup through funding from First 5 LA as part of the Oral Health and Nutrition and Children's Dental Care Projects (CDCP).³² Additionally, the dental providers are

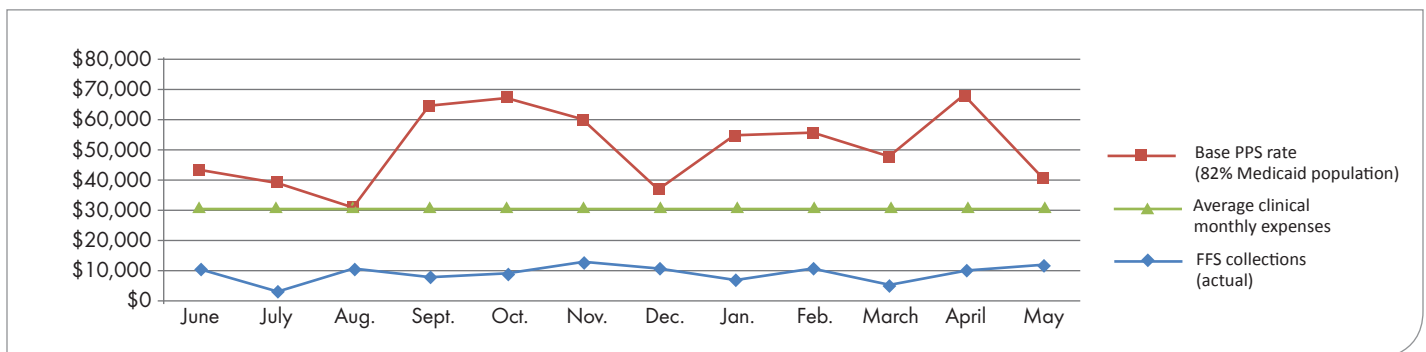


FIGURE. Academic year 2016 actual FFS collections, expenses and extrapolated PPS payments.

WesternU CDM predoctoral dental students who rotate from their first year providing oral health education to their second providing in-classroom screenings and preventive care to their third and fourth years providing comprehensive oral health care in SBOHCs. The WesternU CDM SBOHCs are located in four school locations across two cities and three school districts. Each SBOHC was selected based on the percentage of children eligible for the free and reduced lunch program.³³ Partnering school districts provide cost-free space, internet and utilities. Instilled within the WesternU CDM is a commitment to dental and medical integration and interprofessionalism.³⁴ When designing the SBOHCs, the WesternU CDM purposefully co-located the actual clinics within sites with access to primary care providers as both a clinical best practice and in terms of sustainability, in order to connect with an existing patient base and integrate school district health staff thereby decreasing personnel costs.³⁵

Outlined in the discussion of the risk-based care model utilized at the WesternU CDM SBOHCs,¹⁴ the Medicaid eligibility based on eligible free and reduced lunch rates for El Monte is 82.79 percent,³⁶ yet the reimbursement rates for Denti-Cal remained too low²⁴ to achieve sustainability based on Medicaid billing alone. For example, during the 2016 academic year, the WesternU CDM performed 6,447 Head Start and kindergarten oral health

screenings. None of these screenings were reimbursed by billing and expenses were covered through grant funding. During the same 2016 academic year, 4,579 comprehensive dental encounters were completed at the WesternU SBOHCs and collections based on fee-for-service (FFS) Denti-Cal billing ran 30.16 percent of expenses for the program. Again, expenses not covered by Denti-Cal billing were covered by grant funding. However, based on 2016 base prospective payment system (PPS) rates of \$160.60 per encounter,³⁷ assuming an 82 percent Medicaid enrollment, would yield project sustainability. The **FIGURE** shows the theoretical projection of collections based on the base PPS rates issued to FQHCs.

As the WesternU CDM SBOHC program continues past the funding provided by First 5 LA grants, the WesternU CDM is working with university administration, local school districts and community organizations to ensure the viability of the model through different revenue streams, such as FQHC contracting, grants, university support, sliding fee payments and insurance billing. Continuity of care for WesternU CDM patients graduating or aging out of the school district and therefore out of the SBOHC program is also planned. Patients aging out of the school district will continue to have access to dental care through The Dental Center on WesternU's main campus in Pomona, Calif.

Asian Health Services SBOHC Model

In 2011, the Alameda County Office of Dental Health (ODH) partnered with the Oakland Unified School District (OUSD) alongside four FQHCs to design and implement school-based comprehensive dental care through a three-year project. Asian Health Services (AHS) was one of the four FQHCs that participated in the pilot. Another agency acted as the lead agency and the two portable equipment units purchased by the county were shared between AHS and the lead agency. Alameda County and OUSD identified the elementary schools to be included in the pilot project on the basis of the number of free and reduced lunches those schools received. Clinics were then assigned based on distance and ethnic demographics.

Over the course of the three-year pilot, the OUSD Collaborative screened 6,398 students and provided treatment to 1,714 students at seven ethnically diverse elementary schools.³⁸ AHS now has three school-based sites, two elementary and one high school. Currently, the AHS SBOHC clinic continues to provide excellent oral health care to all students regardless of their immigrant or insurance status. Any and all complex procedures, such as molar root canals, crowns or bridges, are referred to the fixed AHS dental clinics for proper treatment. The project generates enough revenue to adequately support financially a team consisting of a dentist, two dental assistants and an administrative staff member.

The AHS SBOHC project has shown that utilizing FQHCs to deliver dental care for school-based programs to be a highly effective and financially sustainable endeavor. The cooperation of multiple clinics and teams in the pilot project proved to be successful in reaching and treating underserved children across multiple student populations and demographics. The portable dental equipment was also successful in providing preventive services, but proved more challenging in regard to facilitating complex restorative care on-site. As such, it is evident that continuity of care is dependent on proper records and connection to a main clinic for extensive, complex care and treatment plans.

Furthermore, designated coordinating staff is essential to long-term success. Currently, FQHCs are ideally suited to service underserved populations in schools due to the combination of the reimbursement methodology used by FQHCs and the high prevalence of Medicaid users among these patients. Should a dental school or otherwise non-FQHC organization wish to participate in school-based programs with similar configurations, other sources of funds may be needed. Grants and other donations may help, but long-term execution will be challenging for those organizations on low-paying Medicaid fees alone.

Discussion

One of the most important considerations when designing SBOHCs involves the financial reimbursement options. Developing a well-articulated business model can help determine the sustainability of providing the preventive and comprehensive oral health services over the course of time. Sustainability of SBOHC services may be possible with Medicaid

reimbursement in some states, but not in others. For example, according to the ADA Health Policy Institute, in California 2016 Medicaid FFS reimbursements as a percentage of fees charged by dentists for children's dental services were at 30.8 percent while in Arkansas the rate was at 65.6 percent.³⁹ In states with lower Medicaid reimbursement, or to expand oral health services to additional populations, the practitioner may consider working with a local FQHC to provide intermittent dental services on-site via contract for

Continuity of care is dependent on proper records and connection to a main clinic for extensive, complex care and treatment plans.

a percentage of the PPS rate. There may also be grant and/or foundation sources that can help offset either the cost of care or capital equipment costs.

Furthermore, general practice dentists or pediatric dentists may consider establishing a practice or an agreement to provide oral health care services in an SBHC or as stand-alone services. Providing school-based oral health care services improves access to care and oral health outcomes for populations of high need. Positioning a practice or satellite of a practice in a local school or schools can also offer the opportunity to expand a practice and improve the economics of the practice if factors of sustainability are carefully considered. Primary considerations include reimbursement

mechanisms, the scope of services to be provided and the mode of delivery as well as the willingness of the school district and individual schools to work in partnership.

As previously noted, the scope of services to be provided in a given location is highly variable. In some communities, it may be sensible to provide periodic screenings as well as preventive services on-site and arrange for children and adolescents who need additional care to be seen in the more traditional practice location. In other circumstances, it may be more logical to provide comprehensive care on-site. Careful evaluation of the number of students in a school or district and their level of need will guide the practitioner to deciding on the ideal location of an SBOHC that would make the greatest impact for the community. The school district's goals, willingness and latitude may also direct the practitioner to the most appropriate scope of services.

The next consideration is the mode of delivery. Although in some instances a fixed-chair oral health center may make sense, most practitioners will probably consider either a portable or mobile delivery system.⁴⁰ Portable setups are a cost-efficient method of establishing multiple-chair operations, but require close cooperation for the needed space and support from the schools involved. Use of portables is most effective in situations where the practitioner can effectively use multiple chairs, where the need may evolve over time thereby necessitating a move to another location or when services are offered on a periodic basis. As an example, one set of portable equipment could be used to provide services to multiple locations on a periodic basis, i.e., Tuesday through Thursday one week a month at each

of four different locations. A mobile van delivery mode offers the advantage of ease of relocation while retaining the stability of a consistent operatory setup and minimal intrusion on school facilities. An example of best use might be in fulfilling an agreement to provide services one day per week for up to five schools or alternating weeks at 10 schools.⁴¹ Mobile vans usually require a greater capital investment and potentially higher operating costs. Although they are not as prevalent, some school districts or schools may be able to support the establishment of a fixed chair site. The most successful fixed sites are in a location where several schools are located within close proximity and the range of students spans the K–12 spectrum.²²

Overall, experience has demonstrated that collaboration and engagement of the relevant parties in the schools and at the district level is one of the most critical elements of success. Obtaining necessary parental consents, communicating treatment plans and outcomes as well as coverage information requires close cooperation with the school administration and district. Although establishing a school-based oral health program may be daunting, it can provide rewards through the provision of much-needed services and improved oral health outcomes for the students of a school or district.

Future Opportunities

Although dental schools traditionally provide care to the underserved population, it has proven difficult for these SBOHC programs to remain in operation solely on the collections obtained via Medicaid FFS rates. However, the detrimental effect that the loss of dental school support would have on these vulnerable groups cannot be

understated. At present, it is imperative that dental schools, community clinics, private providers and school districts work together to find new incentives/models of reimbursement (such as enhanced rates for dental institutions or contracting with FQHCs) so that dental schools can feasibly continue with their own school-based programs. Continuing these school-based programs at the dental schools is very critical in reducing barriers to care for these children. The dental predoctoral students provide care for the underserved and are exposed to myriad different clinical procedures, social determinants and cultural aspects while treating this diverse patient population. This exposure, in turn, expands the future workforce of general dentists prepared both in knowledge and in clinical experience to meet the oral health needs of children. Continual cross exposure between future patients and practitioners will serve to create deeper bonds in the community to the benefit of all involved. Therefore, advocates for access to care should consider various options to help develop and sustain school-based oral health programs run by dental schools, private providers and the community to improve oral and overall health in their communities.

Conclusion

Suggested sustainability models of SBOHCs include consideration of partnering with an FQHC beyond that of financial support from grants and university funding. Sustaining the SBOHC model will not only promote continuity of care for children, but also provide an opportunity for private dentists, dental schools and FQHCs to work with school districts to meet the dental needs of children in their communities. ■

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The Impact of School-Based Oral Health Centers on Absence Rates and Dental Pain in a K–8 School

Marisa K. Watanabe, DDS, MS; Misa L. Yoshioka, BS; and Jihae H. Cho, MS

ABSTRACT There is limited research on the direct impact of school-based oral health centers (SBOHC) on school absences and dental pain complaints. The Western University of Health Sciences, College of Dental Medicine established an SBOHC at Gidley Elementary School to provide comprehensive care to underserved children in El Monte, Calif. This study concluded that the Gidley SBOHC comprised less than 1 percent of total absences over a 3 ½-year period, with dental-related absences mainly due to outside dental practices.

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In 2012, the National Center for Health Statistics data brief reported that approximately one in four children aged 3 to 5 and 6 to 9 who live in poverty had untreated dental caries.¹ In order to address the data brief, the Office of Disease Prevention and Health Promotion announced the objectives for the Healthy People 2020 action plan, which included a need to reduce dental experiences and untreated decay in primary teeth of children and the need to access preventive services through increasing access to care at school-based health centers with an oral health component.² According to the 2000 report *Oral Health in America: A Report of the Surgeon General*, dental-related issues, such as dental caries, remain one of the most common chronic diseases plaguing the child and youth populations, even more common than asthma and hay fever.³ The report further stated that “fewer than one in five Medicaid-eligible children received

preventive dental care.”³ In response to the report, there was a call for effort to narrow the gap in oral health disparities and the surgeon general’s office created *A National Call To Action To Promote Oral Health* plan. The plan included but was not limited to changing the public’s perception of oral health, implementing successful programs to address oral health access and increasing collaborative partnerships.³

With more than 51 million hours of school lost annually because of dental-related issues, the greatest population afflicted are children from underserved areas compared to children from affluent backgrounds.⁴ Another study reported on the correlation between chronic diseases such as dental caries or dental-related issues and a child’s marked decrease in academic performance in school because of dental-related problems, especially when there was little to no access to dental care.⁴ In *Current Problems in Pediatric and Adolescent Health*

Care (CPPAH), a pediatric medicine-focused journal, school-based health programs are recognized as a vital source of accessible health care for the underserved children and youth populations.⁵ *CPPAH* recognizes that school-based health centers are an effective and ideal way of delivering accessible health care to vulnerable populations.⁵ Additionally, *CPPAH* says that this type of health care delivery can translate into less school time lost for the underserved children and youth populations and also less financial loss for public schools in cases where student attendance translates into financial sustenance from the government.⁵ A study from the *Journal of School Health* encourages an increase in the number of school-based dental clinics in underserved populations because of their many benefits in overcoming several barriers that other nonschool-based dental clinics might perpetuate, such as increased parent/guardian time off from work, missed school hours and transportation issues.⁶

The focus of this article is to provide the impact of an SBOHC on the number of dental-related school absences and reported dental pain from children attending a K–8 school.

Introduction

Although several studies have suggested a strong correlation between missed school hours due to chronic diseases such as dental caries, few have explored the direct impact of SBOHCs on the amount of dental-related school absences in highly underserved areas. As mentioned previously, chronic diseases such as dental caries, especially in underserved areas, result in increased missed school hours that translate into decreased academic performance.⁴ However, SBOHCs can mitigate this recurring issue by overcoming common barriers present in non-SBOHCs. For example, Ng et al. described the significance of working hand in hand in

an interprofessional collaborative practice model because “primary care practice is the front line for underserved populations and potentially serves to provide dental screening, prevention, education and referrals to dental professionals.”⁷ Additionally, SBOHCs offer the ability to create and develop integrated health homes that include other coordination beyond primary and dental care.⁸ The ability to have health assistants, mental health and even a financial system to assist families in obtaining medical and dental insurance is a support system SBOHCs

SBOHCs offer the ability to create and develop integrated health homes that include other coordination beyond primary and dental care.

may be able to offer. Because social determinants of health influence a child’s outcome of disease, the need to integrate, collaborate, coordinate and communicate is significant among all sectors in health care and in the surrounding community.⁹

This study focuses on Gidley SBOHC, established by the Western University of Health Sciences, College of Dental Medicine (WesternU CDM), in El Monte, Calif. Based on the 2015 U.S. Census Bureau demographics for El Monte, 19.6 percent of children were between ages 0–19, with 96.4 percent of workers aged 16 and older commuting to work by car, public transportation, foot or other means.¹⁶ Additionally, 22 percent of all families and 24.9 percent of all people in El Monte were living below the poverty level between 2014–2015.¹⁰ Delving

into the area that would best provide much-needed dental services, Gidley SBOHC was selected in 2011 using free or reduced price meals (FRPM) as a relative proxy. The 2011–2012 and 2012–2013 student poverty FRPM data showed 83.11 percent and 88.6 percent, respectively, of K–8 students at Gidley were eligible for FRPM. With each passing year, the FRPM percentage increased, with 2016 having 90.1 percent of children K–8 at Gidley eligible for free or reduced price meals.¹¹

In this preliminary retrospective analysis, the overarching goal was to examine if a trend existed between the presence of Gidley SBOHC on dental-related school absences and dental pain complaints at Gidley.

Methodology

The WesternU CDM and the El Monte City School District (EMCSD) established a memorandum of understanding that included direct services for children in the El Monte community and/or attending elementary, junior high or high school within the El Monte City and El Monte Union High School districts. To maintain consistency, data for reported absences and dental pain complaints were limited to Gidley only in order to maintain data standardization. The extracted data was compiled with full support from the EMCSD for the years Aug. 1, 2011, through Jan. 31, 2015.

Patient Population

For this preliminary retrospective analysis, Gidley SBOHC was selected to determine if there was a trend in decreased overall dental absences and dental pain complaints from Aug. 1, 2011, through Jan. 31, 2015. The focused total population was Gidley students K–8 whose parents/guardians completed the Gidley sign-out log and Gidley students who reported a dental-related issue to

the school nurse. The subpopulation was filtered to include only dental-related sign-outs and dental pain, respectively.

Gidley Reported Absences Protocol

For the purpose of this article, a school absence was defined as the child was present at least once during the day but was signed out by his or her parents and/or guardians. Therefore, the child was noted as absent in the data collection process.

To begin the data collection, the EMCS D provided handwritten log-sheets between Aug. 1, 2011, and Jan. 31, 2015, which contained the child's name, grade, date, time and reason for signing out the child at *Gidley*. Students were signed out for reasons that included but were not limited to: medical, dental, mental health, personal or other reasons. *Gidley* children signed out on the log-sheets were considered "absent" for this analysis. To ensure Health Insurance Portability and Accountability Act (HIPAA) compliance, EMCS D requested that all physical copies of the *Gidley* sign-out log be stored in a locked cabinet at the WesternU CDM Jeff Seymour Family Center (JSFC) dental clinic located one block from *Gidley*.

Using Microsoft Excel, the *Gidley* sign-out logs were organized by date and by months spanning from Aug. 1, 2011, to Jan. 31, 2015. The student's first and last name, grade year (kindergarten to eighth grade), the number of hours they stayed in school before the parent/guardian signed the child out, the number of minutes they stayed in school before the parent/guardian signed the child out and the reason for the student's sign-out were recorded in Microsoft Excel. To simplify the categorization process, the reasons for the student's sign-out were limited to medical, dental, personal, mental health or blank. In spaces where parents/guardians failed to state a reason for signing a student out, "blank" was given as the reason. All dental-related

absences were categorized by grade levels in order to compare among grades K–8.

To further determine the dental-related reason, Microsoft Excel was used to determine the frequency of dental-related school absences based on dental type, which included general reasons, dental pain and orthodontic treatment. To assess the potential impact of *Gidley* SBOHC on the dental-related absence rates, Microsoft Excel sheets containing the absences of *Gidley* students' names were then cross-checked with *Gidley* SBOHC paper charts and electronic health records (via *axiUm*).

The overarching goal was to examine if a trend existed between the presence of *Gidley* SBOHC on dental-related school absences and dental pain complaints at *Gidley*.

This would provide a subpopulation of only *Gidley* SBOHC dental-related absences when compared to the total number of dental-related absences recorded between Aug. 1, 2011, and Jan. 31, 2015, from *Gidley*.

All recorded data in the Microsoft Excel program used to record specific patient information and related data were saved on a HIPAA-compliant cloud storage with restricted access on the WesternU CDM server.

Gidley Reported Dental Pain Protocol

The *Gidley* nurse provided electronic nurse-reported dental complaint records for the timespan of Aug. 1, 2011, to July 31, 2014, and handwritten nurse visit records for Aug. 1, 2014, to Jan. 31, 2015. All data were compiled and organized utilizing Microsoft Excel.

Dental-related complaints were extracted and compiled on a Microsoft Excel spreadsheet. The Microsoft Excel workbook was organized by school year and month (2011 to 2012, 2012 to 2013, 2013 to 2014 and 2014 to 2015). Each sheet included a *Gidley* student's first name, last name, date of birth, date of dental complaint, type of dental complaint, action by nurse (i.e., sent back to class, sent home, referral, ER), how or if the parent was informed (phone call, note), a randomly generated identification number, *Gidley* SBOHC patient status (Y/N) with date of first appointment, additional information regarding ongoing treatment within a year of the date of dental complaint and a dental complaint category. The dental complaint categories included unspecified dental (a nurse-designated descriptor), dental pain, loose/lost primary tooth, trauma/injury, orthodontics and other. A randomly generated key was created to de-identify patient information for HIPAA compliance using Microsoft Excel's randomizing number function from 1–125 to obscure name, date of birth, gender and age of the patient at the time of the dental complaint.

To confirm active *Gidley* SBOHC patient status at the time of the reported dental complaint, each *Gidley* student was cross-checked against the WesternU CDM *axiUm* electronic health records. *Gidley* students who had established care at *Gidley* SBOHC prior to the date of dental complaint were considered to be patients of record. Students who became patients of record after reporting a dental complaint were also noted. A pivot chart was created using Microsoft Excel to total the number of dental complaints by month and year for both *Gidley* SBOHC patients of record and for the total number of *Gidley* students. A pivot table was also used to view the number of complaints by category, as mentioned above.

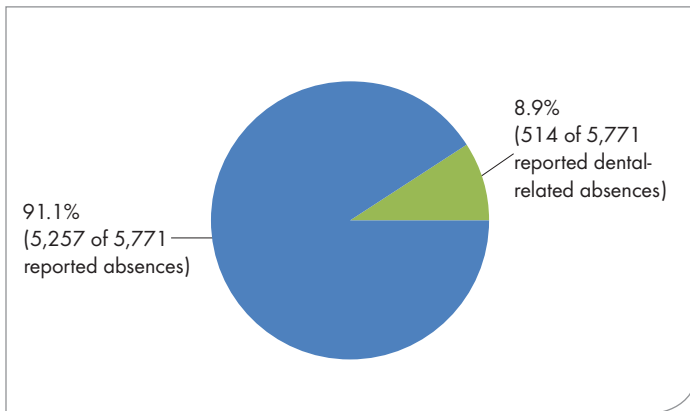


FIGURE 1. Frequency of parent-reported Gidley absences. This chart shows that out of all the reported Gidley absences between Aug. 1, 2011, and Jan. 31, 2015, 8.9 percent of the reports were dental related.

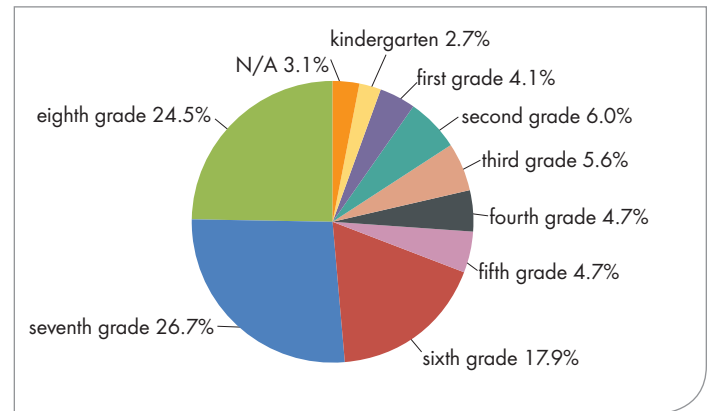


FIGURE 2. Total reported dental-related absences from Aug. 1, 2011, to Jan. 31, 2015, by grade levels at Gidley. This represents the total reported dental-related absences at Gidley, with the highest absences from seventh and eighth grades.

All physical logs were stored in a locked cabinet at the WesternU CDM JSFC dental clinic as requested by EMCSD. Additionally, all identifiable patient data recorded in Microsoft Excel were saved on a HIPAA-compliant cloud storage on the WesternU CDM server with restricted access.

Results

From the collected and analyzed Gidley absence logs, a total of 5,771 absences were collected from Aug. 1, 2011, to Jan. 31, 2015. These absences, illustrated in **FIGURE 1**, were divided into two categories: dental-related absences (8.9 percent) and nondental-related absences (91.1 percent). Reasons for the nondental-related absences included medical, personal, mental health and other reasons.

Of the dental-related absences, data were assessed by grade level, reason for dental absence and Gidley student-reported dental complaints to the school nurse. **FIGURE 2** depicts the dental-related absences by grades K–8. Seventh and eighth grade students made up the majority of the dental-related school absences at Gidley, with seventh grade students comprising 26.7 percent of the total and eighth grade students 24.5 percent.

In regard to the breakdown of the type of dental-related school absences from Gidley in **FIGURE 3** (514 total), the

collected data were categorized into the following: general dental reason with no other descriptors, dental pain and orthodontic appointments. The main reasons for dental-related school absences from Aug. 1, 2011, to Jan. 31, 2015, were general dental reasons at 89.1 percent (458/514) followed by orthodontic appointments at 8.0 percent (41/514) and lastly, dental pain at 2.9 percent (15/514) (**FIGURE 3**). Note that 2014 to 2015 was a short year at Gidley SBOHC as the date went from Aug. 1, 2014, to Jan. 31, 2015, due to transition in location from Gidley SBOHC to JSFC dental clinic.

To further evaluate dental-related absences, this study evaluated the number of dental complaints that Gidley students reported to the Gidley nurse, which may have contributed to an absence at Gidley. Between Aug. 1, 2011, and Jan. 31, 2015, a total of 86 dental complaints were reported to the Gidley nurse. Of those 86 complaints, seven were from Gidley students who were active Gidley SBOHC patients at the time of their dental complaint. A developing trend existed where a slight overall decrease in the frequency of dental complaints was seen during the time that Gidley SBOHC was located on campus (**FIGURE 4**). As mentioned previously, Aug. 1, 2014, to Jan. 31, 2015, was a shortened year because of the relocation.

Furthermore, as shown in **FIGURE 5**, the Gidley nurse classified 36.0 percent (31/86) of dental complaints as “unspecified dental” (a nurse-determined category without any other descriptors); 24.4 percent (21/86) as “dental pain;” 16.3 percent (14/86) as “loose/lost primary tooth;” 14.0 percent (12/86) as “other;” 5.8 percent (5/86) as “trauma/injury” and 3.5 percent (3/86) as “orthodontics” from Aug. 1, 2011, through Jan. 31, 2015. Within the subset of all Gidley nurse-reported dental complaints, seven of the students were Gidley SBOHC patients of record. Of these seven Gidley students who were Gidley SBOHC patients of record, 42.85 percent (3/7) were classified as “unspecified dental,” 42.85 percent (3/7) were caused by “dental pain” and 14.3 percent (1/7) were due to a “loose/lost primary tooth.” Interestingly, although the 2012 to 2013 school year saw the most overall dental complaints (**FIGURE 4**), none of the Gidley students became patients of record at Gidley SBOHC nor opted to utilize services at Gidley SBOHC.

Lastly, to summarize the data and note any observations or trends in the impact of Gidley SBOHC on school absences at Gidley, the **TABLE** presented the yearly percentage of dental-related absences due to appointments at Gidley SBOHC. For the initial year Aug. 1, 2011, to July 31, 2012,

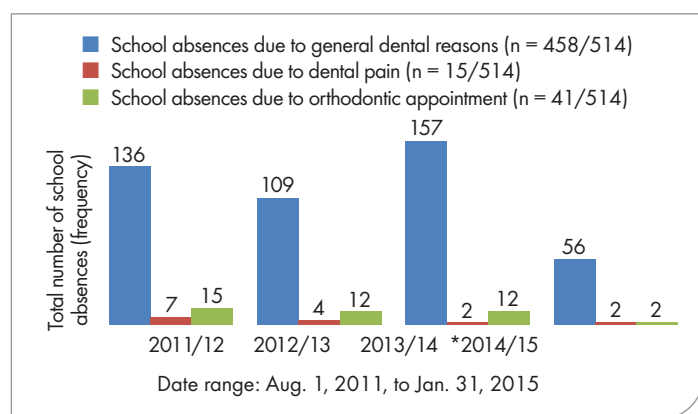


FIGURE 3. Frequency of dental-related school absences based on dental type. The main reason for a dental-related school absence was general dental reasons, followed by orthodontic appointments and dental pain. *Date range for 2014–2015 year was from Aug. 1, 2014–Jan. 31, 2015, at Gidley SBOHC. Starting Feb. 1, 2015, Gidley SBOHC transitioned to a new location at JSFC.

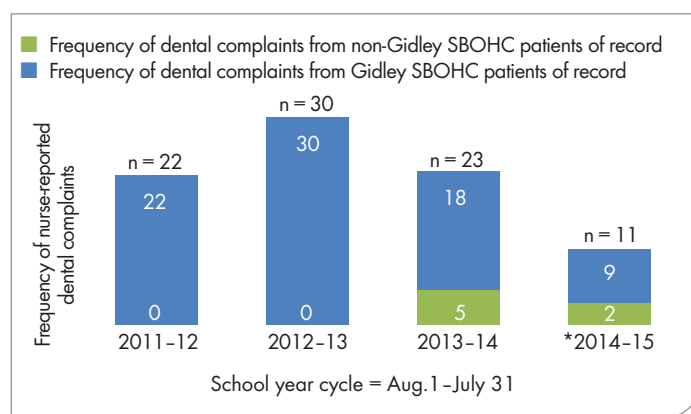


FIGURE 4. Nurse-reported dental complaints at Gidley. Frequency of reported dental complaints from students utilizing the Gidley nurse’s office. The number of complaints from Gidley students who were active patients of record at the WesternU CDM Gidley SBOHC are also represented. *Six months of the school-year cycle are represented here to exclude data collected after the SBOHC relocated to JSFC after Feb. 1, 2015.

3.8 percent (6/158) of the dental absences were due to appointments at Gidley SBOHC. The subsequent years were Aug. 1, 2012, to July 31, 2013, at 2.4 percent (3/125), Aug. 1, 2013, to July 31, 2014, at 8.8 percent (15/171) and Aug. 1, 2014, to Jan. 31, 2015, at 13.6 percent (14/103).

Discussion

Since Gidley’s SBOHC opening in 2011, the WesternU CDM and the EMCS D had the goal of increasing access to comprehensive oral health care for the underserved and vulnerable child and youth populations. With the partnership, the goal expanded to not only provide direct services, but to improve oral health awareness in the community as well as improve the oral health of the child and youth populations while limiting the absence rate in school. With the passing of Senate Bill 727 in 1997, schools now receive per-pupil funding for attendance in school, no matter the amount of time the students are in or at school and without taking into account excused absences, which include dental-related reasons.¹² The introduction of SB 727 was to incentivize schools to improve attendance, as prior to SB 727 schools were provided funding for attendance that included excused absences. The attorney general’s 2015 report on California’s elementary school truancy and

absenteeism crisis entitled *In School + On Track 2015* focuses on breaking the cycle that “when students are chronically absent from elementary school, they fall behind academically, they are less likely to graduate from high school and they are more likely to be unemployed, on public assistance or victims or perpetrators of crime.”¹³

Specific to California, Los Angeles County lost \$2.4 million from 2014 to 2015, which averaged to a \$172.37 per-pupil loss due to absenteeism.¹³ The importance of providing a service on-site would be to minimize the need to remove the student from school and minimize transportation and loss of work for parents/guardians.¹⁴ One of the chief purposes of an SBOHC is to allow the student to be excused from class for his or her dental appointment. Upon completion of the dental appointment, the student should return to class to continue the remainder of the school day. However, this study’s results suggest that some parents/guardians prefer to be present for all dental appointments (including exam and preventive care), which is supported by the Shroff et al. study indicating that 61 to 78 percent of parents prefer being present in the operatory for dental appointments for reasons including comfort, procedures, sedation and physical restraint.¹⁵ Parents are electing to remove the student from

campus following the dental appointment, even if the child was present for a short period of time, in order to prevent missed hours from work and eliminate the need to pick up the child twice in one day. From an education standpoint, the student is losing hours learning in school; economically, per SB 727 and California Proposition 98, the per-pupil rate is still released to the school as long as the child was present in school any part of the day.¹²

As mentioned previously, an “absence” for the purpose of this study was any time the Gidley student was signed out of school. Preliminary data from the **TABLE** suggest that the majority of Gidley students who had dental-related absences did not utilize the Gidley SBOHC, but rather, sought dental care outside of Gidley SBOHC. Despite measures to minimize the amount of missed work for parents/guardians such as an on-site location, an active WesternU CDM consent form allowing examination and preventive procedures without the presence of the parent/guardian and the option of a WesternU CDM parent/guardian substitution form to allow family members and friends to be present instead, some families at Gidley elected to not bring their child to Gidley SBOHC. Regarding Gidley SBOHC utilization, this study does not take into account Gidley students whose parents *did not* sign them

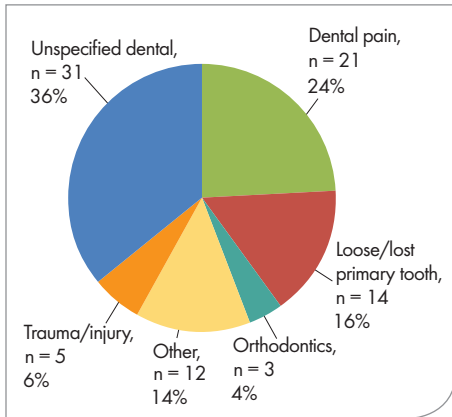


FIGURE 5. Gidley nurse-reported dental complaints by category from Aug. 1, 2011, to Jan. 31, 2015. Categorical representation of school nurse-reported student dental complaints at Gidley, frequency = 86. “Unspecified dental” was a nurse-designated category from the complaint log.

out during school hours for their dental appointment, nor the Gidley students who utilized Gidley SBOHC after hours (as these Gidley students would *not* be considered “absent from school” in both situations). Therefore, the majority of dental-related absences at Gidley between Aug. 1, 2011, and Jan. 31, 2015, were *not* due to the presence of Gidley SBOHC.

As noted above, if Gidley students utilized the Gidley SBOHC as established (without having to be released or signed out from school) or utilized after school hours, this would account for the low number of dental-related absences attributed to Gidley SBOHC. Another reason for the low number can be explained by a study conducted by Risk Management and Health Care Policy in 2015, which concluded that barriers to health care include several categories such as financial and societal reasons.¹⁶ These barriers consist of social stigmas or shame that children might experience when seeking free health care at SBOHCs.¹⁶ This data suggests that this type of fear or stigma that comes with seeking free health care services might be exacerbated when the free health care is offered at one’s own school campus. Additionally, a recent study published by the *Journal of School Health* suggests that there is a strong correlation with incidence

TABLE

Percentage Impact of Gidley SBOHC on Gidley Dental-Related Absences by Year

| Date | Total number of Gidley SBOHC dental-related absences at Gidley | Total number of dental-related absences at Gidley | Impact of Gidley SBOHC dental-related absences compared to overall dental-related absences |
|-------------------------------|--|---|--|
| Aug. 1, 2011 – July 31, 2012 | 6 | 158 | 3.8% |
| Aug. 1, 2012 – July 31, 2013 | 3 | 125 | 2.4% |
| Aug. 1, 2013 – July 31, 2014 | 15 | 171 | 8.8% |
| *Aug. 1, 2014 – Jan. 31, 2015 | 14 | 103 | 13.6% |

Based on the yearly percentage of dental-related absences above, a maximum of 13.6% of dental-related absences were attributed to Gidley SBOHC.

*Location change from Gidley SBOHC to JSFC occurred Feb. 1, 2015. Therefore data was taken solely from Gidley SBOHC.

of school bullying and school-based health center utilization.¹⁷ Despite the increased accessibility of an on-campus oral health center for Gidley students, this study further suggests the idea that social stigmas associated with utilizing school-based health centers or SBOHCs might contribute to its minimal usage from those students.

Most important, after approximately 3 1/2 years open, only 0.65 percent (38/5,771) of the overall Gidley absences between Aug. 1, 2011, and Jan. 31, 2015, were due to Gidley students attending Gidley SBOHC for a dental appointment. This suggests the positivity of the Gidley SBOHC limiting absence rates, with minimal contribution to Gidley’s overall absences.

This leads to the discussion that the majority of Gidley absences (91.1 percent) were due to nondental-related issues such as health-related or personal reasons (FIGURE 1). The American Dental Education Association (ADEA) 2003 report and new ADEA competencies stress the importance of the inclusion of interprofessional collaboration as a need to directly link primary and allied health professionals with dental providers.¹⁸ The Gidley nurses and family nurse practitioners were introduced to oral health screenings and a referral process to Gidley SBOHC, including scheduling

and a warm handoff. The goal for both the oral health assessment training and scheduling was to provide a more direct and hands-on role between the medical and dental services at Gidley. This assisted in the Gidley nurse determining dental emergencies and dental pain from general dental concerns (such as loose teeth). Because of the oral health screening and scheduling training, the data suggest that the Gidley nurse was able to filter reported Gidley student dental concerns, emergencies and if the student already had a dental home. With an integrative health care home and a collective effort made by other health disciplines, teachers, school staff and parents to improve the student’s health in the future, this reinforcement at different stages throughout the student’s schooling can help minimize the number of future school absences.

When reviewing the breakdown of absenteeism by grade in FIGURE 2, the percentage of Gidley students absent was 24.5 percent and 26.7 percent, respectively for both seventh- and eighth-graders. According to United States Department of Education data on chronic absenteeism, there was an increasing percent-absent trend in 2013–2014 with elementary school students at 10.9 percent, 12.5 percent for middle school students and 18.9 percent for

high school students attributed to bullying and health-related issues.^{19,20} Hence, the results in this study regarding dental-related absenteeism distributed by grade level parallel the findings at a national level; as noted, at Gidley less than 1 percent of the total absences were attributed to the presence of Gidley SBOHC with the majority of dental-related absences attributed to outside dental providers.

In **FIGURE 5**, 24.4 percent (21/86) of all Gidley nurse-reported dental complaints were due to dental pain, however, because of varying process flow and categorization of next steps from the Gidley nurse reports, it was difficult to determine the accurate percentages of Gidley students: 1) who returned back to class; 2) were provided medication and sent back to class; 3) whose parent called and were sent home/picked up; 4) were sent to Gidley SBOHC; or 5) were sent home with a referral to go to the dentist. The Gidley nurse report data show potential for the use of school nurse logbooks or electronic health records as a means for following dental pain complaints in schools.

However, implementation of standardized electronic health records (EHR) is a necessary step toward improving health care systems on both an organizational level and in quality improvement.²¹ Hence, the significant discrepancies existing in logbook format in details regarding the dental complaint and in actions taken by the school nurse show the value of keeping a calibrated electronic health record.

Additionally, when analyzing the breakdown of total dental-related school absences, there was an increase in the dental-related absences from 2012 to 2014 as seen in **FIGURE 3** with a peak of Gidley nurse-reported dental pain complaints between 2012 to 2013 (**FIGURE 4**). A 2016 study published in the *Journal of the California Dental Association* implemented quality improvement (QI) initiatives in

September 2013 to determine the effect of risk-based care on early childhood and youth populations at Gidley SBOHC and JSFC dental clinic.²² Among the QI drivers implemented at Gidley SBOHC was an increase in the frequency of recare visits for children and youth with high caries risk.²² Thus, the increase in dental-related absences seen from 2012 to 2014 in **FIGURE 3** can be further explained by the protocols implemented by the authors in order to achieve a healthier population. However, from 2014 to 2015 seen in **FIGURE 3**, there

Implementation of standardized electronic health records (EHR) is a necessary step toward improving health care systems on both an organizational level and in quality improvement.

was an overall decrease in total dental-related school absences among Gidley students (even with extrapolation and doubling the total six months from Aug. 1, 2014, to Jan. 31, 2015, along with the increased preventive dental visits). This suggests that due to the QI collaborative, Gidley students' oral health awareness improved from either Gidley SBOHC or through education and referrals from the EMCS D health services and administration (e.g., teachers and front office administration). For Gidley students who were patients of record at Gidley SBOHC, the recare visits, preventive care, treatment completion and disease management visits may have lowered their caries risk assessment to moderate and low caries risk, resulting in the need for fewer preventive appointments.²²

Thus, a lowered caries risk leads to a healthier population and decreases the need for students to miss school for dental-related reasons in the future.

Finally, in spite of 30 Gidley nurse-reported dental complaints from Aug. 1, 2012, to July 31, 2013 (**FIGURE 4**), zero Gidley students came to Gidley SBOHC. However, after April 2014, preliminary data showed that 100 percent of active Gidley SBOHC patients of record who reported dental pain (three complaints noted in the results section) to the school nurse were examined at follow-up appointments at Gidley SBOHC. Follow-up consisted of dental treatment at Gidley SBOHC or a referral to the pediatric dentist at WesternU's The Dental Center in Pomona, Calif. This indicates that Gidley students who reported dental pain and were Gidley SBOHC patients of record elected to utilize Gidley SBOHC to address the dental pain rather than receive treatment at an outside dental practice. This positive integration between the Gidley nurse and Gidley SBOHC can be further supported through utilization of the DentaCom web-based application discussed in the article on page 171. When utilized in a community-based environment such as an SBOHC, DentaCom helps to streamline dental emergencies with direct reporting to the SBOHC dental provider, which can also assist with documentation and record keeping.

Conclusion

This study concludes that the presence of Gidley SBOHC had a minimal impact on the Gidley student overall total absences as well as the total dental-related absences. This study further suggests that the larger percentile of dental-related absences was attributed to private or other community dental clinics and not the Gidley SBOHC, with most of Gidley absenteeism caused by nondental-related health care appointments as well as personal reasons.

Future Opportunities

This study creates more opportunities for further research directions. First, the study will be expanded to analyze and compare the impact of Gidley SBOHC and the JSFC dental clinic (established by the WesternU CDM Feb. 1, 2015, which caters to an expanded El Monte community) on the EMCSO school absence rates and on the community's overall health. As this study focuses specifically on dental-related absences, the actual number of Gidley students who utilized the Gidley SBOHC and did not have an absence was not calculated. This would include Gidley students who are patients of record, were excused from class and returned to class or utilized the Gidley SBOHC after school hours — all of which would result in no school absence. Expanding the study to analyze the number of Gidley students who utilized the Gidley SBOHC would provide further information on the impact of an on-site SBOHC.

Secondly, the study will be further expanded to survey Gidley's student population and/or parents/guardians regarding the reasons behind a student foregoing oral health care offered on campus. Lastly, an additional opportunity is to expand this current study to the entire EMCSO to further analyze the impact that Gidley SBOHC had in dental-related absences of its neighboring schools as preliminary data suggest that despite being on campus Gidley SBOHC's majority patient population was from the surrounding community and *not* from Gidley itself.

Limitations

The aim of this study was to explore and further expand upon previous studies that have analyzed school absences in relation to dental-related problems.

Although this study has met its objectives, it was met with a few limitations. First, this study analyzed data from one school within EMCSO. Thus, this study is only one example of an SBOHC so the effects of having an SBOHC and the impact it has on the absence rates at other schools was not taken into account. Second, Gidley's sign-out logs were self-reported with a space for parents and/or guardians to interpret the reason for the child's absence, which increases variability. Lastly, it was noted that "check back in" record keeping was unavailable at Gidley during the data timespan. Therefore, there was no record of a Gidley child whose parents and/or guardians checked him or her out from school but then had the child return to class after visiting Gidley SBOHC. ■

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Leveraging Informatics To Relieve Barriers to Oral Health Care in Disadvantaged Communities

Corey D. Stein, MS; Marisa K. Watanabe, DDS, MS; and Alexander Lee, DMD

ABSTRACT Oral health disparities disproportionately hinder access to care for underserved populations. As web-based applications become more ubiquitous, health policymakers and dental professionals need to explore new technological interventions to enhance health care availability and support clinical practices. This article discusses the implementation of DentaCom, a web-based software that facilitates meaningful communication remotely between patients and oral health providers. The protocol developed is aimed to relieve barriers that currently restrict a Southern California community from optimal oral health care.

AUTHORS

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Conflict of Interest
Disclosure: None reported.

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Conflict of Interest
Disclosure: None reported.

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Conflict of Interest
Disclosure: None reported.

Community-based oral health prevention programs often operate on limited funding that challenges their sustainability to operate independently or their ability to expand their services. Despite the no-cost or reduced-fee dental care available, programs in remote communities, school districts and other underserved areas report similar obstacles that restrict their ability to impact more individuals in need. These include challenges for accessing more patients, enrolling new patients into federally sponsored health programs, communicating with patients and monitoring follow-up care as well as exchanging clinical information across different tiers of health care settings.¹⁻⁴ Innovative strategies need to be explored

to efficiently and effectively provide care beyond these current limitations.

The expansion of California's teledentistry policy⁵ permitted the Western University of Health Sciences, College of Dental Medicine (WesternU CDM) to implement an informatics-based intervention for improving communication and sustainability at school-based oral health centers (SBOHC) established in El Monte, Calif. These SBOHCs are WesternU CDM-affiliated satellite clinics located within community schools where dental students performed comprehensive care overseen by faculty. A dental reporting platform was created placing the WesternU CDM as a centralized repository for multiple schools in the district to remotely exchange the oral health needs of the

children in and around the surrounding community. Reports detailing an individual's conditions were received and triaged by administrative faculty prior to the data being translated electronically to providers located at a school-based oral health center or the primary dental care clinic at the WesternU CDM.

Teledental technologies have been shown to improve the cost effectiveness of clinical practice, accuracy of patient treatment and efficiency of remote assistance for clinicians.⁶ Additionally, supporting the ability for patients to report clinical data and for a dentist to treatment plan patients' dental conditions remotely has recently been demonstrated.^{7,8} Improved patient-provider communication is credited with preventing unwarranted patient visits so resources can be better optimized.⁶ Collectively, these findings suggest that knowledge of patient information prior to physical examination increases the utility of health care resources and improves patient outcomes.⁹

By utilizing self-reported, qualitative metrics exchanged through a secure network of health care professionals in order to foster standardized and relevant patient-practitioner communication, implementation of this protocol was aimed to expedite and enhance clinical processes, increase positive patient outcomes and reduce costs for both patients and practitioners. Additionally, it provided an electronic platform to begin patient enrollment in funded programs while also contributing to the sustainability of low-resource community health clinics through the expansion of services (such as the ability to connect with practitioners after hours).

This pilot program was structured around DentaCom, a web-based communication tool developed to provide individuals with limited health literacy the ability to communicate clinically

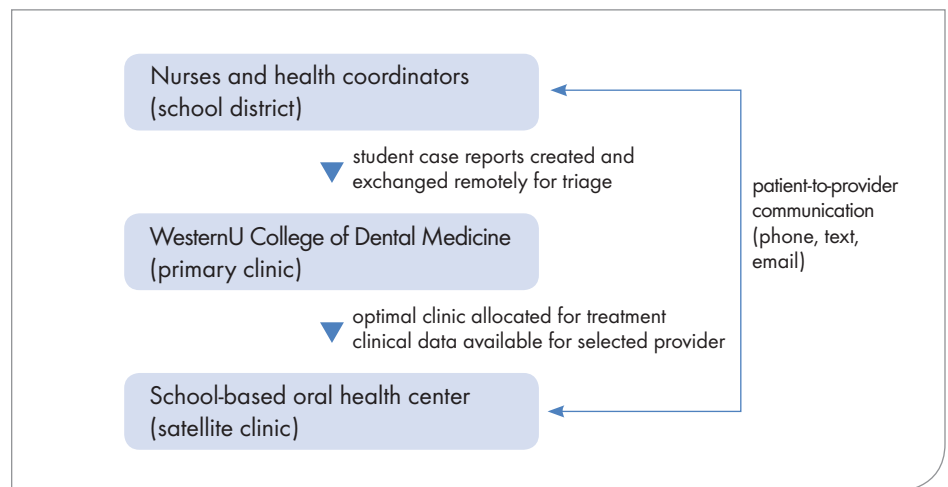


FIGURE 1. WesternU teledental model.

meaningful information to a remotely located dental provider.⁷ Utilizing parents, school nurses and staff to electronically report oral health concerns of children within the school district, DentaCom's implementation was aimed to provide the community complete access and continuity of dental care when direct contact was not possible. As a dental reporting platform, DentaCom provides the opportunity for on-demand emergency triage and communication between patients and dentists. In addition, clinical efficiency may increase by providing relevant information to practitioners prior to patient visits. Specific features of DentaCom were tailored to meet the SBOHC program's information needs and the workflow engineered to reflect administrative requirements of the WesternU CDM. Patient safety and strict adherence to all Health Insurance Portability and Accountability Act (HIPAA) regulations remained a primary consideration throughout the pilot program.

The purpose of this pilot program was to evaluate the efficacy of utilizing DentaCom in a clinical setting with a population that had significant impediments to attaining oral care. As illustrated in **FIGURE 1**, DentaCom created a teledental network for the El Monte City School District (EMCSD)

health coordinators and health services personnel (e.g., family nurse practitioners) to communicate children's dental needs directly with dentists at the WesternU CDM. Case reports were triaged by dentists as they were received and patients were referred to the most appropriate clinic for immediate care.

Setting

El Monte, Calif., is an urban city in East Los Angeles County that reflects the burdens of profound oral health disparities documented nationwide. Correlations between heightened caries risk with poverty and race suggest that the city's demographic is vulnerable to dental disease.¹⁰ The median household income of the residents in El Monte, \$39,535, is 35 percent less than the average Californian and 24.3 percent of the population lives at or below poverty levels. Nearly 70 percent of the population is of Hispanic/Latino descent and 28.4 percent of the population is younger than 18.¹¹ The demographic characteristics suggest an amplified opportunity to deliver essential preventive dental services to a community with a substantial majority who are already eligible for state-sponsored care.

A partnership and memorandum of understanding between the EMCSD and the WesternU CDM led to the

establishment of an SBOHC located at the Jeff Seymour Family Center (JSFC), which has a Head Start program and alternative school, as well as an opportunity program for children on-site. A classroom was converted into a dental clinic that created a familiar setting for children in the EMCSO or residing in or surrounding El Monte to receive preventive and comprehensive treatment during and after school hours and during school district vacations. Predoctoral dental students from the WesternU CDM, supervised by licensed WesternU CDM clinical dental faculty, performed comprehensive oral health care services at these sites as part of their curriculum's clinical service-learning and community dentistry, as well as pediatric rotations. Despite the child's location in the El Monte community, DentaCom dental assessments could be completed remotely at the WesternU CDM, located 20 miles away, triaged and referred appropriately to affiliated clinics within the teledental network most suitable for optimal treatment.

Opportunities for Improvement

The SBOHC is currently open to provide care twice a week from 8 a.m.–5 p.m. Routine and emergent after-hours calls are answered every day by auxiliary health care professionals who staff the site. If an emergency requires immediate care and treatment when the SBOHC is closed, the children are directed to The Dental Center at WesternU, which is open every day from 8 a.m.–5 p.m. and as needed on weekends. Research shows that individuals who are unaware of the emergency on-call services and placed in situations with pain are left with no other avenues for relief and seek care at costly emergency departments or urgent care centers. Most of these patients receive prescription medications and are often sent home with a referral to a dental clinic for

optimal treatment.^{12–14} To prevent these occurrences, a dental reporting platform is needed to communicate children's oral health needs in real time with immediate feedback and/or response from a dentist. For instance, standardized clinical information may allow a dentist to triage patient symptoms and respond accordingly regarding the severity of a patient's clinical presentation. Receiving prior information can allow a dentist to reasonably predict treatment and accurately allocate staff, time and materials required for care. This would be one way to provide access to

A dental reporting platform is needed to communicate children's oral health needs in real time with immediate feedback and/or response from a dentist.

on-demand care in a way that addresses patients' dental needs without overtaxing providers or patients themselves.

Furthermore, individuals with low health literacy, especially children, report ambiguous symptoms and concerns that can be difficult for dental providers to anticipate prior to examination.^{15,16} This contributes to a loss of clinic utility because it is challenging to predict procedures or allocate the resources required for treatment. Furthermore, some patients present with conditions that necessitate care beyond the scope of the SBOHC's capability and require referral to a more comprehensive dental facility. A streamlined approach for triaging these patients can potentially spare unwarranted patient visits, allow more patients to be seen in a given chair and expedite optimal patient care.

The majority of clinical presentations can be remotely evaluated for treatment by providing sufficient clinically meaningful information.⁸ Screening for patient conditions and the evaluation of trauma, disease or pain requires the collection and transfer of clinical information in a secure, standardized manner. Facilitating this allows dental auxiliary personnel or individuals with limited dental knowledge to remotely exchange clinical information to dentists and institutions at another location.

Additionally, a substantial number of individuals eligible for government-sponsored care are not enrolled and many are unfamiliar with their benefits.^{17,18} Administrative delays can hinder clinical workflow when new patients present to the clinic, as insurance coverage must be determined while offering treatment options. Partnering with an in-kind enrollment navigation organization as well as training and certifying front office staff can also assist with enrolling individuals who may be eligible for dental coverage but are unaware how to obtain it. Eligibility documentation, such as Medi-Cal benefits identification card (BIC) numbers, can be uploaded through DentaCom prior to patient visits allowing clinic administrators more seamless insurance and billing management processes.

In regard to follow-up care after treatment, it is difficult to maintain when the SBOHCs are not operational every day of the week. Language barriers further compound patient communication issues that restrict the depth of inquiry and comprehension of patient needs. The ability to monitor and communicate with patients in a standard, easily translatable way can be supplied by utilizing web-based applications to connect patients, families or health care staff with their dental provider at any time of day. Providing a means for dentists to review patient

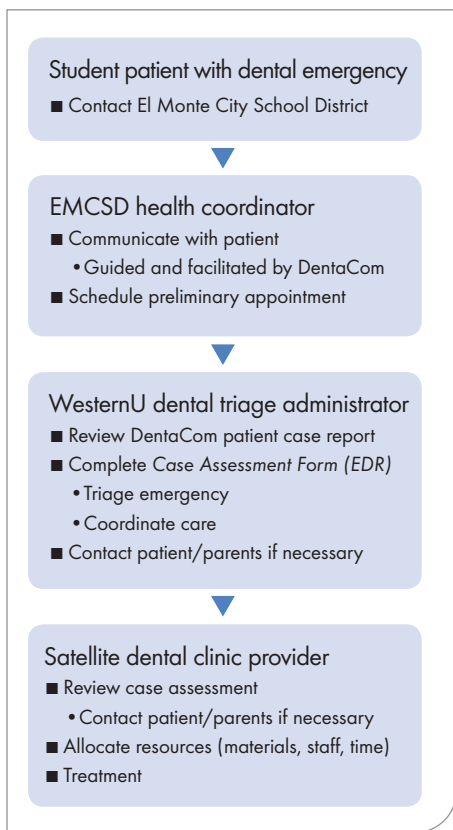


FIGURE 2. DentaCom protocol for triaging dental care.

information from multiple languages and the ability to interact with them indirectly enables a practical application of teledentistry beneficial to both dentists and the community they serve.⁹

Protocol

At the beginning of each school year, children in the EMCS D kindergarten classes and Head Start program obtain parental consent for oral health screenings as well as preventive care that includes fluoride varnish application and oral health education. Any child enrolled in the EMCS D and Head Start programs receives follow-up calls to confirm they have a dental home or to schedule them to be seen at the JSFC for comprehensive dental care. Throughout the year, children in the EMCS D and Head Start programs can report any dental discomfort to their teachers, who are instructed to bring them to the school nurse for initial

TABLE

Patient Case Assessment Definitions

| | |
|-------------------|--|
| Severity | <ol style="list-style-type: none"> 1. No pain, no limitations to daily function 2. Moderate pain, compromises daily function 3. Excruciating pain, definitive limitations to daily function |
| Urgency | <ol style="list-style-type: none"> 1. Nonurgent 2. First available appointment 3. Requires emergency care |
| Difficulty | <ol style="list-style-type: none"> 1. Mild difficulty, manageable by student provider and clinical faculty 2. Moderate difficulty, requires management by specialist 3. Complex difficulty, refer case to tertiary clinic |

evaluation. Rather than waiting for an available appointment for the child to be examined, the WesternU CDM provided the school nurse and health coordinator on-site at the JSFC (who is also the dental care coordinator for the JSFC SBOHC) access to DentaCom for children’s needs to be assessed. A training session was held to explain the use of the web-based patient communication tool as well as the protocol for managing children requiring dental care as outlined in **FIGURE 2**.

When it is determined that a child needs to see a dentist, the health coordinator on-site logs on to DentaCom through any accessible web browser such as a smartphone, tablet, laptop or desktop with webcam capabilities. “Create a New Case Report” is selected to allow the child’s name, age, medical conditions, medications and insurance coverage — which has already been collected and filed by the school nurse at the start of the year — to be entered. Following this, the application asks about descriptions that best match the patient’s discomfort: tooth, jaw, gums or mouth. Dependent on this selection, the most appropriate scenario that reflects the child’s dental concern can be chosen. For example, under “tooth,” one can select “toothache” or “broken tooth.” Each option requires additional descriptors of physical symptoms and conditions. Photographs of the patient’s condition and other details using free text or audio recordings can be appended. Contact preferences for the school nurse staff as

well as the child’s parents are also added so a dentist can respond by telephone, email or text message with the appropriate call-back information to abide by HIPAA regulations. Prior to submitting the child’s report, a summary can be reviewed, saved or printed for appropriate documentation.

In alignment with WesternU CDM procedures, the health coordinator accesses the patient’s chart through the WesternU CDM’s electronic dental record (EDR) and opens an “Emergency Triage Tracking” form. The first tab of the form is completed with pertinent notes to the provider added prior to uploading the completed case report. This commences an automated workflow in the EDR that gets queued with all open reports for the designated clinical faculty to review and monitor. Furthermore, the health coordinator schedules the patient a tentative default appointment at the JSFC presuming that the patient’s clinical presentation does not preclude them from being accommodated by the clinic.

Upon submission, the completed case report triggers a text message and email alert to three protocol administrators (Stein, Watanabe, Lee) notifying that a new report has been received by the system. The designated faculty who oversees all clinical procedures (Watanabe) also receives an EDR notification that a new report has entered their queue of which they are responsible for downloading and reviewing the case. The clinical faculty can then triage the patient’s reported symptoms and complete

the “Patient Case Assessment” in the second tab of the form. The severity, urgency and complexity of each case is given a score of 1–3, as defined in the **TABLE**, and a decision is made regarding which clinic has the capacity to best treat the patient as well as the next course of action for treatment. Once triaged by the WesternU CDM faculty, the individual is appointed at the affiliated clinic most suitable for immediate treatment.

If it is determined that treatment should be ensued elsewhere, adding an “Appointment Request” through the EDR with the appropriate clinic location will also notify a scheduling manager at the designated site to contact the patient a second time to reschedule their appointment. If necessary, the clinical faculty can contact the health coordinator or the patient’s parents to provide any consultation or instructions necessary. Notes can be added to the patient’s electronic chart that include an initial assessment and presumed treatment plan.

When the patient presents for his or her appointment at the JSFC SBOHC, the WesternU CDM clinical faculty on-site and the dental student who received the case can review the patient report and the treatment recommended from the triaging faculty. Any questions regarding the case or the procedure can be discussed prior to the patient’s appointment, sparing logistical delays inherent to dental care provided at school-based clinics.

The protocol administrators and the clinical faculty responsible for addressing each report received are also accountable for monitoring the status of each patient in their EDR’s queue. Though only the clinical faculty administrator can enter patient information, the two other administrators act as fail-safes to ensure the progress of patient reports as well as patients being contacted, scheduled and treated.

Metrics

Teledental services are among the Institute of Medicine and National Research Council’s top recommendations for improving access to care for vulnerable populations.¹ Although metrics will assess the impact of DentaCom’s implementation, telehealth applications are often viewed as a necessity for extending services beyond traditional settings.^{9,19}

Qualitative and quantitative survey data will be used to determine the effect of DentaCom’s intervention at the JSFC SBOHC while also assessing provider and

With the pilot of DentaCom already implemented, all users are encouraged to provide suggestions to enhance the experience or goals of the program.

patient satisfaction. Alternative routes and methods for accessing care will be compared as well as the intervention’s perceived value from both perspectives. In addition, clinical and office staff will be interviewed to provide feedback on efficiency and usability. Provider surveys given after each patient encounter will demonstrate if the triage system has assisted in decreasing preparation and chair time. With the pilot of DentaCom already implemented, all users are encouraged to provide suggestions to enhance the experience or goals of the program. Iterative alterations to the design of the user interface or the protocol itself are anticipated. The authors’ capabilities to alter all aspects of DentaCom permit rapid adoption of recommendations suitable for improving use. The data

collected from postsurveys will be analyzed to illustrate dental providers’ and health coordinators’ or parents’/guardians’ experiences utilizing the pilot protocol.

Scalability

The advantage of DentaCom is its simplicity for allowing dental providers to offer custom, HIPAA compliant, cost-effective teledental services. Its design allows easy implementation across a variety of potential applications. Reporters, receivers and providers are interchangeable user roles that can be tailored for each environment in which the software is needed. While this article outlines how teachers and school nurses are the reporters for children’s dental pain in this pilot study, other scenarios may include parents, coaches, health coordinators, dental team members or even medical providers. In the current model, the WesternU CDM serves as a central hub where faculty assume the receiver role to triage all incoming case reports. This can be fulfilled by any dental providers willing to accept the responsibility of managing emergencies, consultations or routine care and allocating patients to appropriate clinics. Providers are the dentists who have direct contact with patients and will subsequently deliver treatment. While this role may also be fulfilled by receivers themselves, our protocol designates dental student providers and the WesternU CDM attending faculty at a satellite clinic (SBOHC) to obtain the case report prior to patient encounters.

All teledentistry applications include similar user roles to be assigned. Implementing DentaCom at the WesternU CDM and the affiliated SBOHCs requires access for all university-affiliated dental providers while serving all children in the local school district and community. Enabling access for this quantity of individuals is preliminary evidence of the scalability of this protocol for similar community dentistry programs.

Discussion

Research has shown that patients and practitioners already use web-based devices for health needs because of convenience and ease of use.²⁰ The adoption of teledental services is still in its infancy but has quickly become a default alternative for supplying access to care to communities with heightened oral health disparities.^{1,9,19} Well-designed web-based applications can accurately, effectively and quickly guide users through complex health-related tasks and report conditions in a clinically relevant way, regardless of knowledge base.^{7,21} With the modern ubiquity of always-connected mobile devices, dentistry has a developing opportunity to better assist underserved populations during their times of need. However, despite the advantages of leveraging web-based applications, their deployment in clinical environments has significant barriers, chief of which are HIPAA compliance, product development and optimization and maintenance.⁹ DentaCom is the WesternU CDM's attempt to overcome these barriers while maintaining the advantages of web-based applications.

By focusing on a HIPAA-compliant, user-customizable and cost-effective framework, DentaCom can be quickly deployed in a multitude of settings, including private practices, federally qualified health clinics and dental schools. Improved, on-demand and effective patient-to-dentist communication guided by the application are anticipated to enhance outcomes in patient care and practice efficiency.²² Practice settings that should benefit the most from DentaCom are those without or possessing limited capacity with after-hours patient-practitioner communication mechanisms, dental emergency protocols and/or patient routing options. Outcome measures of DentaCom in El Monte's SBOHC are

still being evaluated. Regardless, the application's deployment greatly enhances the JSFC SBOHC's ability to provide care as no clear, trackable emergency communication protocols existed prior.

While we report the procedure for the pilot and scalability of our teledentistry model, we anticipate reporting outcomes demonstrating the efficacy of the model and the early intervention dental programs it supports in a subsequent follow-up manuscript. ■

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A Four-Year Study on Risk-Based Recare Interval and New Cavitations in Nontraditional Dental Clinics

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ABSTRACT On-time recare intervals are an essential part of chronic disease management in patients. This study investigates the influence of risk-based recommended recare intervals on new cavitations in children and adolescents aged 0 to 20 at nontraditional dental clinics like school-based oral health centers in El Monte, Calif. This study suggests that patient compliance with recommended recare intervals results significantly in fewer new cavitations.

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Conflict of Interest
Disclosure: None reported.

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Disclosure: None reported.

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Conflict of Interest
Disclosure: None reported.

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Conflict of Interest
Disclosure: None reported.

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Disclosure: None reported.

The 2000 *Oral Health in America: A Report of the Surgeon General* brought to light the necessity of professional dental care in maintaining oral health, especially in the most vulnerable populations, including children at high risk for early childhood caries (ECC).^{1,2} The American Academy of Pediatric Dentistry affirms the importance of professional oral health intervention beginning in infancy and continuing through adolescence and adulthood and stresses continuity of care based on a patient's individual needs and unique risk factors.³ Part of this continuity of care is the patient's acceptance of and adherence to periodic recare examinations and preventive care services, the frequency of which is determined by caries risk assessment (CRA) and evidence-based caries management protocols.⁴⁻⁶

In 2015, the Centers for Medicare and Medicaid Services approved Medi-Cal 2020, the five-year renewal of California's section 1115 Medicaid waiver, through which the state hopes to move the focus of health care toward outpatient, primary and preventive care.⁷ One of the four new programs featured by the waiver is the Dental Transformation Initiative (DTI), which aims to increase preventive services utilization by children and adolescents aged 20 and younger, to diagnose ECC by utilizing CRA tools to treat caries as a chronic disease, to increase continuity of care and to involve local dental pilot programs to pursue and establish these goals.⁷

The school-based health center model has proven to be an effective means of achieving the above goals.⁸ Numerous studies have demonstrated that school-based health centers become a “safety net” for children and adolescents in underserved communities by being located in high health care needs areas and schools and by providing immediately accessible comprehensive medical treatment.⁹⁻¹¹ The creation of school-based oral health centers (SBOHC) can specifically result in improved oral health in the underserved community while minimizing the barriers to dental care these families would otherwise face.¹²⁻¹⁴

In 2016, Watanabe et al. explored the impact of risk-based care provided to children and adolescents at the Western University of Health Sciences, College of Dental Medicine (WesternU CDM) Gidley SBOHC and the Jeff Seymour Family Center (JSFC) dental clinic in the East Los Angeles County city of El Monte.¹⁵ Their findings showed a significant decrease in dental caries risk accompanying a reduction in the onset of new disease for those children and adolescents aged 6 months to 20 years who consistently utilized the

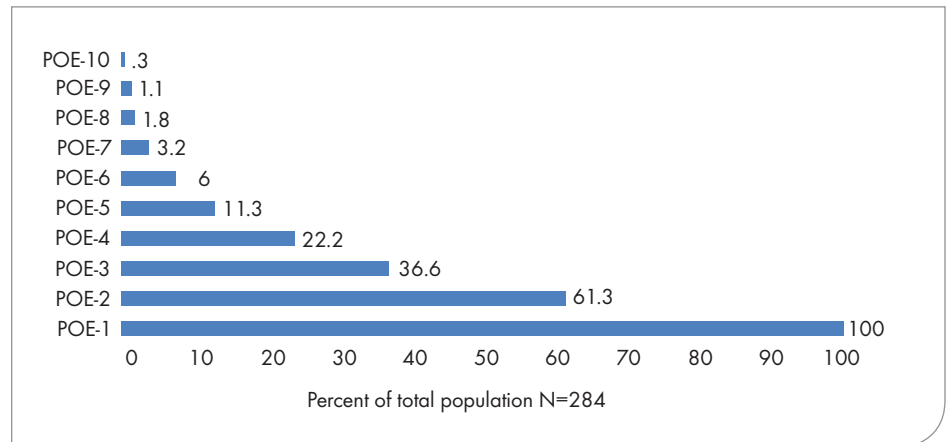


FIGURE 1. Percentage of patients returning for POE visit. This illustrates the decreasing number of patients returning for each subsequent POE visit. POE-1 is the first visit following the COE visit. The decrease in POE visit percentage is due to patient inactivation, patient's change of contact information and/or patient not yet due for the POE visit.

dental services provided and followed risk-based care recommendations. This study seeks to evaluate the influence of patient compliance based on caries risk assessment-recommended periodic oral examination (POE) visits on new cavitation rates in an expanded population ranging from Jan. 1, 2012, to Dec. 31, 2016.

Methodology

WesternU CDM and the El Monte City School District established an agreement for dental services memorandum of understanding to provide oral health services for children and adolescents residing in the El Monte community and/or attending the elementary, junior high or high school within the El Monte area. Gidley SBOHC was initially established in 2011, and in order to expand services to the community, Gidley SBOHC was closed Jan. 31, 2015, and the JSFC dental clinic was opened Feb. 10, 2015, to present. Both Gidley SBOHC and the JSFC dental clinic provided comprehensive dental care to people in the community who were aged 0 to 20. More specifically, Gidley SBOHC and the JSFC dental clinic had the same patient population as it was a location shift rather than an establishment of two separate dental locations.

Cohort Patient Population

All patients of record aged 0 to 20 at Gidley SBOHC and the JSFC dental clinic who had a comprehensive oral examination (COE) and at least one POE visit between Jan. 1, 2012, and Dec. 31, 2016, were included in this study. All patients of record who were greater than 20 years of age or who did not have a POE were excluded from this study. Thus, the total population of unique patients was 284. **FIGURE 1** shows the percentage of returning patients for each POE visit.

TABLE 1 shows the demographic distribution of the 284-patient population categorized by gender, age and race. Of the 284 patients, 50.7 percent (144) were female while 49.3 percent (140) were male. The average age of the total population was 9.7 ± 3.9 (refer to **TABLE 1** for further breakdown of age). The majority of the patient population was Hispanic at 69.4 percent (197) followed by Asian at 20.8 percent (59) — a growing population in the El Monte, Calif. area.

Clinical Protocol

In order to determine the on-time recare compliance, the following protocols were implemented according to Watanabe et al.'s study regarding caries risk assessment and quality improvement (QI) driver implementation.¹⁵ This

TABLE 1

| Demographic Breakdown of the Cohort Population | |
|--|------------|
| | N (%) |
| N | 284 |
| Gender | |
| Female | 144 (50.7) |
| Male | 140 (49.3) |
| Age (years)¹ | |
| | 9.7 ± 3.9 |
| Age categorized (years) | |
| 0-5 | 35 (12.3) |
| 6-8 | 92 (32.4) |
| 9-12 | 82 (28.9) |
| 13+ | 75 (26.4) |
| Race | |
| Asian | 59 (20.8) |
| Caucasian | 1 (0.35) |
| Hispanic | 197 (69.4) |
| Other | 4 (1.4) |
| Unkown | 23 (8.1) |

¹values are presented as mean ± SD

current study's methodology utilized the same caries risk assessment (CRA), new cavitation determination and recommended recare interval protocol as Watanabe et al.¹⁵ To summarize, WesternU CDM dental student providers recorded the CRA, notation of a new cavitation and recommended recare interval at the initial COE visit followed by any subsequent POE visits in axiUm, the electronic health record. To prevent student data entry error, the calibrated WesternU CDM faculty reviewed the data entry prior to approving the documentation. In addition, the authors reviewed each data entry manually to minimize and limit any erroneous data entry for accurate documentation.

To standardize the term “new cavitation,” the following protocol was followed. Through the International Caries Detection and Assessment System (ICDAS), caries progression on smooth surfaces from sound enamel to active caries lesion requiring treatment was documented.¹⁵ ICDAS 1–3

lesions that did not require restorative treatment and preventive procedures only, such as fluoride varnish application, sealants and casein phosphopeptide-amorphous calcium phosphate fluoride paste, were considered “noncavitated” lesions in this study. However, new ICDAS 3–6 lesions that presented during the POE visits with active caries lesions and required restorative treatment were considered “new cavitations.” Additionally, the American Dental Association Caries Classification System (ADA CCS) radiographic interpretation was used to determine interproximal E1 and E2 radiographic caries lesions that could be remineralized and therefore considered “noncavitated” lesions. The new ADA CCS Interproximal D1, D2 and D3 radiographic caries lesions recorded during the POE visits were considered “new cavitations” for this study.¹⁵ Both the ICDAS and the ADA CCS are incorporated into the WesternU CDM curriculum in order to standardize the practice of documenting caries progression from sound enamel to the development of a large caries lesion.¹⁵

Furthermore, when a patient arrived for the POE visit, the patient was examined for any new cavitations. However, active caries lesions recorded at the initial COE or subsequent POE visits that lacked progression were not considered new cavitations for this study.

Beyond the oral examination during the COE and POE visits, the patients received preventive care including oral hygiene instruction (with or without utilization of a plaque-disclosing agent), nutritional counseling (discussion of dietary food groups and outcomes of consuming sugars and high-acidity liquids and foods), self-management goals, a child/adult prophylaxis and fluoride varnish application. The parent/guardian

present also received anticipatory guidance, which included oral hygiene instruction, nutritional counseling and recommendations to better improve the patient's caries risk and factors affecting the onset of new cavitations.

To document in axiUm, the dental student providers entered in the following information: procedural codes COE (D0150), POE (D0120), CRA (D0601-low, D0602-moderate, D0603-high), oral hygiene instruction (D1330), nutritional counseling (D1310) and fluoride varnish application (D1206), dental findings including new cavitation (C3004) and carious lesions (odontogram) and treatment plan for active carious lesions.

Data Collection and Analysis

At all COE and POE visits, the cohort population was recommended a recare interval based on the patient's CRA. Based on the CRA recommended treatment guidelines, a high-caries-risk patient was recommended for a three-month recare interval, while a moderate-caries-risk patient was recommended for four to six months and a low-caries-risk patient was recommended for six months. All information was recorded in axiUm with protocol followed as stipulated in the Watanabe et al. study.¹⁵

To analyze the outcome measurements, the procedural and dental finding codes for COE, POE, CRA, new cavitation, oral hygiene instruction, child prophylaxis, nutritional counseling and fluoride varnish application of patients of record at Gidley SBOHC and JSFC dental clinic between Jan. 1, 2012, to Dec. 31, 2016, were extracted from axiUm into Microsoft Excel. Manual chart audits were then completed for every patient extracted from axiUm to confirm the appropriate clinical

finding of a new cavitation, reaffirm the appropriate CRA, record the months between examinations and classify the patient as “compliant,” “sometimes compliant” and “noncompliant.”

For assignment of compliance, patients who returned zero to one month after the recommended recare interval were categorized as “compliant” and given a score of 1. Patients who returned two to three months after the recommended recare interval were categorized as “sometimes compliant” and given a score of 2. Lastly, patients who returned four or more months after the recommended recare interval were categorized as “noncompliant” and given a score of 3. **TABLE 2** summarizes the assignment of compliance for the cohort population.

Additionally, to assess whether there was a higher incidence of new cavitations present in different age groups based on recare compliance, the cohort population of patients aged 0 to 20 was analyzed into subpopulations of aged 0 to 5, 6 to 8, 9 to 12 and 13 and older. Subpopulation groups were based from studies evaluating caries prevalence in pediatric children and establishing the subgroups based on dental eruption and/or exfoliation of primary and permanent dentition.^{16,17}

To ensure Health Insurance Portability and Accountability Act (HIPAA) compliance, all patient information recorded was saved on a HIPAA-compliant cloud storage on the WesternU CDM server with restricted access.

Statistics

Descriptive statistics of the data, plots and all pertinent analyses were conducted using the SAS9.4 software. Associations between cavitation and time since recall, cavitation and recare compliance were assessed using logistic

TABLE 2

Number of Patients Categorized by POE Visits

| | COE | POE-1 | POE-2 | POE-3 | POE-4 |
|---|-----|-------|-------|-------|-------|
| N= total cohort population | 284 | 284 | 174 | 104 | 63 |
| Compliant (returned for POE within 0-1 month from recommended CRA recare interval) | - | 116 | 96 | 56 | 32 |
| Sometimes compliant (returned for POE within 2-3 months from recommended CRA recare interval) | - | 56 | 25 | 19 | 12 |
| Noncompliant (returned for POE ≥ 4 months from recommended CRA recare interval) | - | 112 | 53 | 29 | 19 |

TABLE 3

Effect of Recare Compliance on Increased Cavitation Based on Recommended CRA Recare Interval

| Recare compliance | New Cavitation at POE | | |
|---|-----------------------|--------------------|--------------------------|
| | New cavitation N (%) | Odds ratio | P-value |
| Overall (N= 692 POE visits) | 279 (40.3) | - | - |
| Compliant (returned for POE within 0-1 month from recommended CRA recare interval) = 1 | 101 (29.7) | Reference | Reference |
| Sometimes compliant (returned for POE within 2-3 months from recommended CRA recare interval) = 2 | 55 (45.1) | 1.94 (1.27 - 2.97) | *0.0022 |
| Noncompliant (returned for POE ≥ 4 months from recommended CRA recare interval) = 3 | 123 (53.5) | 2.70 (1.92 - 3.85) | *2.78 x 10 ⁻⁸ |

* Statistically significant

regression models. Age adjusted and age-stratified association statistics were reported utilizing a significance threshold of p-value < 0.05. Outside of age, other factors considered in the models were gender, access to insurance and race.

Results

Of the cohort population, **TABLE 2** shows the number of patients who returned for their POE-1 visit, POE-2 visit, POE-3 visit and POE-4 visit. The decrease in the number of patients in each POE visit was due to reasons including a new dental home, no longer in or around the El Monte community or deactivated and referred. **TABLE 2** further breaks down the number of “compliant,” “sometimes compliant” and “noncompliant” patients who returned based on their CRA recommended recare interval.

Based on all 279 new cavitations reported at the time of the child’s POE visit, **TABLE 3** shows that patients who were “sometimes compliant” had statistically significant (p = 0.0022) 1.94 times increased odds of a new cavitation at the POE visit when compared to the “compliant” patient reference population. Furthermore, “noncompliant” patients were 2.70 times more likely (p = 2.78 x 10⁻⁸) to have a new cavitation as referenced to the baseline “compliant” patient population. **TABLE 3** further demonstrates the relationship between a “compliant” patient (returned for POE within zero to one month from recommended CRA recare interval) and a “sometimes compliant” patient (returned for POE within two to three months from recommended CRA recare

TABLE 4

Effect of Recare Compliance on Increased Cavitation by Age Group

| Recare compliance | Age | | | Age | | |
|---|------------|--------------------|-------------------------|------------|--------------------|------------------------|
| | 6–8 N (%) | Odds ratio | P-value | 9–12 N (%) | Odds ratio | P-value |
| Overall | 100 (44.2) | – | – | 85 (52.5) | – | – |
| Compliant (POE within 0–1 month) | 35 (31.8) | Ref | Ref | 25 (27.5) | Ref | Ref |
| Sometimes compliant (POE within 2–3 months) | 20 (42.5) | 1.59 (0.78 – 3.21) | 0.2 | 15 (48.4) | 2.47 (1.07 – 5.74) | *0.035 |
| Noncompliant (POE >4 months) | 45 (65.2) | 4.02 (2.12 – 7.60) | * 1.91×10^{-5} | 45 (57.7) | 3.60 (1.89 – 6.85) | * 9.5×10^{-5} |

*Statistically significant

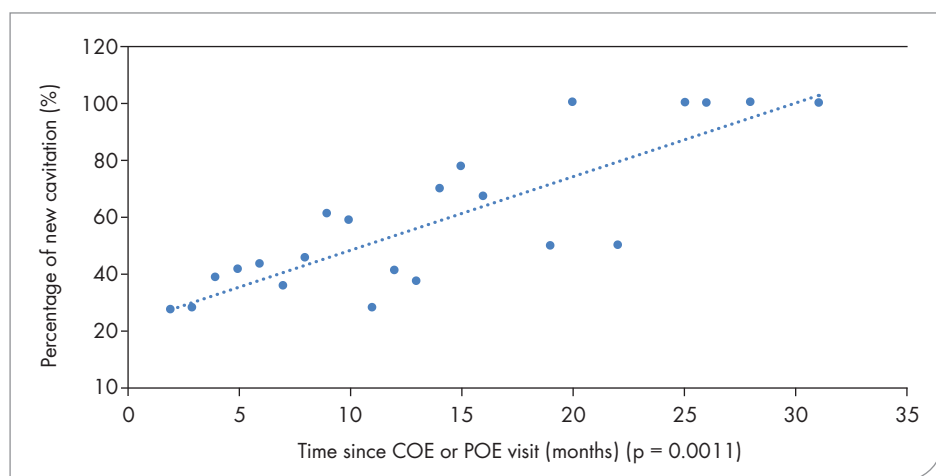


FIGURE 2. This figure shows the percentage of individuals who had new cavitations at the specific number of months past due from their CRA recommended recare interval. This supports previous research that states that as the number of months increase, the number of new cavitations also increases.¹⁸

interval) or a “noncompliant patient” (returned for POE \geq months from recommended CRA recare interval).

Results in **TABLE 4** indicate that “noncompliant” 6- to 8-year-old children were significantly at 4.02 greater risk ($p = 1.91 \times 10^{-5}$) than the “compliant” 6- to 8-year-old subpopulation in new cavitation formation. Additionally, the 9- to 12-year-old subpopulation who were “sometimes” and “noncompliant” on their recare visits were 2.47 ($p = 0.035$) and 3.60 ($p = 9.5 \times 10^{-5}$), respectively, more likely to have a new cavitation at their subsequent

POE visit. Both the subpopulations aged 0 to 5 and 13 and older were limited by the number of patients in their respective age group, resulting in an insufficient power to determine the impact of recare compliance.

Additional results from the dataset showed an increasing trend in the percentage of cavitations based on time since the previous COE or POE visit (**FIGURE 2**). For example, **TABLE 5** shows that at three months, 28.1 percent of patients reported to the POE visit with a new cavitation. However, as the number

of months increased to nine and 10 months since the patient’s last COE or POE visit, the percent reported of new cavitations was 61.3 percent and 58.5 percent, respectively.

Regarding preventive treatment received during the COE and POE visits, **TABLE 6** summarizes the percentage of the cohort population who received a CRA, child/adult prophylaxis, fluoride varnish application, nutritional counseling and oral hygiene instruction. Of most significance was that 100 percent of the patients received a caries risk assessment, which was instrumental in determining the recommended recare interval for the patient.

Discussion

The positive effect of regular, frequent dental examinations on new carious lesions has been established in the dental literature.⁴ By focusing on patient compliance based on CRA recommended recare interval, this study removes the bias of comparing different at-risk patients with variations in recommended months. This study suggests that in addition to providing preventive services, on-time recare intervals are important in monitoring any incipient, nonactive, noncavitated lesions, especially in light of a study by Kuthy et al. Kuthy et al. quantified the risk of acquiring new dental caries in children as an increase of 2 percent with each additional month that passed between recall examinations.¹⁸ **FIGURE 2** shows a significant increase in cavities with greater length of time between visits. In effect, the longer a patient delays their caries risk recommended recare interval, the more likely it is that patient will present with a new carious lesion.

In accordance with American Academy of Pediatric Dentistry (AAPD) guidelines,³ WesternU CDM dental student and faculty providers recommend

TABLE 5

Percentage of Patients With New Cavitations at Specific POE Visit Interval

| Number of months since COE/POE visit | Number of patients with new cavitations | Total number of patients at specified month | Percentage of patients with new cavitations |
|--------------------------------------|---|---|---|
| 2 | 3 | 11 | 27.3 |
| 3 | 43 | 153 | 28.1 |
| 4 | 49 | 127 | 38.6 |
| 5 | 29 | 70 | 41.4 |
| 6 | 37 | 85 | 43.5 |
| 7 | 19 | 53 | 35.8 |
| 8 | 16 | 35 | 45.71 |
| 9 | 19 | 31 | 61.3 |
| 10 | 17 | 29 | 58.6 |
| * 11 to 32 | 47 | 112 | 41.8 |

*Due to the minimal number of patients returning at months 11 to 32, an average was taken for this table. The entire data set from two months to 32 months was used for FIGURE 1.

TABLE 6

Percentage of Caries Risk Assessment, Child Prophy, Fluoride Varnish, Nutritional Counseling and Oral Hygiene Instruction Provided at COE and Subsequent POE Visits

| | Caries risk assessment (%) | Child prophy (%) | Fluoride varnish (%) | Nutritional counseling (%) | Oral hygiene instruction (%) |
|-------|----------------------------|------------------|----------------------|----------------------------|------------------------------|
| COE | 100 | 98.9 | 98.2 | 98.9 | 99.3 |
| POE-1 | 100 | 99.6 | 98.2 | 99.6 | 99.6 |
| POE-2 | 100 | 100 | 99.4 | 99.4 | 99.4 |
| POE-3 | 100 | 99 | 99 | 99 | 99 |
| POE-4 | 100 | 100 | 100 | 100 | 100 |

Percentage of treatment received (N = 284).

to patients to receive a cleaning, fluoride varnish, necessary radiographs and then review caries risk, dietary habits and oral hygiene instruction with both patient and parent at every oral health examination at the WesternU CDM SBOHCs. The WesternU CDM CRA protocol aligns closely with the DTI CRA tool. Both are adaptations of a widely recognized CRA resource.¹⁹ Both CRA tools have eliminated the socioeconomic status (SES) risk factor to more accurately classify patients' caries risk into low, moderate and high categories. In addition to identifying significant risk and protective factors, the patients' caries risk category prescribes the most appropriate

recare interval. A systematic review of recare visits conducted by Patel in 2010 substantiates the validity of associating recare appointments with the CRA and not strictly on time alone.⁴ The AAPD also recommends that determination of the types and frequency of diagnostic, preventive and restorative care be based on a child's age, caries risk and patient/parent cooperation,⁵ all of which influence the development of new cavitations. The results in TABLE 4 suggest that as the dentition shifts from predominantly primary to mixed dentition, the odds significantly increase for a new cavitation if the child is more than two months past his or her CRA recommended recare

interval. This may be due to the shift in tooth positioning and spacing along with changes in contact areas of adjacent teeth.

From the overall increasing trend of new cavitations with increasing time between recare visits, this study narrowed the focus to the patients at highest risk for caries (i.e., those who were prescribed a three-month recare interval based on CRA protocols). Doing so allowed for more accurate tracking of compliance to CRA-based recommendations. This study significantly demonstrates that patient compliance with recommended recare intervals results in fewer new cavitations, suggesting that on-time recare visits at prescribed POEs is a major factor in decreasing caries experience. In addition, Hsu et al. reported that patients who returned regularly for their three-month visits had a lower mean of caries.²⁰ The broader compliance results in TABLE 3 support the findings of a study by Wang and Aspelund that demonstrated that children who missed appointments more often had new carious teeth and enamel disturbances than children who kept routine appointments.²¹

This study also found that the patients who did not return on time for their POE visit needed greater amounts of restorative and preventive care. By virtue of being overdue with their recommended recare interval, "sometimes compliant" and "noncompliant" patients had less exposure to preventive services, such as thorough dental cleanings and application of fluoride varnish, and also had fewer experiences with in-depth oral hygiene instruction and nutritional counseling. This is represented in TABLE 5 as 98.2–100 percent of patients who returned for their POE visits had a caries risk assessment, child prophy, fluoride varnish, nutritional counseling and oral hygiene instruction. The percentage of preventive treatment

performed for the cohort population was less than 100 percent due to child refusal, parent refusal or not completed. The authors posit that for this reason, the odds of developing new carious lesions increase, which then leads to a rise in the number of restorative appointments necessary to treat the existing and new cavitations.

One study suggests that due to the emphasis on early dental visits, caregivers—especially those from low-income households, which are the majority of the patients served at the El Monte SBOHCs—do not understand the need for regular POE visits after the initial exam.²² In addition, families may regard the initial exam more valuable and beneficial than shorter POE visits. The need for patients to take ownership of self-directed chronic disease management, including “buying into” the idea of presenting for more frequent recare visits, is paramount in bringing patients from the high-carries-risk category into the moderate and eventually low-risk categories.

Limitations

This project included some limitations. After the fourth POE visit (i.e., the fifth visit overall), the authors observed that the number of patients returning for their recare visits declined. Documented reasons for patients not scheduling or returning for their recommended CRA recare interval were:

- Patients were not yet due for their fourth recare visit.
- Patients reported finding another dental home either within El Monte or in another city before they could attend POE-4.
- Out-of-service phone numbers.
- Inaccurate addresses (breakdown of percentages unavailable).

Patients who were no longer active patients at Gidley SBOHC and the JSFC dental clinic were sent a letter

of inactivation to the address on file and given a referral list of nearby alternative dental clinics. Extending the study past POE-4 would provide more detailed and impactful insights into the effect of on-time recare visits. Widening the scope of the study to other school districts would also increase the study population and provide an expanded dataset.

Future Opportunities

Dental literature regarding compliance of pediatric patients with preventive measures, including on-time recare intervals, is scarce. A better understanding of noncompliance in attending regular CRA-recommended recare intervals may lead to the development of more effective protocols such as disease management and more ideal recare intervals. Studies show that patients’ “buy in” to preventive measures at home is an indicator for compliance in attending regular, frequent recare visits.^{21,22} More in-depth, effective dental prevention education may be a motivating factor for caregivers of high-carries-risk children and adolescents to adhere to the recommended recare interval of three months. WesternU CDM plans to expand on existing QI drivers at the SBOHCs to ensure better patient compliance in presenting for on-time CRA recommended recare visits. A subsequent article will explore QI drivers and its impact in private practice.

Policy Considerations

Policymakers should evaluate the benefits of statewide initiatives such as California’s DTI in order to increase access to dental care across the country. Research on the impact of reimbursement through DTI and possibilities of expanding the program into more urban areas would be another avenue of interest.

Conclusion

Children and adolescents develop carious lesions over time. This study suggests that on-time recare interval compliance based on caries risk and in conjunction with preventive dental services can significantly reduce caries experience and better overall oral health. Therefore, the odds ratio of developing new cavitations will significantly increase for children and adolescents who delay their CRA recommended recare interval for more than two months. ■

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Quality Improvement in Practice Leading to Remineralization

James W.C. Fedusenko, DDS; Cindy Hannon, MSW; Cameron Fuller, DDS, MS; Marcus Paulson, DDS, MS; and Brian B. Nový, DDS

ABSTRACT Implementing quality improvement into private practice can be challenging for many reasons, mainly due to a lack of support in systems. This article describes how one pediatric practice used the environment of a collaborative to integrate quality improvement drivers within the practice in an effort to manage dental caries disease. The success of these efforts was documented and assessed through practice-level metrics via run charts and is visible at the patient level by clinically remineralized lesions.

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Quality improvement (QI) and performance measures are hallmarks of many fields in health care. However, these measures have yet to be fully implemented in clinical dental practice. QI can appear more applicable for safety net clinics, however, the science of QI can be applied in any practice setting. The concept of quality improvement is often misinterpreted in dentistry because the terminology has not been well defined, diagnostic codes are not widely used and measurement of outcomes presents a challenge.¹ Difficulties exist in the development and use of valid, reliable, feasible and usable measures.² Dentists' perception of quality is usually the technical excellence of restorations, however, quality improvement is not necessarily improving margins and aesthetics, which aren't related to long-term treatment

outcomes.³ Quality improvement is the measure of success in treating a disease by implementing data-driven changes.⁴ Too often, dentists believe restorations are synonymous with the treatment of dental caries disease when, in fact, a restoration merely replaces caries-affected structures.⁵

Value-based reimbursement and "pay for performance" (P4P) are attempts to link reimbursement to the quality of care provided. These new payment philosophies have gained momentum in medicine, and it is reasonable to expect they may eventually become a common payment mechanism in dentistry as well.¹ The implementation of quality measures into practice allows providers to prepare for this paradigm shift from volume-based to value-based reimbursement.¹ Most often, these topics are discussed in the context of their performance in a community-based clinical site rather than in private

practice. A small number of dentists have begun to use quality improvement as a vehicle for transforming their care delivery to measure the reduction in dental disease. QI data allow clinicians to better understand their processes and the overall health of the population they treat, but at the patient level the science of quality improvement leads to visible remineralization of caries lesions and the prevention of new caries lesions.

How Should Dentists Measure Quality?

In 2008, the American Dental Association (ADA) established the Dental Quality Alliance (DQA) to standardize measurement and reporting in order to better understand how quality can impact and drive oral health.² According to the DQA, “dentistry needs a cost-effective measurement system that can be easily implemented on a routine basis in small practices, measures factors under the control of the practitioner and yields meaningful information that can be acted upon for improvement.”²

QI is broadly defined as “the combined and unceasing efforts of everyone — health care professionals, patients and their families, researchers, payers, planners and educators — to make changes leading to improved patient outcomes (health), system performance (care) and professional development (learning).”⁶ Measurement establishes reference points from which we can standardize something for comparison.⁷ Correct measurement ensures that any changes made to a clinical system lead to an improvement in health.⁷

According to the National Quality Forum (NQF), measures to improve health care can be broken down into the following five categories:

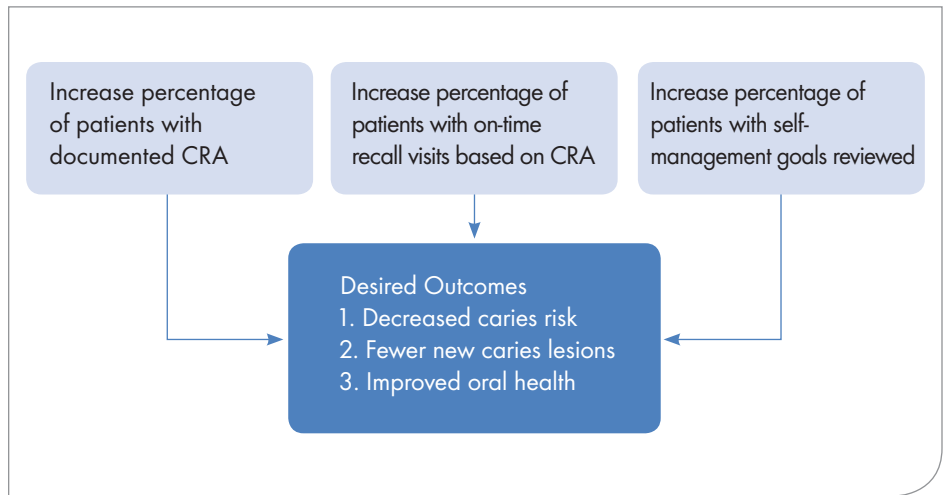


FIGURE 1. Process and outcomes of caries management.

1. Structural measures reflect the conditions under which providers provide care.
2. Process measures reveal whether steps proven to benefit patients are followed correctly.
3. Outcome measures quantify the actual result of care (typically the most relevant and desired measure to change for providers).
4. Patient-experience measures record patients’ perspectives on their care.
5. Composite measures combine the result of multiple performance measures to provide a more comprehensive picture of quality care.⁷

A critical first step in the quality improvement process is establishing what practice information can and should be measured to ensure that care (performance) is providing optimal health to patients (outcomes).⁴ Because most clinicians are not required to use diagnostic codes, the information available within the electronic dental record is not optimized. However, CDT codes do provide some basic data that allow a small number of process measures and outcome measures to be calculated, which can help drive caries risk reductions leading to fewer caries lesions and remineralization of existing lesions (FIGURE 1).

Disease Management With Quality Improvement in the Private Practice

In March 2015, the DentaQuest Institute initiated the Dental Caries Management (DCM) Collaborative, which focused on developing and testing a chronic disease management protocol for children and adolescents in a variety of clinical settings.⁸ Providers were recruited from across the U. S. to participate in the collaborative with the aim of improving the caries risk of their patient population using evidence-based QI drivers. Drivers are the factors or components of a system that influence the achievement of the aim.⁹ When practices identify and measure drivers, practice systems can be modified for further improvements in patient oral health.

The collaborative created an opportunity for clinicians to rethink their clinical systems in such a way that led to more patient-centered care through the paradigm of caries management by risk assessment (CAMBRA). Rather than focusing on how to intervene in the caries process through increased use of specific therapeutics, clinicians were challenged to personalize the caries risk assessment process using the techniques of effective communication to modify patient behaviors. Patients and their parents became their own champions of disease management and took ownership of their caries disease.

TABLE

Caries Disease Management Strategy

| | Low Risk | Moderate Risk | High Risk |
|-----------------------|---|---|--|
| Clinical findings | No caries lesions All lesions are remineralized (arrested lesions) | No active caries lesions Caries lesions exhibit signs of remineralization Risk factors present and/or inadequate | Active caries lesions (demineralization and/or cavitated lesions) No signs of remineralization Areas of plaque stagnation |
| Fluoride varnish | 6–12 months | 3–6 months | 1–3 months |
| Restorative treatment | Maintain sealants as needed | Place/repair/replace sealants on at-risk surfaces ITR maintained | Place/repair/replace sealants on at-risk surfaces or initial lesions ITR placed and maintained Restorations to restore form and function while eliminating infection |
| Recare interval | 6–12 months | 3–6 months | 1–3 months |
| Self-management goals | Twice-daily brushing with fluoride toothpaste Interproximal hygiene Appropriate goals to balance risk factors as needed | Twice-daily brushing with fluoride toothpaste Interproximal hygiene Additional sources of fluoride (SnF, NaF, CPP-ACFP) Xylitol (toothpaste, gum, wipes, etc.) Adjuncts: Arginine, Glylic, nHAP | Twice-daily brushing with fluoride toothpaste Interproximal hygiene Additional sources of fluoride (SnF, NaF, CPP-ACFP) Xylitol (toothpaste, gum, wipes, etc.) SDF application to arrest lesions |

Rather than assigning a specific therapeutic intervention to the patient, clinicians focused on explaining the disease process and asking the patients and parents to select a goal. Through risk-based recare intervals, new goals were established with the intent of eliminating risk factors or balancing risk factors with protective factors (TABLE). By charting and tracking caries lesions with the ADA Caries Classification System,¹⁰ caries lesion progression or arrest could be measured over time and recorded at the patient level.

During the collaborative, a pediatric practice in Southern California was successful in measuring the caries risk reduction of their patient population while also documenting individual caries risk reduction visible as remineralization with oral photography.

The practice generated population-level data regarding caries risk assessment and setting self-management goals using a combination of CDT codes and self-created dummy codes. By evaluating the data monthly with run charts, the

practice was able to measure the effect of new disease management processes within the clinical system (FIGURES 2–4). This allowed for definitive discussions regarding the frequency of processes like caries risk assessment rather than the anecdotal “hunch” that caries risk assessment was occurring with every patient at every visit.

Patient-Centered Risk Reduction Leads to Remineralization

One patient, a high-caries-risk 6-year-old male, presented with initial active caries lesions on teeth Nos. 8 and 9. The initial caries risk assessment revealed a lack of routine effective oral hygiene, a cariogenic diet with frequent in-between-meal snacking on fermentable carbohydrate-rich foods and a misunderstanding of caries disease by the patient and parent.

Nutritional counseling and oral hygiene instruction were provided using effective communication and motivational interviewing techniques (while also engaging the parent). At

the end of the first appointment, the patient elected to improve his oral hygiene at home and concentrate on areas in need of remineralization.

At the second visit, a visible improvement in gingival health was noted and the patient was congratulated for improving his oral hygiene. The patient was encouraged to set a new goal and he selected spitting out toothpaste foam after brushing, but not rinsing his mouth with water. This goal was especially important in order to increase the patient’s exposure to low levels of fluoride, thus encouraging remineralization.¹¹

During the second appointment, the patient’s mother was interested in other ways to improve her son’s oral health and asked about xylitol. She was receptive to providing xylitol gum while in the car and set her own goal of encouraging xylitol gum chewing during their daily travel.

At the third visit, the patient reported he didn’t like the feeling of toothpaste on his teeth and had

abandoned the effort of leaving toothpaste foam residue in his mouth (he reverted to rinsing his mouth with water after nightly brushing, thus removing an essential ion for remineralization). Rather than attempting to correct the patient's lack of follow-through, motivational interviewing techniques were employed and the patient elected to try using fluoride mouthwash after brushing.

When asked about how successful the family was with chewing xylitol gum in the car, the son indicated they had run out of gum. Privately, the mother explained that she had to abandon the goal of encouraging her son's gum chewing because it made the car messy and her hand was always sticky after holding previously chewed gum. She agreed to continue chewing gum in the car when she was alone because she enjoyed it and understood it helped her own health. In actuality, the mother's continued use of xylitol gum could be considered as yet another protective factor for the family's overall oral health.¹²

At the following visit, the patient's oral hygiene remained improved and upon celebrating his clean teeth, he admitted it was hard to remember to use fluoride mouthwash after brushing. He also reported it was hard to find a flavor of mouthwash that he liked. Rather than impressing upon the patient that he needed to continue the practice of using fluoride mouthwash, motivational interviewing techniques were used while introducing the concept of trying a new "special toothpaste." The patient expressed his concern about taste and texture and was worried about rinsing his mouth after brushing. He agreed to taste test the "special toothpaste" in the office and after tasting a topical

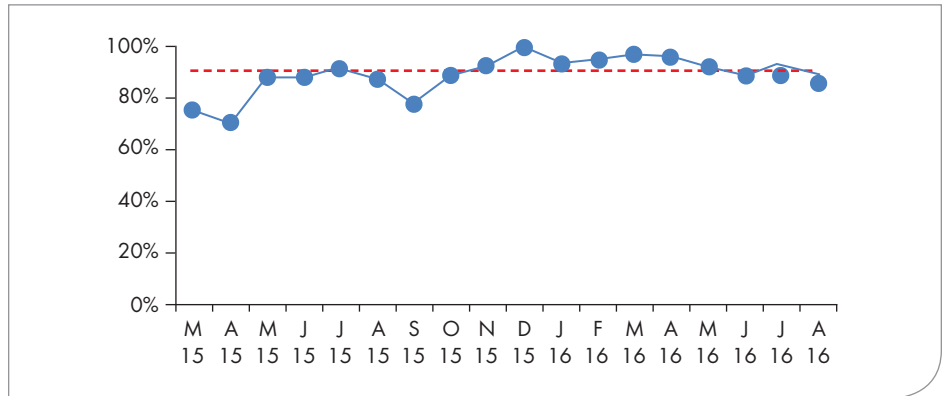


FIGURE 2. Run chart of process measure demonstrating percentage of patients with caries risk assessed.

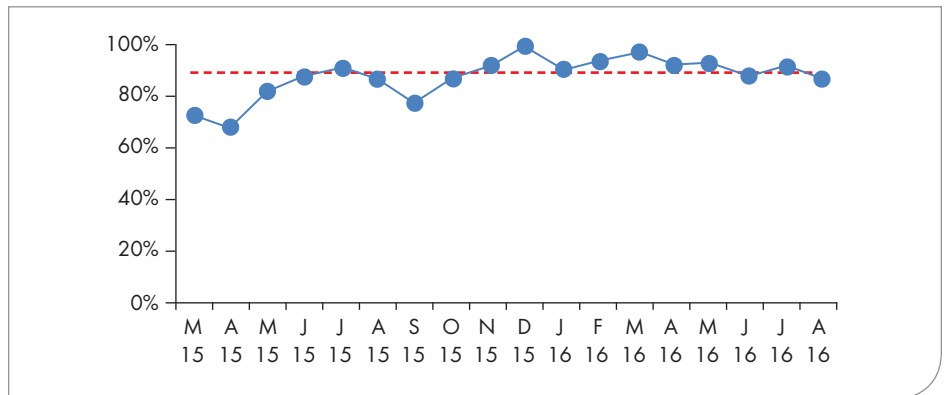


FIGURE 3. Run chart of process measure demonstrating percentage of patients with self-management goals.

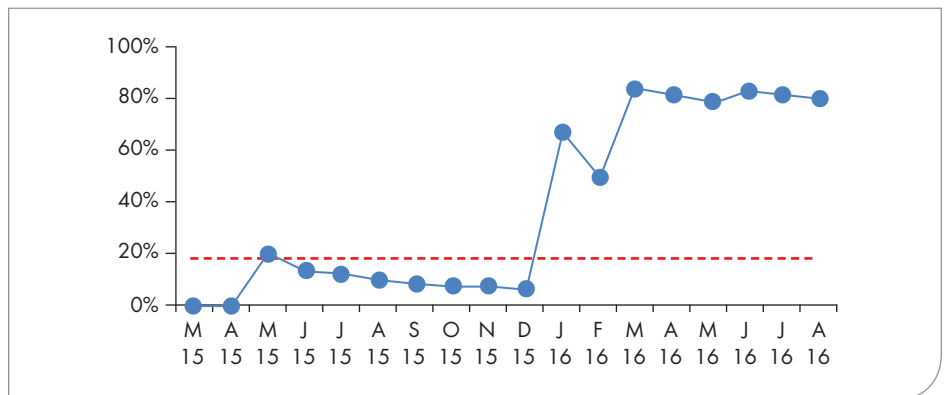


FIGURE 4. Run chart of outcome measure demonstrating percentage of patients with caries risk reduced.

casein phosphopeptide-amorphous calcium phosphate (CPP-ACP) cream with fluoride, he agreed to use it at home. The instructions for use were modified such that the patient would apply the cream to his teeth with his finger and then use his toothbrush to move it around to all the surfaces.

At subsequent visits, the patient proudly reported his success using "my toothpaste." The initial lesions noted at his first appointment demonstrated increased luster and translucency, which were interpreted as remineralization¹⁰ and clinical evidence that the patient's caries risk had decreased (FIGURES 5 and 6).



FIGURE 5. Initial presentation of a 6-year-old patient with high caries risk. Note the initial caries lesions present on the mesial of No. 8 and distal of No. 9.



FIGURE 6. The same patient returned 21 months later at recare with the initial caries lesions appearing inactive and remineralized.

The patient began orthodontic treatment with an orthodontist who was receptive to monitoring the initial lesions on the maxillary central incisors and encouraging the patient's continued use of CPP-ACP with fluoride. The pediatric dentist and orthodontist remained engaged with the patient and parent, supporting continued goal setting to improve diet and taking clinical photos whenever possible.

It is often said that changing patient behavior with motivational interviewing is "less like wrestling and more like dancing" with a patient. In the case of this 6-year-old patient, the experience was patient-centered and successful, likely because the changes were not forced upon the individual. Rather, he experienced the chance to explore alternatives when he was unsuccessful and everyone involved in his care was motivated to find a risk-reduction strategy that he could easily implement.

Conclusion

The practice of dentistry is gradually adopting quality improvement. There is still a need for a cost-effective measurement system that can be easily implemented on a routine basis in small dental practices.² Despite the challenges of adopting measurement, clinicians across the country are embracing quality improvement and witnessing an improvement in the oral health of individuals and practice populations.

However, each practice will continue to face unique challenges specific to their own environment as they seek improved efficiencies while also striving to deliver patient-centered care. With the help of organizations such as the Dental Quality Alliance, the dental profession is making positive progress toward a paradigm shift in practice. More experience is required before a robust adoption of quality improvement is embraced, and the mindset of how dental diseases are treated needs to be considered as well. Nevertheless, innovative oral health care providers have the ability to improve oral health, document and report their outcomes and lead colleagues toward a new model of oral health care. ■

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FOUNTAIN VALLEY—GP in busy strip mall. Has approx. 27 years of goodwill. **Grossed \$344K in 2016. Net of \$136K. Property ID #5165.**

IRVINE—LH & EQUIP ONLY! 4 eq ops in 2 story prof. bldg. Easy access freeway. **Property ID #5195.**

LAGUNA HILLS— With over 30 yrs of goodwill this GP is located in a 2 story med bldg. Has 5 eq ops in a 1,600 sq ft suite. **Grossed approx. \$304K for 2016. Property ID #5127.**

SANTA ANA— GP w/ 37 yrs of gdwill right off freeway in busy shopping center. Has 3 eq ops / 1 plmbd not eq. PPO/Cash/HMO. Projecting approx. \$184K for 2017. **Property ID #5161.**

TUSTIN— Beautiful GP. **NET OF \$159K. Prop. #5199.**

SAN DIEGO COUNTY

CARLSBAD—Well established GP w/ 3 eq ops and 2 plmbd not eq. Near residential are. **Buyer's net of \$121K. Property ID #5191.**

ESCONDIDO—Perio practice w/ 40 yrs of gdwill in a single story bldg. Has 4 eq ops. **Grossed \$683K in 2016. Property ID #5173.**

SAN DIEGO — Well established practice w/ 3 new eq ops in a 1,087 sq ft suite. **Projecting approx. \$300K. NET \$127K. Property ID #5200.**

RIVERSIDE & SAN BERNARDINO COUNTIES

BEAUMONT—GP + Real Estate. Modern GP w/ 6 eq ops in 2,400 sq ft office. Could be two suites. **Grossed \$960K in 2016. Property ID #5182.**

CHINO—*Real Estate Only!* This a rare opportunity to purchase a condo located in a single story strip mall. Has been a dental practice for 40 years. **Property ID 5076.**

DESERT HOT SPRINGS— GP + Real Estate! Two partners one office. Consists of 4 eq ops / 1 plmbd not eq. Est. in 1986. **Proj. approx. \$802K for 2017. Property ID #5198.**

FONTANA— GP + Real Estate!! Premier office with 50 years of goodwill. In a 3,000 sq ft bldg with 8 eq ops. Has the latest technology. **Grossed approx. \$2.3M in 2016. Net of \$968K. Property ID #5140.**

HEMET GP + Condo Suite Has over 40 years of goodwill to officer. Icon in the community. Located in a single story tri-plex condo bldg. Has 4 eq ops. No Denti-cal. **Net of \$143K. Property ID #5152.**

PALM SPRINGS — General practice with 3 equipped ops located in a free standing bldg. Established in 2005. Suite is approx. 1,200. Seller work 5 days/wk. **BUYER'S NET OF \$153K. Property ID #4487.**

RANCHO CUCAMONGA— GP established in 2004 in busy shopping center. Consists of 3 eq ops in a 1,200 sq ft suite. **Grossed \$747K in 2016. Net \$251K. Property ID #5169.**

RIVERSIDE—GP + Real Estate!! Established in 1975 in free standing historic bldg. Has 4 eq ops in a 2,000 sq ft office. Projecting approx. \$284K for 2016. **Property ID #5146.**

TEMECULA—Modern designed practice w/ 3 eq ops. Projecting approx. \$1.2M. **Net of \$444K. Property ID #5155.**

UPLAND—Pediatric dental practice located in a medical bldg with 40 years of goodwill. Consists of 4 chairs in open with Alpha Dent software. **Grossed \$271K in 2016. Property ID #5188.**

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Calling the Advice Line for Risk Management Guidance

TDIC Risk Management Staff

The Dentists Insurance Company's Risk Management Advice Line is a confidential resource designed to help guide dentists to the best course of action when dealing with potential claims from patients or employees.

The Advice Line has helped thousands of dentists and dental professionals navigate difficult situations and establish preventive measures to stop risky situations before they start. While you cannot always avoid litigation, TDIC's Risk Management department offers a variety of resources to help you avoid or minimize the impact of a formal claim. In the past year alone, the Advice Line received more than 17,000 calls regarding a wide range of concerns, from record keeping to hiring and firing staff. Below are some tips to consider when calling the Advice Line.

Risk Management is here to help.

All California Dental Association members have access to the Advice Line at no additional cost. Many dentists are hesitant to call for fear their premiums will increase. Calling for guidance on a potential claim will not affect premiums. Seeking assistance from the Risk Management department could even help you save money in the long run by preventing a potential claim from escalating.

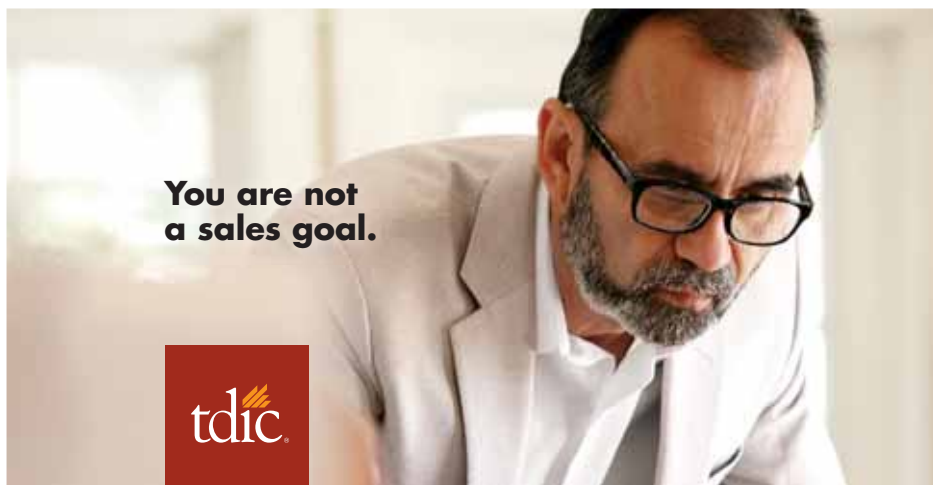
Documentation is the best defense.

It is important that you and your staff keep detailed documents of patient treatment and communication. The Risk Management department has received calls where a patient's record is either incomplete or missing critical information such as informed consent or an updated health history form. Many claims can be prevented with thorough documentation.

Proper documentation should not be limited to patients. Make sure you document your performance discussions with employees in their personnel files.

Proper documentation should not be limited to patients. Make sure you document your performance discussions with employees in their personnel files. This is especially important when addressing any corrective actions or addressing any infringements that could lead to an employee's dismissal.

Prior to calling the Advice Line, gather all relevant documents. The Risk Management department may ask for patient records, personnel files and any



You are not a sales goal.

tdic

You are a dentist deserving of an insurance company relentless in its pursuit to keep you protected. At least that's how we see it at The Dentists Insurance Company, TDIC. Take our Risk Management program. Be it seminars, online resources or our Advice Line, we're in your corner every day. With TDIC, you are not a sales goal or a statistic. You are a dentist.

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legal correspondence you have received to fully understand the situation you are facing and steer you to the best course of action. Documentation of your conversation with Risk Management should be kept separate from the patient's chart.

Keep calls confidential.

The Risk Management department reports a call where a dentist shared that a patient entered the practice and demanded a refund for treatment for which she was unsatisfied. The dentist felt pressured to respond at that moment and contacted the Advice Line while the patient was standing

nearby. Risk Management recommends that you do not let patients know you are contacting the Advice Line for assistance, as this may lead to lack of confidence in their choice of you as their dentist. If a patient has a concern and you need assistance responding to it, it is appropriate to advise that you will get back to them at a later time and then call the Advice Line for help.

The same consideration applies if calling the Advice Line about an employee issue. Employee discipline should be addressed in a confidential manner and only discussed with those who need to be informed so as to avoid privacy or defamation claims.

Designate the appropriate amount of time for each call.

When assessing a possible risk, the Risk Management department may need more time to help you navigate a solution to your concern. Even if you think you may have a quick question, the department may need more details to ensure you receive the necessary information, support and preventive counsel to avoid or minimize a potential claim. Risk Management also offers appointments for one-on-one consultations. You can schedule a specific time to speak with a Risk Management analyst by visiting tdicinsurance.com/RMconsult.

If you have a question regarding appropriate standards of care, Risk Management encourages you to reach out to your local dental society, state and national dental associations, colleagues and study clubs for assistance.

Resources are available 24/7.

TDIC knows that questions can arise any time of day or night. That is why Risk Management resources are available online at tdicinsurance.com. Under the Risk Management tab, you can find answers to frequently asked questions, reference guides on a variety of dentistry-specific risk management topics, informed consent forms, sample letters to help reduce liability risks and much more. ■

The Advice Line is available at no additional cost and can be accessed Monday through Friday, 7:30 a.m. to 5 p.m., at 800.733.0633.

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4159 SANTA ROSA GP

Dedicated practitioner retiring from practice with emphasis on Restorative care. Located in a class "A" professional building in well-travelled area. 2,330 square foot office with 5 ops., reception area, business office, private office, consult room, staff lounge, lab area, sterilization area, and private bathroom. 4 doctor-days per week and approximately 1,000 active patients and average Gross Receipt of \$733K+. Asking \$557K.

4225 EUREKA GP & BUILDING

Established since 1981 in charming Northern California port city. Retiring doctor is offering practice and building. Practice has approximately 1,200 active patients with new patients accepted on a selective basis. Average Gross Receipts of \$765K+ with 61% average overhead. Free standing building at premier Henderson Center location in the Heart of Humboldt county. Beautiful 1,400 square foot office with four (4) fully-equipped operatories. Asking price for practice \$468K. Building available to purchase

4101 SAN FRANCISCO GP

Vibrant downtown location. Owner offering 30+ years of goodwill. 4.5 days of hygiene, 1,500+ active pts., 20-25 new pts./mo. Spacious facility, approx. 2,500 sq. ft. 2017 annualized GR \$885K. Net income \$295K+ Seller will assist for smooth transition. Asking \$599K

4207 MID PENINSULA GP

Seller offering 40+ year practice with an emphasis on Restorative and Diagnostic care. \$520K+ average Gross Receipts with 4 doctor days/week. 1,000 square foot office with 3 fully-equipped ops, built-out in 2011. Primary drawing area includes Foster City, San Mateo, Redwood City. Asking \$385K.

4178 SONOMA COUNTY PERIO

Seller retiring from 21 year practice with trained, seasoned staff and great location. Exceptional 2,100 sq. ft. ample office with 6 fully equipped ops. Majority of equipment purchased in 2002. 4 doctor-days & 3 hygiene days per week. Average gross receipts \$1M+. Asking \$677K.

4198 NORTH BAY PERIO

Established Periodontic practice with loyal referral sources in 1,564 square foot office with 5 fully-equipped operatories conveniently located close to Petaluma Valley Hospital. Average Gross Receipts \$480K. Seller is offering the condominiumized office for sale to the buyer of the practice. Asking price for practice \$284K.

4191 SONOMA COUNTY ENDO

Seller retiring from 38 year endodontic practice located in attractive ground floor office (remodeled in 2011) with updated modern equipment and cabinetry. Close to several regular referral sources. Doctor sees an average of 7-8 patients per day. 5 year average Gross Receipts \$700K+. Asking \$447K.

4202 SANTA CRUZ COUNTY GP

Retiring seller offering 40+ years of goodwill with emphasis on restorative care. 1,600 square foot office with 4 fully equipped operatories. Average annual gross receipts approx. \$500K with adj net of \$170K+. Owner/doctor works on average 3 days per week with average of 5 hygiene days/week. Asking \$300K.

4161 CONTRA COSTA COUNTY ENDO

Seller retiring from well-established practice in desirable neighborhood. Located in professional center with several loyal referral sources. 1,445 square foot office with 3 operatories and current lease with two 5 year options to extend. 2016 gross receipts \$388K+. Asking \$248K.

4196 PACIFIC HEIGHTS SOLO GROUP

Enjoy the benefits of a well established successful group while maintaining your individual general practice in a modern fully-equipped office with well trained personnel. Approximately 1,400 active patients with an average of 10 new patients per month. Average gross receipts \$689K+ with an equivalent of 3 doctor days per week. Asking \$423K.

4133 NAPA GP

Napa County GP in newly furnished, fully equipped 2 operator facility with option for third op. & digital x-ray. 4 doctor day/week with 3 hygiene days. Average annual Gross Receipts \$420K+. Seller willing to help for a smooth transition. Asking \$295K.

4220 SAN MATEO GP

GP offering 33+ yrs of goodwill. Desirable location on well traveled thoroughfare. 3 ops in approx 900 sq. ft. Loyal patient base with 1,200+ active patients. 4 hygiene days a week. Owner will help for a smooth transition. Asking \$289K.

4119 SANTA CRUZ FACILITY

Great dental facility close to several amenities and minutes to HWY 1, and HWY 17. Plenty of parking and great street visibility. Turnkey dental office in 1,200 square foot facility with 3 fully-equipped ops. Asking \$95K. sale.

4227 REDWOOD CITY GP

Profitable, established, general practice available, now, in rapidly growing Redwood City. Over 1,000 active patients & a 5 year average gross receipts of \$890k net. Beautiful re-modeled handicap accessible office with 4 fully-equipped ops. Asking \$636K.

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NORTHERN CALIFORNIA

CHICO: 7 Ops, Digital, Dentrax, Pano. Practice est. 60+ yrs w/ 2 long-term owners. 6 days Hyg/wk. GR \$757K. #CA402

CLEARLAKE: 4 Ops in 1,600 sq. ft. with Dentrax, Dexis, Laser, Microscope, Pano, \$650K in GR. Est. in 2001, retiring. #CA457

EASTERN CONTRA COSTA: 3 Ops, 1300 sq. ft., w/room to expand. Intraoral Camera, Laser, Dexis Digital X-ray, Softdent PMS. 2016 GR \$274K w/52% adj. net. #CA454

EL DORADO COUNTY: 1,200 sq. ft., 3 Ops, with Pano, EZ 2000 software. 2015 GR \$342K on 3 day week. #CA390

ELK GROVE -FACILITY ONLY: Fully furnished 5 ops total (4 furnished). Signage on Elk Grove Bl., fast growing area, ready to move in, separate pano #CA411

GREATER EL DORADO HILLS: 1,500 + sf office, 4 ops, Dentrax software, 2 Schick digital x-ray sensors, new server & CPUs. Bldg avail. Seller Retiring. #CA407

GREATER SACRAMENTO: Oral Surgery office w 5 Ops, 2,282 sq. ft. suite. Digital X-rays and Pano. 2016 GR of \$798K. Doctor is retiring. #CA438

GREATER SACRAMENTO: Approx. 2,000 sf, 6 ops, Intraoral Camera, Digital X-ray, Laser, CEREC, & Eaglesoft. 2016 GR \$934,829. #CA455

GREATER SACRAMENTO: 1,200 sf w/4 Ops, Intraoral Camera, Dexis Digital X-ray, Dentrax, Laser, EZ 2000, 3 day work week #CA456

GREATER SACRAMENTO: Ortho. 2,140 sf, w/4 bays. Equip. w/intra-oral camera, non-digital Pan/Ceph, Laser, and OrthoTrac software. 2016 GR \$640,000. #CA458

GREATER SACRAMENTO: 4 ops, pano, digital x-rays, Cerec. 2016 Collections \$1.0M+. Stand-alone building selling with practice. #CA479

GREATER SACRAMENTO: Perio practice. Well-established, 4 days/week practice, digital x-rays, laser, intra oral camera. Seller relocating, willing to work with buyer for a smooth transition. #CA480

SACRAMENTO: 1,150 sf office w/4 Ops, Intra-Oral, Dexis digi x-ray, Carestream. Est. 30+ yrs, 2016 GR \$535K. #CA424

SACRAMENTO: 1,000 sq. ft. office w/2 Equip. Ops, 2 add'l Plumbed. DentalMate software. 2015 GR \$110,427 #CA332

SACRAMENTO: 1,200 sq. ft. w/ 3 Ops, Intra-Oral camera & Patient Base software. Practice est. 40+ years, retiring. #CA408

SAN FRANCISCO: Financial District office, 5 Ops, room for 6th, 1760 sq. ft. 2015 GR \$1.2 mil, Adj. Net. \$480,000. #CA357

SAN RAMON-FACILITY: 4 Op facility w/high-end Pelton & Crane Equipment, Digital X-Ray, Digital Pan, I.O. Cameras, 1654 sq. ft. corner suite. #CA370

SONOMA COUNTY: 2016 GR \$680K, 3 days/wk. 3 Ops, 960 sf, Condo for sale/lease. Pano X-ray, Intra-Oral Camera, Soft Tissue Laser, Datacon PMS. Retiring. #CA463

SONOMA COUNTY: Multi-Specialist, est 16 yrs, 2016 GR \$1.6M+ on 3.5 days/wk. 6 fully equipped Ops; LANAP, Digital Pano, Dexis & Dentrax. Retiring periodontist selling practice and 2000 sq. ft. Condo. #CA470

WALNUT CREEK: New Listing! 1260 sq. ft. office w/Dexis Digital sensor, EZ Dental, 4 ops. 2016 GR \$633,000, 4 days/week, Adj. Net 45%. Owners retiring. #CA473

WINE COUNTY: Perio, 2016 GR \$1,997,000 w/\$978,000 adj. net in 3,000 sq. ft. office space. Building for sale. #CA418

VALLEJO: 4 Ops, 1650 sq. ft., Digital X-Ray, Digital Pan. 2016 GR \$567,000 with 40% adjusted net income. Eaglesoft PMS with Paperless Patient Charts. #CA469

CENTRAL CALIFORNIA

CENTRAL COAST: Endo, 3 Ops, Digital x-rays, Paperless, Cone Beam CT, and PBS Endo Software. 2016 GR of \$925K with \$561K Adj. Net. #CA489

FRESNO: GP. GR past 3 years avg. \$1.5M. 4 days/hygiene. Retiring. Priced for expedient sale. Delta PPO, no HMOs. #CA445

MODESTO: 1,110 sq. ft., 3 Ops, Dentrax software, Dexis Digital X-Ray, Fiber Optics, Laser. 2016 GR of \$706K 4 day/wk. #CA451

MODESTO: New Listing! ENDO Practice & Building, 6 Ops, stand-alone building, Microscopes, CBCT and Endovision software. 2016 GR \$1.2M, 32% overhead. Owner will stay for transition. #CA475

SOUTHERN CALIFORNIA

BAKERSFIELD: 6 Ops, 5 Equipped, located in duplex building with signage. 2016 GR \$509K with room to grow. Most specialty work is referred out. PPO/Denti-Cal. #CA459

BURBANK: Beautiful practice for quick sale. Long-term staff. 28 years of goodwill. 3 Ops w/ 3 days of hygiene, digital X-rays, great Burbank building close to downtown. 2016 GR \$477K. #CA464

CHINO: New Listing! 3 Ops, 40+ years of goodwill. Professional bldg., CareStream, 2 1/2 days of Hyg/wk. GR \$344K with \$126K Adj. Net #CA484

FULLERTON: 5 Ops, 3 Equipped in shopping center. CEREC, CEREC, Digital, 4 days/wk. GR \$663K w/ \$235K Adj. Net. #CA453

GREATER LOS ANGELES: Price Reduced! Perio, 5 Ops, 34 Yrs Goodwill. Dentrax, Digital, Laser, great referral base, 2016 GR \$712K, Adj. Net \$304K. #CA173

LA QUINTA: 8 Ops in busy shopping center, 25 yrs Goodwill. Last year's GR \$1.64M. State-of-the-art, Digital. Seller Retiring. #CA425

LAGUNA BEACH: 4 Ops, 3 Equipped, beautiful location. Dentrax G4, Dexis Digital X-rays, paperless. 2016 GR of \$344K and 2017 on track to increase. #CA443

LOS ANGELES: New Listing! Endo, 4 Ops, 3 Equipped with Scopes and Digital X-rays, 27+ yrs. Goodwill. 2017 GR \$692K with \$433 Adj. Net. #CA485

MANHATTAN BEACH FACILITY ONLY: New Listing! 4 Op office w/ modern design. Incl. computers, furnished Ops, Lab equip., Zoom light, curing lights, 2 X-ray heads. Move-in ready #CA467

ORANGE COUNTY: Endo, great city w/ 3 Ops, 2 Equipped. Cony team CT, Microscope, Digi, & Wireless TDO system. 28 yrs goodwill, strong referral base. 2016 GR \$603K, 309K Adj. Net. #CA466

ORANGE: New Listing! 4 Ops, Dentrax, Dexis, near hospitals, 30+ yrs Goodwill. 2017 GR \$308K w/ \$152K Adj. Net. #CA487

ORANGE COUNTY: 4 Ops, 40+ years goodwill, OpenDental, Digital X-rays. 2016 GR \$533K with \$179K Adj. Net. #CA440

PALM DESERT: 8 Ops, 3200 sf., 2016 GR \$1.1M, Digital x-rays, nice location, bldg has signage. Owner + 3 Associates work in the practice. #CA426

PALM SPRINGS FACILITY ONLY: 4 Ops, 3 Equipped. Seller is here only 12 hrs./wk. Some patients included in the asking price. Practice Web, digital x-rays. #CA429

PALM SPRINGS: 4 Ops, 30 yrs goodwill. Good loc, Doctor to remain and work part time if possible, 2015 GR \$549K. #CA351

RIALTO: 5 Ops in free-standing historic bldg. 50+ years of Goodwill. Building also for sale. Dentrax, 2016 GR \$253K. #CA421

RIVERSIDE COUNTY: New Listing! Turn-key 4 Ops in single story Prof. Bldg w/ signage. Dentrax, Digital, Paperless. 2016 GR \$688K w/ \$223K Adj. Net. #CA471

SAN FERNANDO VALLEY: New Listing! Multi-specialty practice. Turn-key 4 Ops in single story Prof. Bldg w/ signage. Dentrax, Digital, Paperless. 2016 GR \$688K w/ \$223K Adj. Net. #CA471

SANTA ANA: 4 Ops in shopping center on busy corner w/signage. PPO/Denti-Cal. 2016 GR \$434K with \$199K Adj. Net. #CA460

SIERRA MADRE: New Listing! 3 Ops, Practice has 50+ years of Goodwill, 20 with our retiring seller. Strong Hygiene program 2016 GR \$364K with room to grow. #CA481

SANTA CLARITA VALLEY: New Listing! General/Multi-Specialty Practice. 8 Ops, 5 chair Ortho bay. Great visibility. 100 NP/mo. PPO/HMO w large CAP check. #CA435

SOUTH PASEDNA AREA: 5 Ops, 4 equipped with 23 yrs Goodwill. Digital x-rays. Great location #CA436

TEMECULA: New Listing! 3 Ops, 1 add'l plumbed. 14+ yrs Goodwill. Utilizes Dentrax, retail center loc. PPO, no HMO. 2016 GR \$281K room to grow. #CA474

TEMECULA: 5 Ops, 4 Equipped, PracticeWeb, Digital, Pano. 2016 GR \$548K w/\$241K Adj. Net on 3 day wk. #CA430

TUSTIN: New Listing! 6 Ops, Pano, 5 year new equipment, PracticeWorks, 60+ years Goodwill. GR of \$525K. #CA486

UPLAND: 3 Ops (pos. 1 & 4th Op used as office) in shopping center w/ 30 yrs in business. 2016 GR of \$324K. #CA450

UPLAND: Facility Only - 4 Ops, 2 Equip, All Brand New Equipment, OpenDental w/ 4 workstations, hand instruments, equipment, some patients. #CA434

WESTERN SAN FERNANDO VALLEY: Pano upscale loc, 4 Ops, EagleSoft, Intra-Oral Camera, Pano. 9 yrs Goodwill. #CA399

YUCCA VALLEY: 5 Ops, retiring seller works a 4 day week with 27 years of Goodwill. Office condo also for sale. 2016 GR of \$586K #CA423

SAN DIEGO

CHULA VISTA/BONITA AREA: New Listing! 8 Ops, well-established, stand-alone bldg near busy section of Bonitaat has excellent visibility and parking. Open 5 days and has 9 days Hyg/wk. SoftDent, Dexis, Pano, I/O cameras, and Laser. FFS, Indemnity, and PPO. Specialty work is referred out. #CA476

INLAND NORTH COUNTY, SAN DIEGO: 5 Op General Practice. EagleSoft, Digital, 2D Digi, 4th Op, E4D, Full Pros Lab On-site. Great location, 26 yrs Goodwill. 2016 GR \$802K w/ \$316K Adj. Net. #CA432

LA JOLLA: New Listing! 8 Ops, 7 Equip, Dentrax, Digi, & Intra-Oral Camera. 4 days Hyg/wk w/GR of \$738K. \$264K Adj. Net on 4 day work wk. 60 yrs goodwill, 29 w/current owner. Specialty work referred out. #CA477

LA JOLLA FACILITY ONLY: New Listing! 3 Ops, Turn-key General Practice is being sold as a leasehold, currently staffed with patients. Prof. Bldg, Open Dental, priced for a quick sale. #CA482

NORTH COUNTY, SAN DIEGO: New Listing! 6 Ops, Digi Dentrax, busy retail corner. 17 yrs Goodwill. Seller does Ortho, Cosmetic, and Implants. 2016 GR of \$1.3M+ w/ 6 days hygiene/wk. #CA468

SAN DIEGO: New Listing! 6 Ops, Cutting-edge, 8 days of Hyg/wk. EagleSoft, Schick Digital, Cone Beam, CEREC, Lasers, IO Cameras. Most specialty work is referred out. 2016 GR \$2M+ with \$658K Adj. Net. CA483

OUT OF CALIFORNIA

CENTRAL OAHU, HAWAII: New Listing! Family-oriented rural Practice with 3 Ops, Digitized X-Rays, Pano, and Innova. Retiring seller, PPO, Medicaid. 2016 GR of \$923K with \$322K Adj. Net. #H1109

CENTRAL OREGON COAST: 1,080 sq. ft. office, 3 Ops, equipped, Digital x-ray and Daisy software. Building Available. Owner retiring. #OR106

HONOLULU, HAWAII: 4 Ops plumbed, 2 equipped, Dentrax, great location w/ ample parking. Selling dentist, priced for quick sale. #H1106

MAUI, HAWAII: 3 Ops, Innova, Planmeca Panoramic x-ray, excellent location and patient base, dentist retiring, seller is motivated. GR \$475K. #H1107

Sharing Patient Information With Other Dentists and Health Care Providers

CDA Practice Support

Dental professionals understand that under HIPAA a dental practice can share a patient's information, without patient authorization, with another dental practice or health care provider for the purpose of treating that patient. However, questions arise on how HIPAA and state privacy laws apply in other circumstances. This article addresses whether patient information can be shared in those other circumstances.

May a patient's financial and insurance information be provided along with clinical information when sending a referral to a specialist's office?

Yes, if the patient has authorized provision of the information to the specialist's office. Written authorization in this circumstance is not required. The reason for not automatically forwarding this information is that HIPAA provides a patient with the right to withhold from a dental or health plan information about a treatment or procedure that the patient has paid for in full out of pocket. Forwarding financial and insurance information to another provider without the patient's knowledge can effectively take away this right because a specialty office can use the information right away to verify a patient's benefits with the dental or health plan.

My patient told me she was moving so I was not surprised to get a request for records from an out-of-state dentist. The request, however, was not accompanied by a records release document signed by the patient. Am I required to have that before providing the records?

It is not required to have a signed records release if you have elicited adequate information from the patient

HIPAA provides a patient with the right to withhold from a dental or health plan information about a treatment or procedure that the patient has paid for in full out of pocket.

to confirm the identity of her new dental practice. However, there is nothing that prevents you from requiring a signed records release document. It is prudent to retain some type of documentation that the request was received and fulfilled. Some covered entities require the use of a specific form, but an emailed request from the patient's email address, a handwritten and signed request from the patient or a mailed or faxed document signed by the patient directing release of records to another provider are all acceptable.

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A physician called to ask information about a patient I had treated a few weeks prior. It seemed to me that he was asking for a lot of information and I was uncertain how much of this patient's history and care I could share with the physician.

HIPAA has a "minimum necessary" rule that is applicable to uses and disclosures of patient information. It is not applicable, however, when the use or disclosure is for treatment purposes, when the patient has requested the information or when the use or disclosure is required by law. In this circumstance, you should confirm that the physician's need for information is for treatment of

the patient. Once confirmed, you are free to provide as much information as the physician deems necessary.

A dentist referred a patient to an oral surgeon in my building for implants. Instead of returning to the referring dentist, the patient chose to come to my office for continuing care. The patient insisted he did not want to return to his previous dentist. Now, the patient's former dentist is demanding a copy of post-implant treatment notes from me. He is insistent. Must I provide them?

You may consider informing your patient of the other dentist's request. If the patient is willing to sign a release, you

can forward a copy of the requested notes. If the patient refuses to sign a release, then you are not obliged to provide the information without legal justification.

I am an associate dentist getting ready to open my own practice. I have brought patients to the practice where I am currently working and I have treated other patients. What patient information am I entitled to take when I leave?

This is an issue that should have been addressed in the employment agreement between you and your employer. The agreement could have included a procedure for the dental practice to notify your patients of your departure and new location, as well as procedures for you to obtain copies of patient records. The same agreement may not permit you to depart with patient information considered to be "trade secrets." If there is no employment agreement or any agreement where you acknowledge that patient information is a trade secret, you may obtain your patients' contact information and notify them of your new practice location. You may not use the contact information to solicit the patients or to otherwise use patient health information from that dental practice without first obtaining written authorization from the patient. Removing patient records from the practice without authorization may be a violation of HIPAA. It is best to be open with your employer about your intent to notify only the patients under your care (and not all the dental practice's patients) of your new practice location. ■

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6138 “COMING UP” ~ SAN FRANCISCO BAY AREA’S SOUTH BAY Phenomenal opportunity shall secure a rewarding career. Best technology, perfectly designed suite and optimum stage to practice your craft. 2017’s collections topped \$900,000. Building included. Perfect for that skilled practitioner who seeks separation from their peers.

6137 SOUTH SACRAMENTO AREA Growing practice topped \$1.5 Million in collections in 2017 with very strong profits. 6-days of Hygiene. 6-ops, digital and paperless. Great location.

6136 SAN RAMON Great foundation here. Collections for 2017 totaled \$575,000. And this was on a work schedule averaging 2.5-days a week. 3-ops. Seller can work back 1-day a week to assist in transition.

6135 SONOMA COUNTY’S ROHNERT PARK 2017 collected \$1,050,000 reflecting nice growth over 2016 which collected \$940,000. Profits exceeded \$500,000 for the second year in a row. 6-days of hygiene. There shall be no change in fees for the Successor. New homes being built nearby.

6133 SAN RAMON’S BISHOP RANCH Beautiful 4-op, computerized and digital office. Located in the Bishop Ranch Medical Center. Bring Business Plan. Great addition to existing network. Full Price \$150,000

6132 NORTH FREMONT AREA \$420,000+ invested here. Very high end for great patient experience. 3-ops equipped (4th available), Panorex, completely networked and digital. \$600,000+ in revenues.

6129 FOSTER CITY / SAN MATEO Wish to infuse your practice with quality patients? Out-of-network practice collected \$500,000+ in 2017 on part-time schedule. Seller and Hygienist shall relocate into Buyer’s practice to transition patients. Full price \$100,000.

6128 LOS GATOS AREA Capitation & PPO. 3-Adec equipped ops, Pano, Digital charting. Collects \$420,000+ year. Available Profits of \$190,000 in 2016. Full Price \$225,000

6125 OAKLAND AREA Collections average \$735,000 per year. High income zip code with well employed Millennials next door. 10+ new patients per month. Digital and paperless.

6124 SAN RAMON 100% Out-of-network. 5-ops. 6-days of Hygiene. \$700,000 per year. Former.

6122 SANTA CLARA - STARBUCKS "LIKE" LOCATION! Best exposure in beautiful strip center. Office just remodeled. 5-ops. Currently trending \$1+ Million in Collections on 4-days. Perfect platform to operate 6-days a week. Can do \$1.5+ Million.

6121 NAPA VALLEY FAMILY PRACTICE Highly respected community asset. Collections over 4 years have averaged \$1.28 Million per year. Beautiful facility. Condo optional purchase.

6118 SAN FRANCISCO’S EAST BAY Forty percent partnership in well positioned and branded practice. 2016 collected \$2.53 Million. 2017 collected \$3+ Million. Full complement of specialties. 6-month Trial Association wherein interested Candidate shall see ability to make \$350,000+ per year.

ENDODONTIC PRACTICE Central California Beach City. Established 20+ years. Grosses \$1,200,000 & Nets \$800,000.

ANAHEIM Korean clientele. Part-time grossing \$200,000+. 3-ops, some ortho. Rent \$2,300. Close to Harbor Freeway exit. Full Price \$110,000.

ANTELOPE VALLEY / SANTA CLARITA VALLEY Two separate Million Dollar Opportunities. Absentee Owners.

BELLFLOWER Female owned Hispanic practice. Part-time. Low overhead opportunity.

DIAMOND BAR Absentee Owned. Grosses \$500,000. Gorgeous high identity shopping center. State-of-art facility. Million Dollar potential. 5-Ops. Chinese / Korean / Hispanic.

EAST LOS ANGELES Part time senior female grossing \$20-to-\$35,000/month. Established many years, Low overhead. Full time will do \$600,000.

INLAND EMPIRE Long time Union Patient Practice. Part-time Seller works 3 days. Grossing \$650,000. Patients are available to go to 6-days. Great union benefits.

INLAND EMPIRE Shopping center. Great Lease. 3-ops in 1,650 sq.ft. Absentee Owner. Grosses \$30,000/month. Working Seller used to do \$50,000/month. 20-to-30 new patients/month. Full Price \$285,000.

INTERSTATE 405 & ARTESIA Established many years. 2-Ops. Full Price \$150,000.

IRVINE LOCATION 6-Ops, Beautiful state-of-the-art office. Full Price \$150,000.

IRVINE Professional Building. Chinese clientele. Grosses \$500,000-to-600,000 6-Ops in 2,000 sq.ft. Rent only \$5,000. Seller here 2 days per week.

IRVINE Lady DDS Grossing \$1,2 Million. Professional Building. 5-Ops. Only Dentist in building. Full Price \$885,000

LA PUENTE Established 20-years. Small shopping center. 3-Ops. Full Price \$150,000

LAKE ELSINORE Great second location for DDS working part-time. 6-Ops. Rent \$2,700. Grossing \$500,000-to-\$600,000. Some HMO.

NEVADA DENTURE PRACTICE Add Implants. Will do \$2 Million. 4,000 sq.ft. rents for \$4,000. Full Price \$850,000.

NEWPORT BEACH’S FASHION ISLAND Grossing \$400,000-to-\$500,000.

ORANGE COUNTY BEACH CITY Location, location! Previous Gross One Million. Facility only. 6-Ops with computerized monitors, TV’s and Dentrux. Full Price \$150,000.

ORANGE COUNTY BEACH HMO Absentee owned. Grosses \$1.6 Million. High identity shopping center. 10-Ops. Full Price \$1.3 Million.

PEDO Chinese / Hispanic. Grosses \$450,000. 4-Ops, low rent. Digitized office. Lots of options to grow to Million Dollar practice.

REDLANDS Great Location. Rent \$1,100/month. 3-ops. Nice patient base. Full Price \$150,000.

WEST LOS ANGELES High Identity Location. 3-Ops. Room to grow. Free parking. Grossing \$450,000. Full Price \$500,000.

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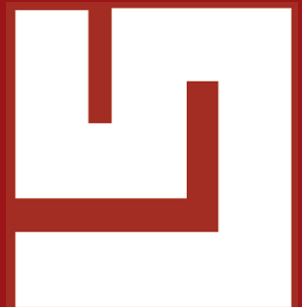
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Itinerant Dentists

Donna K. Klauser, DDS

One of the founding members of the profession of dentistry in the U.S. was Chapin Harris, DDS, who played a crucial role in establishing the world's first dental school chartered in Baltimore in 1840. Dr. Harris also published *The Dental Art*, the world's first college dental textbook. Dr. Harris practiced as an itinerant, or traveling, dentist throughout the South. This type of practice allowed him to share his knowledge and expertise with other providers and also serve patients in various communities. As the profession of dentistry advances in the decades since Dr. Harris practiced, itinerant dentists continue to provide their valuable services either as specialists or as general dentists working in practices owned by other dentists.

I am a periodontist with a private practice who also happens to be an itinerant dentist in a couple of practices owned by general dentists. Although the dental practice modality has changed over the years, as professionals we strive to practice dentistry to the highest ethical standards while promoting oral health initiatives and protecting the public. Practicing as an itinerant dentist, one needs to be cognizant of many ethical and legal concerns. Among the notable concerns are emergency care coverage, patient abandonment and access to patient records.

In my career practicing dentistry, I have handled more than a few dental emergencies in my own private practice. However, as an itinerant dentist to other practices I need

Practicing as an itinerant dentist, one needs to be cognizant of many ethical and legal concerns. Among the notable concerns are emergency care coverage, patient abandonment and access to patient records.

to have a viable protocol set up to manage my emergency patients. It is important that the emergency patients have not only the same level of care as if they were in my own office but also emergency equipment such as an automated external defibrillator, oxygen and an emergency kit. Section 8 of the CDA Code of Ethics states that it's our obligation to make reasonable arrangements for emergency care for patients of record.

Early in my career, I left practices that were not a good fit. The issue of "patient abandonment" was addressed by preemptively having language in my contract in the event my associateship with the practice ended. I was fortunate to work for colleagues who shared my ethical concerns and made available my contact information for patients who inquired after I had left that practice. I have worked with and continue to associate with very ethical dentists who respect their patients' interests first and foremost. As an employer, I also have a contract with my own associate to protect us both. Fortunately, I have never had to deal with a denial to accessing a

patient's record after leaving a practice. Section 1B of the code advises that it is unethical for a practice to withhold a departing provider's contact information from a patient. This is a serious concern for violating a patient's right to discuss their dental care with their previous dentist. The itinerant dentist and dental practice owner should discuss this issue and cover this in the associate's contract to avoid miscommunication.

As our practice modality evolves, these are but a few of the many ethical concerns we need to consider as an itinerant dentist. I have been very grateful to have worked with and continue to practice with dental professionals who have behaved with integrity and decency. ■

Donna K. Klauser, DDS, is a periodontist who practices in Arcadia, Calif. She is a diplomate of the American Board of Periodontology and a member of the CDA Judicial Council. For more information on practicing as an itinerant dentist, please contact the Judicial Council at 916.554.5948.



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BAY AREA

AC-624 SAN FRANCISCO: Wonderful patients, solid income in great stand-alone bldg **\$475k**

AC-649 SAN FRANCISCO Facility: Richmond District, 3 ops+1 add'l, Equipment less than 5yrs old **\$120k**

AC-782 SAN FRANCISCO: Well maintained, multi-level Professional Medical Complex. 1450 sf w/ 5 ops **\$250k**

AN-513 REDWOOD CITY: Practice of your dreams! 900sf w/ 4 ops + 2 add'l **\$350k**

AN-686 SAN FRANCISCO: Office designed w/ patient flow & maximum office efficiency. 1000sf w/ 4 ops **\$825k**

AN-752 SAN FRANCISCO Facility: 3 months Free Rent! Opportunities like this one are few and far between! 1007sf w/ 4ops. **\$115k**

BC-710 WALNUT CREEK: Desirable location in stand-alone, single-story bldg. 1313sf w/ 3 ops **\$150k**

BC-741 DANVILLE (FACILITY): Move in Ready facility to build the practice of your dreams! ~ 1600sf w/ 3 fully equipped ops **\$165k**

BC-758 PLEASANT HILL (FACILITY): Gorgeous décor & remarkable location! 768 sf w/ 2 ops **\$35k**

BC-780 RICHMOND: Contemporary design, warm environment, large windows. 1300 sf w/ 3 ops **\$675k**

BC-789 OAKLAND (Facility): Perfect layout for Peds or Ortho. 2800 sf w/ 6 fully equipped ops. Plumber for 2 add'l **\$250k**

BC-793 BERKELEY: 2-story Prof Bldg. 1382 sf w/ 4 ops & professionally designed for flow **\$475k**

BC-804 EMERYVILLE: Professional Complex (ADA-compliant). 1740 sf w/ 4 ops & room for 2 add'l **\$395k**

BG-724 RICHMOND: Spacious office w/ enormous growth potential! 2000sf w/ 4 ops Practice **\$138k / Real Estate \$700k**

BG-731 LAFAYETTE: Well-educated, health conscious patient base. 1,000 sf w/ 3 ops 35+ years goodwill **\$229k**

BG-762 EAST BAY: Stellar, high Quality practice consistently generates ~ \$3M annually. 3000 sf w/ 6 ops **\$1.99M**

BG-734 ANTIOCH: The perfect place to work, live and play! Located in desirable professional neighborhood. 1,323 sf w/ 4 ops. **\$315k**

BAY AREA CONTINUED

BG-765 FREMONT: This quality practice is the true definition of a "Family Practice". 1000sf w/ 2 ops. **\$295k**

BN-777 OAKLAND: Providing a full spectrum of quality dentistry to a wide range of patients. 1,297sf w/ 3 ops. **\$295k**

CC-798 PETALUMA: Partially equipped dental office for lease. Only \$2500/mo for 1400 sf!

CG-616 NAPA: State-of-the-Art practice. Seller moving out of state! **\$425k**

DC-786 LIVERMORE Facility: Move In ready & recently updated! 2380 sf w/ 3 fully equipped ops. Plumbed for 3 add'l **\$190k**

DG-635 CASTRO VALLEY: Excellent location & stellar reputation! Solo Group Practice **\$650k**

DG-756 LOS GATOS: Rare & Remarkable Opportunity in affluent community! 920 sf w/ 3 ops **\$275k**

DN-693 SAN JOSE Facility: Attractive & spacious! Faces one of the city's major thoroughfares. 1080sf w/4 ops **\$95k**

DN-713 CASTRO VALLEY Lease: Well maintained, attractive, "Move-In Ready" dental office. 1500sf w/ 5ops **Call for details!**

DG-723 SAN JOSE: The practice exceeds \$1.2mil in collections annually! 1,450 sf w/ 5ops. **\$850k**

DN-771 SOQUEL Facility: The perfect place to sink down roots, raise a family & build an empire! 1100sf w/2 ops + 1 add'l. **\$50k**

DN-774 FREMONT: This opportunity has it all and awaits your talent and skill! 1,150sf w/3 ops + 1 add'l **\$150k**

DG-785 SANTA CRUZ: Known for its amusement park & beach boardwalk, this community has much to offer! 1000sf w/ 4 ops. **\$245k** **DG-790 SAN JOSE:** Two Practices being offer at one great price! Priced to sell at **\$1.4M.**

DN-796 SAN JOSE: This well-oiled general practice w/ *emphasis on treating Pediatric patients!* 3473sf w/10 ops + 2 add'l. **\$550k**

NORTHERN CALIFORNIA

EC-729 GREATER SACRAMENTO AREA: Seller retiring! FFS Practice and Real Estate Available!

EG-722 ROSEVILLE: On track to collect \$1.5M in 2017 with increased profit compared to last year! Price Reduced even though collections are increasing! 1919sf w/ 4 ops **\$1.05M**

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NORTHERN CALIFORNIA CONTINUED

EN-664 SACRAMENTO Facility: Great corner location, excellent visibility & easy access! 2300sf w/ 4 ops. **Now Only: \$30k**

EN-702 SACRAMENTO: Long-established practice w/ emphasis on preventative dentistry! 1600sf w 4 ops + 1 add'l. **\$450k Real Estate \$325k**

EN-708 SACRAMENTO: Family-oriented practice with appreciative & loyal patient base. 1600sf w 4 ops + 1 add'l. **\$150k**

EN-747 CITRUS HEIGHTS Facility: Be the only dental office in this attractive, popular Retail Shopping Center! 2200sf w/5 ops + 6 add'l. **\$100k**

EN-749 LINCOLN: Come sink your roots down and enjoy a fantastic lifestyle which can't be beat! 1877sf w/4 ops + 1 add'l. **\$320k**

EN-755 FOLSOM: A perfect location, envied by all! Enjoy an amazing quality lifestyle in this thriving city. 1200sf w/ 4 ops. **\$175k**

EN-768 WEST SACRAMENTO: family-oriented practice, equipped with updated technology! 1612sf w/4 ops. **\$275k**

EN-791 SO. SACRAMENTO CO: Highly esteemed practice to an adoring & appreciative patient base! 1950sfw/ 5 ops. **\$450k**

EG-788 ROSEVILLE: Do not pass up on this remarkable opportunity! 2700sf w/ 6 ops. **\$300k**

EN-800 SACRAMENTO: Awaiting your talent and skill to take it to the next level! 1200sf w/ 4 ops. **\$150k**

EN-797 WOODLAND: Do not hesitate or this enviable opportunity will fulfill someone else's dream! 2316sf w/ 6 ops. **Practice \$650k/ Real Estate TBD**

EN-803 ROCKLIN: Continue the philosophy of serving your patients as if they are family! 150sf 3 ops + 1 add'l. **\$425k**

FC-650 FORT BRAGG: Family-oriented practice. 5 ops in 2000sf, 6 npts/ mo **\$350k for the Practice & \$400k for the Real Estate**

FN-754 SO. HUMBOLDT: If you love the lure of sea air, a relaxed lifestyle & charm of coastal living, then look no further! 1500sf w/ 3 ops + 1 add'l. **Now \$150k!**

GC-472 ORLAND: Live & practice in charming small town community. 1000sf w/ 2 ops. Seller Retiring **\$160k**

GG-454 PARADISE: 2550sf w/ 9 ops. 40 yrs goodwill! Amazing Opportunity! **\$450k**

GN-717 YUBA CITY: Seller Retiring. All reasonable offers considered. **Building available for purchase!** 2400sf w/ 5 ops **\$475k**

GN-746 YUBA CITY: State-of-the-Art Equipped! **Includes the latest technology in CBCT Imaging.** Real Estate also available! 1600sf w/ 3 ops +1 add'l. **Practice \$480k/ Real Estate TBD.**

GG-769 REDDING AREA: Offering a full spectrum of general dentistry and total care! 2700sf w/ 6ops. **Practice \$390k, Real Estate \$540k**

GN-799 PARADISE: This remarkable opportunity is undeniably too good to be true! 1800sf w/ 4 ops. **Practice \$375k, Real Estate \$325k**

HG-732 GRASS VALLEY: Seller retiring. Well established practice. 1250sf w/ 3 ops. Real Estate also available. **\$215k**

HN-280 NORTHEAST CA: Only Practice in Town! 900sf w/ 2 ops **\$60k**

HN-618 SIERRA FOOTHILLS: Seller Retiring! Huge opportunity for growth by increasing office hours! 750sf w/ 2 ops **\$65k**

HN-740 SHASTA CO: Warm, caring atmosphere that is magnified by the exceptional, long-term staff. 2400+sf w/ 5 ops + 1 add'l **\$475k**

NORTHERN CALIFORNIA CONTINUED

HN-773 SUTTER CREEK: Located in an area known for beautiful scenery, excellent wine and rich history! 1536sf w/4 ops + 1 add'l **\$195k**

HN-794 GOLD COUNTRY/CALAVERAS CO: The perfect place to raise a family and practice dentistry. 2300sf w/2 ops + 3 add'l **\$100k**

CENTRAL VALLEY

IC-468 SAN JOAQUIN VALLEY: High-end restorative practice! 6 ops in 2500+sf office. Call for Details! **\$425k**

IG-687 TURLOCK: Established quality practice - remarkable opportunity! 2000sf w/ 5 ops **\$298k**

IN-764 STOCKTON: Well-established, fully computerized, paperless, digitalized practice just waiting for your talent & skill! 5,000sf w/10 ops **\$267.5k**

IN-776 STOCKTON: Step right in and you won't miss a beat in this long-established, quality practice! 1046sf w/2 ops add'l. **\$25k**

JG-753 VISALIA: Pedito/GP Practice AND Real Estate Available! Stellar reputation, 30 pts w/ 15 hyg pts daily! Spacious 2600 sf office! **Call for Details!**

JG-778 FRESNO: What a steal. Consistent collections over \$600k with cash flow over \$300k!! 1452 sf w/ 4 ops **\$328k**

JH-770 MERCED AREA: Stellar family-oriented practice with a loyal, stable patient base! 1250sf w/ 4 ops. **\$410k**

SOUTHERN CALIFORNIA

KC-678 LOMPOC & SANTA MARIA: Live & practice along the central coast. Plenty of room for growth, Call for Details! **\$240k**

SPECIALTY PRACTICES

AC-748 SAN FRANCISCO Perio: Practice in this prestigious building in desirable central location. 3 ops, 980sf **\$800k**

AC-759 SAN FRANCISCO Endo: Union Square. 1190 sf w/3 ops (plumbed for 1 add'l) **\$495k**

BC-784 CENTRAL CONTRA COSTA CO Perio: Seasoned Staff. Office runs like well-oiled machine! 3 ops **\$395k**

BC-783 EAST BAY Ortho: Thriving practice & long-term stable staff and patients! 2392 sf w/ 7 chairs/bays **\$550k**

BN-801 SAN RAMON Ortho: Don't wait or you may miss out on this spectacular opportunity of a lifetime! 1865sf w/ 5 chairs/bays. **\$775k**

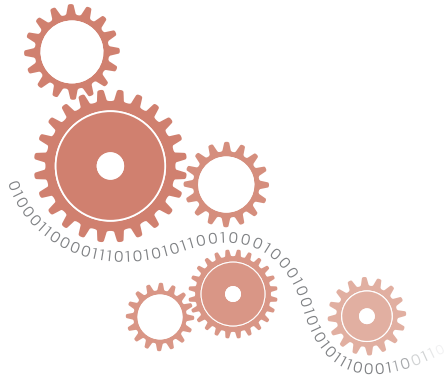
IC-543 CENTRAL VALLEY Ortho: 1650sf w/ 5 chairs in open bay & plumbed for 2 add'l. Strong referrals and PT base **\$125k**

HG-763 GRASS VALLEY Ortho: Avg 30+ pts per day. Newer retail Shopping Center **\$210k**

JG-757 VISALIA Perio: Keep implants in house and imagine the growth possibilities! 9 hygiene days per week! Rare Gem! 2,000 sf w/ 5 ops **\$395k**

KG-779 SAN CLEMENTE Ortho: Huge growth potential by expanding relaxed work week! 2896 sf w/ 6 open bay chairs **\$325k**

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A look into the latest dental and general technology on the market

Logitech Circle 2 Security Camera

(\$179 to \$499, Logitech)

Many practitioners have spent large amounts of money to build their “practice of the future.” The newest in technology and office equipment deserves the latest in security surveillance when it comes to protecting an investment. While enterprise-level security monitoring and systems provide around-the-clock protection for businesses, owners of dental practices may find them overwhelming and expensive. Logitech Circle 2, the latest home security camera system, provides a great alternative for surveillance that is affordable and versatile.

Circle 2 requires a Wi-Fi internet connection and a free Logitech account. There are many accessories available to mount the camera indoors or outdoors and wired or wire-free for power. The camera is weatherproof and can withstand the heat, cold, rain and sun. The camera lens records with a 180-degree field of view in 1080p resolution and has night vision. A built-in speaker and microphone allows for two-way talk. Wireless versions feature a rechargeable battery that can last up to three months on a single charge. Setup through the Logi Circle app, available for iOS and Android, is simple. The app quickly detects a new Circle 2 camera that is powered up in close proximity and asks for a Wi-Fi network and password to connect to. After the Wi-Fi connection has been made, users give a name to their camera and the setup is finished.

The main screen of the Logi Circle app contains live views of all Circle 2 cameras connected to the same Logitech account. Users can select any camera to expand its view. A scrollable timeline on the right of the screen allows users to go through a time-lapse history of significant events that the camera has recorded. All recordings are stored in the cloud with the connected Logitech account and can be downloaded directly from the app. Circle 2 cameras can also be integrated easily to Apple Homekit (wired versions only), Amazon Alexa and Google Assistant directly from the app.

Smart cameras for the home, such as the Circle 2, are great alternatives that do not replace conventional business security and monitoring services, but do provide a basic level of versatility and peace of mind that is practically affordable.

— Hubert Chan, DDS

42 Percent of World’s Population Gets News Online

Around 42 percent of the world gets their news on the internet once a day, according to a recent study conducted by the Pew Research Center. The study broke down which countries consume the most news online. South Korea comes out on top with 80 percent of the adults who live in the country saying they get their news online. The U.S. comes in sixth with 59 percent consuming news online. The study also found that 46 percent of the U.S. public gets news online several times per day. The amount of wealth a country has plays a large factor in how much news is consumed online, according to the study. Those who live in advanced economies are more likely to go online for news than those in developing countries. For more information, visit pewresearch.org.

— Blake Ellington, Tech Trends editor

People Becoming More Comfortable With Idea of Self-Driving Cars

The thought of a self-driving vehicle is becoming less outlandish, at least according to a recent study conducted by AAA. In fact, there has been a 15 percent decrease over the last year (from 78 percent to 63 percent) in the number of people who are afraid of riding in self-driving cars. The study stated, “Millennial and male drivers are the most trusting of autonomous technologies, with only half reporting they would be afraid to ride in a self-driving car.”

Greg Brannon is the director of AAA Automotive Engineering and Industry Relations.

“Compared to just a year ago, AAA found that 20 million more U.S. drivers would trust a self-driving vehicle to take them for a ride,” Brannon said on AAA’s website.

The other factor here is the number of people who say they feel less safe on the road with self-driving cars. The study found that only 13 percent of drivers in the U.S. feel safer with self-driving cars on the road. For more information, visit aaa.com.

— Blake Ellington, Tech Trends editor

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