

Virtual Dental Home (Tele-dentistry) Project

Location: Hawaii
 Date Submitted: June 2018
 Category: **Promising Practice**

BACKGROUND

The oral health system in the United States (U.S.) does not adequately address the oral health needs for most young children. Consequences of neglected dental disease include children in school with toothaches, unable to learn, missing school, and some at-risk for developing life-threatening infections. These problems are particularly acute for low income children, children in certain racial and ethnic minority groups, and those in rural areas.

The Hawaii State Department of Health (DOH) third grade oral health survey (2016) found that third graders have the highest rates of oral disease in the U.S. Of the 3,185 students screened, 71% of the third graders had experienced tooth decay, 22% had untreated tooth decay, and 7% needed urgent dental care compared to the national rate of 1%. The survey found significant oral health disparities relating to ethnicity, income, and geography.

A major contributor to the problem of dental disease is the lack of community water fluoridation. Hawaii has the lowest proportion of residents with access to the benefits of fluoridated drinking water in the U.S. (11.7%). Only Hawaii federal military bases have fluoridated water. Although Hawaii has a favorable ratio of dentists to residents, most of the State's primary and specialty care providers are located on the island of Oahu (Honolulu County). Like many states, Hawaii also has a shortage of providers willing to treat Medicaid clients. The situation is particularly acute on the rural neighbor islands and in low income urban/rural areas of Oahu.

The 2011 Institute of Medicine report on *Improving Access to Oral Health Care for Vulnerable and Underserved Populations* recommended bringing care to community locations where underserved groups collocating with educational, social, and general health services. Use of telehealth is one of the strategies recommended. In Hawaii,

TITLE VMCH BLOCK GRANT MEASURES ADDRESSED
NPM #13 B) Percent of infants and children, ages 1 through 17 years, who had a preventive dental visit in the last year Tooth Decay
NOM #14: Number of children ages 1 through 17 who have decayed teeth or cavities in the past 12 months

the Virtual Dental Home (VDH) model of service delivery was piloted to reach young children in underserved areas.

PROGRAM OBJECTIVES

- Improve access to oral health care for children by using a community-based oral health delivery system, in which children receive dental diagnostic, preventive, and early intervention services in community settings.
- Provide oral health awareness, education, and support for children, families and staff to adopt and integrate best oral hygiene practices into their daily lives.
- Evaluate the sustainability of the VDH in the State of Hawaii. This includes analyzing the financial feasibility, dental practice laws and policies addressing tele-dentistry, and the acceptability of this community-based delivery of care model by the State's oral health stakeholders.

TARGET POPULATION SERVED

Low-income and underserved children (aged 0 to 5 years old)

PROGRAM ACTIVITIES

What is the Virtual Dental Home?

The Virtual Dental Home System of Care (VDH) is a community-based oral health delivery system, developed in California, in which people receive dental diagnostic, preventive, and early intervention services in

non-clinical community settings such as schools, WIC, Head Start sites, low-income community centers, and nursing homes. See Figure 1.



Figure 1 – Community Settings for the VDH

The VDH uses affordable, portable dental equipment and telehealth technology to link dental hygienists and dental assistants in the community with dentists in dental offices and clinics; providing access to a full dental team and comprehensive dental care. The community-based dental hygienists/dental assistants collect dental records (including intraoral photographs, teeth charting, and digital x-rays) and provide preventive care (teeth cleanings, fluoride applications, and dental sealants) for patients in community settings. See figures 2 and 3.



Figure 2 – Dental hygienist collecting dental records and providing preventive dental care in an elementary school, and a WIC site.



Figure 3 – Portable dental equipment used in the VDH: dental chair, dental unit, X-ray handheld device, digital x-ray sensors, intraoral camera, and computer.

The community-based clinical team uploads the patient information through a secure web-based cloud storage system for review by a dentist at a clinic or dental office. The records are not reviewed in real time, but at the convenience of the dentist (i.e. before and after office hours, during openings in the schedule including downtime created by patient cancellations). Based on the review, the dentists diagnose, complete the exam and develop treatment plans. See figure 4.



Figure 4 – Diagnostic records for patient (intraoral photographs, teeth charting, and digital x-ray). Dentist reviewing records for diagnoses and treatment plan.

Patients who require more complex treatment (e.g. tooth restorations, root canal therapy, and oral surgery) that only a dentist can provide are referred and receive assistance scheduling a dental appointment. After the treatment is completed by a dentist, the patient is referred to the community site for future preventive dental care to maintain optimum oral health.



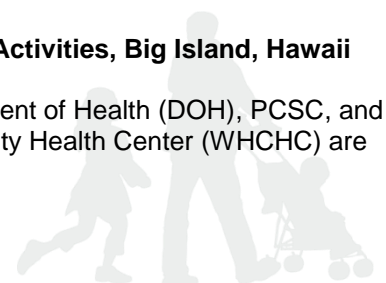
Figure 5 – Patients that require dental treatment that requires a dentist to complete is referred to the dental clinic/office for treatment

The VDH reaches people where they live, work or receive educational or social services; reducing the need to travel to receive dental care. In a six-year demonstration project in California, directed by the Pacific Center for Special Care (PCSC) at the University of the Pacific, Arthur A. Dugoni School of Dentistry (Pacific), approximately two-thirds of the children and half the adults with complex health conditions seen in a VDH system received all the care they needed at the community site. There was no need to have the patient receive dental treatment at the dental office.

This is care they most likely would not have received otherwise. Most of these children and adults typically receive no care until they have advanced disease, and pain, and infection. The VDH helps eliminate barriers such as geography, transportation, time, and oral health awareness that improves the access of care for underserved and vulnerable children.

Activities: VDH Project Activities, Big Island, Hawaii

The Hawaii State Department of Health (DOH), PCSC, and the West Hawaii Community Health Center (WHCHC) are



collaborating on a 3-year VDH pilot project in Kona, on the island of Hawaii. Details of the program include:

- The 3-year project duration 2016 to 2018.
- Dental provider, WHCHC
 - 2 dentists are located at the dental clinics that review patient records, complete exams, diagnosis, and treatment plans via teledentistry (store and forward modality). The dentists also provide dental care to patients referred from the community site to the dental clinic for complex treatment only a dentist is permitted to complete if there is no existing dental home.
 - 1 dental hygienist and 1 dental assistant (1 VDH community dental team) provide preventive dental services and collect diagnostic records at the community sites.
- Target population, low-income and underserved children (aged 0 to 5 years old).
- Community Virtual Dental Home Sites
 - (3) Head Start Programs
 - (1) Women Infant Children Program
 - (1) Tutu & Me Traveling Preschool
 - (1) Uluwini Transitional Housing Complex
- Frequency: community site dental team works 3 days a week. Rotation between the above described community sites on a continuous basis.
- Treatment started at the VDH community sites in September 2016.
- Refer to “PROGRAM OUTCOMES/EVALUATION DATA” section for Big Island pilot project data.

Activities: VDH Project Activities, Maui, Hawaii

The DOH, PCSC, and the Hui No Ke Ola Pono (HNKOP) community center are collaborating on a virtual dental home pilot project on the island of Maui. Refer to details of program below:

- Starting the first year of a 3-year project (2018 to 2020)
- Dental provider, HNKOP
 - 1 dentist at the dental clinic will review patient records, complete exams, diagnosis, and treatment plans via teledentistry (store and forward modality). The dentist also provides dental care to patients referred (community site) to the dental clinic for complex treatment only a dentist is permitted to complete.
 - 2 dental hygienists and 1 dental assistant (2 part-time VDH community dental team) provide preventive dental services, and collects diagnostic records at the community site.
- Target population, low-income and underserved children (aged 0 to 5 years old). Also, the elderly population located in residential facilities.
- Community Sites (Virtual Dental Home Sites)

- (10) Head Start Programs
- (1) Early Head Start Program
- (1) Women Infant Children
- (2) Hale Makua Health Services (elderly population)
- Frequency, community site dental teams will work up to five days a week. Rotation between the above described sites on a continuous and as need basis.
- Oral Health Professional Educational Component - University of Hawaii, Maui College, Dental Hygiene School students will be completing rotations for this VDH pilot project at the community sites.
- Proposed date to start service for patients is August 2018. No data collected as of time article was written.

PROGRAM OUTCOMES/EVALUATION DATA

WHCHC VDH Data
(September 2016 to May 2018)

Virtual Dental Home Data	Total # of Children Treated	Total # of Visits	Total # of Referrals to the Dentist at the Dental Clinic
Totals Collected	471	631	89

Dental Procedures*	Intra-oral photo	Radiograph	Prophy	Fluoride Varnish	Exam	Oral Health Instructions
Total # of dental procedures completed via the Virtual Dental Home	585	196	472	468	631	611

PROGRAM COST

VDH Project Funding, Big Island, Hawaii (3-year pilot project – 2016 to 2018)

- **Approximate total expenses: \$410K**
 - Project design and management
 - Salaries and benefits for the dentists, dental hygienist, and dental assistant.
 - Dental equipment
 - Dental supplies and materials
 - Training
 - Other miscellaneous items and non-clinical supplies



VDH Project Funding, Maui, Hawaii (1-year pilot project – 2017/2018)

- **Approximate total expenses: \$227K**
 - Project design and management
 - Salaries and benefits for the dentists, dental hygienist, and dental assistant.
 - Dental equipment
 - Dental supplies and materials
 - Training
 - Other miscellaneous items and non-clinical supplies

Private grant funding was secured for both pilot projects. No public funds are being used.

ASSETS & CHALLENGES

Assets

- Support and resources from the DOH on the development and implementation of this VDH project. The DOH educated, collaborated, and obtained support for the VDH project with the public, State legislators, foundations, and all the major oral health stakeholders in Hawaii.
- Oversight, administrative management, and training from the PSCS on the VDH projects on the Big Island and Maui. The Pacific had the expertise and experience on the development and implementation on VDH projects in states of California, Colorado, and Oregon.
- Per the existing Hawaii Dental Practice Act, the VDH delivery of care model's clinical practices (direct dental services by dental hygienist and general dentist supervision of dental hygienist) are permitted to be conducted in public health settings.
- Hawaii Dental Service Foundation and Hawaii Medical Service Association Foundation for funding 100% the VDH pilot projects. No public funds were used for these projects.
- Public and private programs' participation and collaboration on using their sites as VDH community sites for their clients and patients.
- WHCHC and HNKOP willingness to adopt innovative approaches and invest time/resources needed to expand their dental practices to include the VDH delivery of care model, using teledentistry to bring dental care into new community locations.
- State legislative oral health champions that support and endorse legislation to improve the oral health for the residents of Hawaii.
- State policy makers committed to promoting telehealth to expand access to healthcare across the islands.

Challenges

- Educating and changing the mindset (acceptance) of oral health professionals and stakeholders on the use of teledentistry technology to drive this community-based delivery of care model.
- Securing funding for the VDH pilot projects.
- The Hawaii State Medicaid dental program did not cover dental procedures completed via teledentistry at the start of the Hawaii VDH project (January 1, 2017).
- In 2017, the Hawaii Dental Practice Act was inadvertently amended to require additional dentist general supervision requirements for dental hygienist in public health settings. These new requirements hindered the efficiency of the VDH operations and treatment flow. This added additional cost to the operating the VDH.

Overcoming Challenges

- Secured funding (100% private) for the VDH for the Big Island (3-year project) and Maui (1st year of a 3-year project) VDH pilot projects.
- In July 2016, the Hawaii State Medicaid dental program was mandated through passage of a state telehealth parity law to cover dental procedures completed via teledentistry at the start of the Hawaii VDH project, effective January 1, 2017).
- In 2018, the Hawaii Dental Practice Act was amended to reflect the law prior to 2017 addressing dentist general supervision requirements for dental hygienist in public health settings. Therefore, promoting the efficiency of the VDH operations and treatment flow. The amendments to the Hawaii Dental Practice Act was introduced in a legislative bill and championed by a Hawaii State Senator. At the time of this submission the bill is pending before the Governor for signature.

LESSONS LEARNED

- The VDH delivery of care model can be a financially sustainable model to replicate in other States, while providing dental care to individuals who otherwise would not have received care.
- Providing dental care services in community settings eliminates many barriers to accessing dental services for or the underserved and vulnerable populations.
- Collaboration and partnerships with public and private oral health stakeholders, and other vested parties are essential to sustainably improving oral health.



FUTURE STEPS

- Educate, promote, and support the VDH delivery of care model in the State of Hawaii, and nationally.
- Continue to evaluate and address the sustainability of the VDH in the State of Hawaii. This includes analyzing the financial feasibility, dental practice laws and policies addressing teledentistry, and the acceptability of this community-based delivery of care model by the State's oral health stakeholders.

COLLABORATIONS

Hawaii State Department of Health, Family Health Services Division, and the Hospital & Community Dental Services Branch

Working with the oral health stakeholders to develop and implement this Hawaii Virtual Dental Home (VDH) pilot project. Secure funding and training.

Pacific Center for Special Care, University of Pacific, School of Dentistry.

Creator of the VDH delivery of care model. Provides administrative, technical, and clinical training and expertise to start and operate the VDH.

West Hawaii Community Health Center.

VDH clinical team and dental clinic on the Big Island.

Hui No Ke Ola Pono Community Health Center

VDH clinical team and dental clinic on Maui.

PACT Hawaii, on the Big Island of Hawaii

Contractor for the Head Start Program on the Big Island of Hawaii. Community site for VDH services.

WIC Program for West Hawaii, on the Big Island of Hawaii

Community site for VDH services.

Tutu & Me Traveling Preschool, on the Big Island of Hawaii

Community site for VDH services.

Uluwini Transitional Housing, on the Big Island of Hawaii

Community site for VDH services.

Maui Economic Opportunity, Inc on the island of Maui

Contractor to Head Start Program. Community site for VDH services.

Maui Family Support Services, on the island of Maui

Contractor to Early Head Start Program. Community site for VDH services.

WIC Program for Maui, on the island of Maui

Community site for VDH services.

University of Hawaii, Maui College, Dental Hygiene School
Dental hygiene students will be completing rotations for the Maui pilot project

Hawaii State Medicaid

Coverage for dental procedures. Payment system adjustments.

Hawaii Dental Service, commercial dental insurer

VDH project funder

Hawaii Medical Service Association, commercial insurer

VDH project funder

Hawaii Dental Association

Collaborate on oral health needs in Hawaii. Notify VDH objectives and buy-in by dentist.

Hawaii Board of Dental Examiners

Clarify allowable dental practices in Hawaii, work on supporting this delivery of care model

Hawaii State Legislators

Revise laws to support this delivery of care model

PEER REVIEW & REPLICATION

N/A

RESOURCES PROVIDED

<https://www.bing.com/videos/search?q=the+virtual+dental+home&&view=detail&mid=364FEE738E4041DD2DA8364FEE738E4041DD2DA8&&FORM=VRD GAR>

Key words:

Teledentistry, Virtual Dental Home, Pacific Center for Special Care

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