Ravenswood Family Health Center is a federally qualified health center which serves a diverse and constantly changing population of low-income families and uninsured residents in south San Mateo County. The service area includes East Palo Alto, Belle Haven in Menlo Park, and North Fair Oaks in Redwood City. Over one third of the residents are born outside the U.S; the majority coming from Mexico, Central America and the Pacific Islands. Located in the most populous state in the country, Ravenswood is committed to improving the oral health of California children by helping to address barriers in access to care.

The oral health of California children is substantially worse than the national average objectives. According to *The California Smile Survey: An Oral Health Assessment of California’s Kindergarten and 3rd Grade Children*, published in 2006 by the Dental Health Foundation, by third grade, dental caries affect almost two-thirds of the children in the state. Twenty-eight percent, some 750,000 elementary school children have untreated tooth decay. And approximately 138,000 children are estimated to have urgent dental care because of pain or infection. While dental visits for children have been increasing over the
past decade, the disparity in oral health between poor and affluent children in California is among the worst in the United States. According to the California State Auditor, in 2013 nearly 56 percent of the 5.1 million children enrolled in Medi-Cal did not receive dental care through the program. Many experts believe that oral health is the single greatest unmet need for health services among children.

Barriers for children on Medicaid to receive dental services include: a) shortage of dental providers who accept Medicaid patients, b) low Medicaid reimbursement rates, c) difficulty with transportation to dental clinics, d) shortage of culturally competent providers, and e) financial difficulties for the parents who lose wages to take time off from work for dental appointments.

Ravenswood’s strategy to make a difference in access to care by overcoming some of these barriers is to research and test alternate delivery models in non-traditional settings. This NNOHA Promising Practice is the story of Ravenswood’s Virtual Dental Home Project. Working with partners from the University of the Pacific Arthur A. Dugoni School of Dentistry, First 5 San Mateo, and the Institute for Human and Social Development (IHSD), Ravenswood Family Health Center created a tele-medicine system of providing care to improve access and ultimately improve the oral health of the populations served.

Virtual Dental Home

The rationale of the Virtual Dental Home is to address the lower utilization of dental services by special groups (young children, the frail elderly, and institutionalized adults) using a model similar to those of tele-dermatology or tele-optometry. In the case of the Virtual Dental Home, the technique is designed to build on the already existing relationships between dentist and dental hygienist, by leveraging technology to aid in communication between professionals, in this case, separated by many miles. This entailed a health pilot workforce model that relied on expanded duties of the registered dental hygienist in alternative practice (RDH-AP). Recognizing the limited capacity in private practices and FQHCs in the Bay Area, where wait lists are long and children often go without care, the Virtual Dental Home was created to explore opportunities to provide preventive services to children in their communities to minimize the need for dental treatments in the future and to improve oral health status in the present.

The Partnership

The Virtual Dental Home grew out of a partnership between Ravenswood Family Health Center and the University of the Pacific Arthur A. Dugoni School of Dentistry. The project was initially funded as a two-year demonstration project from San Mateo County’s First 5. The project was implemented at local IHSD Head Start sites. Sites were chosen based on two factors: a) the highest number of children with unmet dental needs, and b) the lowest number of children with dental exams. The project planning team was composed of professionals from Ravenswood, the University of the Pacific Arthur A. Dugoni School of Dentistry, and IHSD.
Process

The planning team began in 2012 to develop the Virtual Dental Home protocols and policies. These included formalizing the relationships between dentists at Ravenswood and those at University of the Pacific, between the dental staff and the community based organizations, the Head Start Staff. Parent education and learning modules were produced and involved staff trained on this new model of care.

Components of the Virtual Dental Home included:

1. Onsite care in a surrounding familiar to the young child and his/her family
2. Data collection on the family’s health history
3. Preventive dental services
4. Case management to connect the patient with needed dental services
5. Direct care by the advanced dental hygienist for sealant placement and/or interim therapeutic restorations.

Step-by-step process:

1. Parents are informed about the model.
2. If parents are interested they complete the paperwork to be a part of the program.
3. Dental visits are scheduled on site after discussions with the pre-school program (days that work for both the dental program and the site are selected).
4. Portable examination equipment is transported at Head Start or preschool centers.
5. A cloud based record is created.
6. The initial examination of the patient is conducted by the dental hygienist in alternate practice (RDH-AP).
   a. The initial assessment includes comprehensive screening, photos, x-rays
   b. A caries risk assessment is conducted
   c. Prophylaxis is performed
   d. Fluoride varnish is applied
7. A review of the patient’s records is performed by the off-site dentist from the Ravenswood Health Center within 48 hours.
   a. The dentist creates a treatment plan specific to the patient.
   b. The dentist determines if the needed treatments can be completed in the community or requires transportation to the Ravenswood dental clinic or referral to another DDS for further care.
   c. Cloud based patient record is updated.
8. Referrals and tracking are directed by allied health personnel at the community site.
9. The cloud-based electronic health record is used to track the patient’s treatment needs and follow up care.
10. Ongoing care is provided at the site at intervals determined by the caries risk assessment.
11. Education classes are provided to the parents and Head Start/preschool staff periodically.

![A young patient getting a comprehensive screening at a Virtual Dental Home site](image1)

![Portable equipment in the Head Start center](image2)

**Results**

In the first year of the project, Ravenswood filed a change in scope of service with HRSA and then registered the sites of care as intermittent sites with the state of California. Initially, nine sites were selected in San Mateo County. The number of programs and sites have grown over the past five years and the data is presented in the Table 1.

<table>
<thead>
<tr>
<th>Program year</th>
<th># of programs/sites</th>
<th>Children enrolled</th>
<th># visits</th>
<th>Dental referrals</th>
<th>ITRs placed</th>
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</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>1/9</td>
<td>187</td>
<td>348</td>
<td>79</td>
<td>40</td>
</tr>
<tr>
<td>2013-14</td>
<td>1/15</td>
<td>239</td>
<td>398</td>
<td>125</td>
<td>51</td>
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<tr>
<td>2014-15</td>
<td>3/15</td>
<td>323</td>
<td>545</td>
<td>110</td>
<td>60</td>
</tr>
<tr>
<td>2015-16</td>
<td>5/24</td>
<td>587</td>
<td>1007</td>
<td>239</td>
<td>92</td>
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<tr>
<td>2016-17*</td>
<td>10/31</td>
<td>372</td>
<td>459</td>
<td>69</td>
<td>21</td>
</tr>
</tbody>
</table>

*midyear data through December 31, 2016.

**Conclusions**

**Early Childhood Oral Health Initiative: Virtual Dental Home**

In the last five years, Ravenswood has continued to provide Virtual Dental Home (VDH) services through the Early Childhood Oral Health Initiative (ECOHI). Ravenswood has created and utilized the innovative VDH model of oral health prevention, care, and education. In the model, a highly trained and experienced registered dental hygienist in alternative practice (RDH-AP) and dental navigator bring portable dental and imaging equipment to the partner program sites serving low-income children. These children are provided with oral health education, dental disease risk assessments, fluoride varnish, basic treatments (as needed), as well as any necessary referrals to Ravenswood’s dental clinic and local dental clinics that accept Medi-Cal.
The Ravenswood VDH team has provided oral health services and education for low-income children at 31 sites that are part of Institute of Human and Social Development, Peninsula Family Service, All Five, Redwood City Child Development program, Ravenswood Child Development Center, The Primary School, Family Connection program, Puente, Medical Therapy unit at California Children's services and Community Gatepath. The VDH team has also collaborated with University of the Pacific Center for Special Care, and Sonrisas Community Dental Center.

**Challenges and Lessons Learned**

Families of children who need extensive dental treatment and are referred to the DDS do not always follow up to get the needed care despite the best efforts of case managers. The success of a virtual dental home lies with the parents, school staff and on-site oral health staff and their education and commitment to the oral health of the children in their care. Access to parents in the Medicaid community may sometimes be difficult due to a number of demographic and economic issues. Ravenswood sees the need to extend this program to preschools or other childcare programs where children are served from infancy to get the most benefits from the available preventive dental regimens and parental education around oral health care.

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