The Early Childhood Oral Health Assessment in the Inland Empire: From Pilot to Health Care Systems Integration
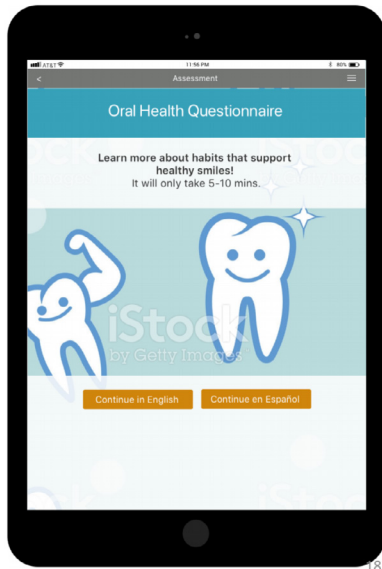
The Children's Partnership | CALIFORNIA NORTHSTATE UNIVERSITY College of Dental Medicine | FIRST 5 RIVERSIDE • SAN BERNARDINO

# Acknowledgments

Introduction

Led by First 5 Riverside and First 5 San Bernardino, the Early Childhood Oral Health Assessment (ECOHA) electronic mobile application (app) was developed as part of the Inland Empire's Local Dental Pilot Project (LDPP-IE)[1]—a key activity of the California Medi-Cal 2020 waiver's Dental Transformation Initiative (DTI). The aim of the LDPPs was to increase Medi-Cal-enrolled children's use of preventive, risk-based, and continuous dental care through innovative community-based pilot projects. ECOHA was designed to be used by the community-based workforce[2] to address the oral health needs of young children, particularly low-income children of color.

The ECOHA Pilot—which comprised the app; the use of the app by a community-based workforce; and supporting activities, including education and care coordination—equipped Community Health Workers (CHWs) with the tools and support they needed to develop relationships with families and work with them address their children's oral health needs. The CHWs—many of whom were from the communities they served and speak the families' preferred language—used the assessment tool to identify children's risk for dental disease and provide families with tailored education, resources, and connections to care based on a child's risk level.

As the LDPP comes to a close on December 31, 2020, it is critical to identify the lessons learned and best practices from the ECOHA Pilot so that we can leverage this state and federal investment by integrating what works from the Pilot into both local and statewide systems of oral health care. Notably, in response to the lost time experienced by other activities included in the Medi-Cal 2020 waiver, the State requested an extension of the waiver due to the COVID-19 pandemic through December 2021. However, they excluded the LDPPs from this request, leaving the pilot projects unable to fulfill their potential, even though the ECOHA Pilot and other elements of the LDPPs were beginning to demonstrate success before and even during the COVID-19 Public Health Emergency (PHE).

This issue brief is geared toward local and state health and oral health care leaders, community leaders, policymakers, and other decisionmakers interested in promoting innovative ways to address the oral health inequities among low-income children of color. It provides background on the Pilot, outlines how the ECOHA app has been utilized, identifies lessons learned and best practices related to the deployment of the app, and provides recommendations for integrating these lessons and best practices into health, oral health, and social support systems. It also addresses how CHWs were able to leverage their relationships with families to continue to support children's oral health throughout the COVID-19 PHE.

By leveraging technology and advancing community-based strategies that meet children and families where they are, we can begin to reimagine our oral health care system into one that prioritizes racial and social equity and community-rooted care.

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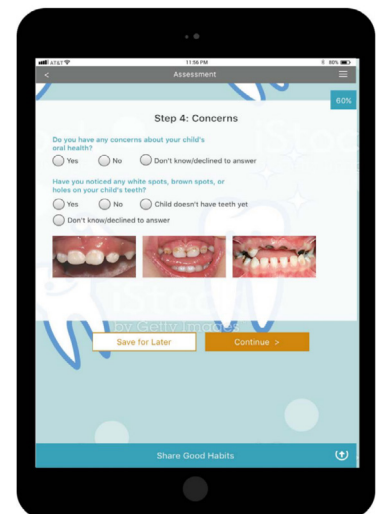
[1] The LDPP-IE implemented two projects: the ECOHA Pilot and the Virtual Dental Home.

[2] Community-based workforce refers to individuals supporting public health in a community, who come from the community. They provide health care support and have a close understanding of the communities they serve through shared ethnicity, culture, language, and life experiences. This includes Community Health Workers (CHW), promotores, doulas, lay health advisors, community health aides, barefoot doctors, peer counselors, natural helpers, paraprofessionals, navigators, community health representatives, home visitors, outreach workers, and others.

Overview of ECHOA

The goal of the ECOHA Pilot was to empower a community-based workforce—starting with CHWs—to address the oral health needs of young children by using technology to integrate early preventive dental care within educational, social, and health programs that reach Medi-Cal-enrolled children. The LDPP-IE Pilot chose to initiate the ECOHA Pilot with CHWs because they are uniquely positioned and trained to develop trusting relationships with families in community settings and provide culturally and linguistically appropriate care. The majority of CHWs come from and/or live in the communities in which they serve and are not only invested in helping the individual but also in addressing the racial and economic inequities in the community. CHWs are particularly skilled in the very strategies needed to improve the oral health of children and families—such as family engagement, helping families adopt beneficial behaviors, and community and health system support. And they do so from an equity lens, meeting families "where they are" and recognizing the institutional barriers that limit access to opportunities, especially for families of color.

Through the Pilot, CHWs—employed by eight community health centers (CHCs) throughout Riverside and San Bernardino counties—were provided with electronic tablets loaded with the ECOHA app, available in both English and Spanish. They also received training and other supports to best engage families around adopting positive oral health behaviors.

The CHWs met with families in the following community settings throughout the Inland Empire to conduct assessments.

- ▶ Health clinics, during well child visits and in waiting rooms
- ▶ WIC clinics
- ▶ Head Start and other early learning sites
- ▶ Elementary schools

- ▶ Libraries
- ▶ Food distribution sites
- ▶ Community events, such as health fairs and farmers markets
- ▶ Churches

During the COVID-19 PHE, many CHWs conducted the assessments with families over videoconferencing and by phone. Many called the families they already had relationships with as well as families whose young children were patients of the clinics they worked for and asked about their oral health, checked to see if there was an oral health emergency in the family, and requested to do the ECOHA over the phone. Some CHWs asked to set up videoconference sessions with the families so that they could have a more interactive educational session with them. The benefits of this work during the pandemic are discussed in more detail below.

The ECOHA app guided CHWs through a set of questions designed to assess the oral health of children and their risk for dental disease. Questions addressed topics such as tooth brushing and flossing frequency and eating and drinking habits. Based on the information provided, the child was assigned one of three risk categories—low, medium, or high—which corresponded with recommended activities, such as strategies to improve the child's oral health and a referral to a dental provider. As much as possible, CHWs connected families to a dental home at their clinics or another dental office of the family's preference. The CHWs spent more time working with families whose children were at greater risk for dental disease. As noted in the data, there are significantly fewer children at high risk for dental disease; yet these are the children who need the most attention so that they can get the care they need and reduce their risk.

Throughout the assessment, the ECOHA app prompted the CHWs to provide tailored education to the parent/caregiver for how to better care for the child's oral health, based on their responses to questions. For example, if a parent did not brush their child's teeth regularly, the app prompted the CHW to provide education on the importance of brushing with fluoridated toothpaste twice a day for two minutes each time.

The data collected on the app were populated into a portal. CHWs also were able to populate the portal with notes and use the portal to track dates and other notes to, for example, remind themselves to follow up with families.

The Numbers:

January 2019 – September 2020

▶ **Total Assessments Completed: 9,984**

▶ **Assessments in Spanish: 35%; Assessments in English: 65%**

Risk Level	Percent of Assessments by Risk Levels
High	12%
Medium	42%
Low	46%

LDPP-IE Project Support Team

To ensure smooth implementation of the Pilot, the LDPP-IE created a robust support team to fill unique roles and coordinate ECOHA Pilot activities. First 5 Riverside provided overall project management, served as the liaison to the State, purchased the equipment and other materials, and maintained direct contact with the CHCs. Alluma (previously called Social Interest Solutions) developed the app, working with the support team to inform its content, and maintained the technology of the app and portal. California Northstate University (CNU) created the original concept for the app and provided the content and logic model for the app. They also provided ongoing training on oral health, motivational interviewing, and other skills to support the CHWs. The Children's Partnership (TCP) helped create the overall concept of the project and provided strategic guidance and project management to support implementation. TCP facilitated a feedback process to inform continuous improvement efforts and was the primary researcher and author of this brief.

Promising Results from the Field

The ECOHA Pilot reached nearly 10,000 families with the assessment, oral health education, and connections to dental care and other support services through several promising practices. As a result of the following best practices, families learned new information about oral health, such as the importance of oral health care for pregnant women, that oral disease is transmissible, the amount of toothpaste to use, and facts about sugary drinks. Families also were motivated to adopt positive oral health behaviors. Further, the Pilot succeeded in connecting families to dental homes and helping them learn how to navigate the oral health delivery system.

To understand how the ECOHA Pilot worked in the field, to inform short-term course corrections, and to guide long-term programmatic and policy recommendations, the LDPP-IE support team conducted surveys, focus groups, informational interviews, and informal discussions with the CHWs and their clinic leadership. This information illuminated the following best practices related to the Pilot's success as well as the lessons learned outlined in the following section.

Relationship Building and Family Engagement

Critically, this project demonstrated that the key to educating families about the importance of oral health, helping families adopt positive oral health behaviors, and connecting families to appropriate dental care was relationship building between the CHWs and families. Importantly, relationship building promoted trust so that families were more open to education and support around improving their children's oral health as well as their own.

Further, CHWs deployed creative and interactive strategies to engage and educate families. For example, CHWs used plastic foods to demonstrate healthy food choices, a dental teaching puppet, informational flip charts, a mouth model to demonstrate brushing and flossing, and other innovative tools to educate families about ways to improve their oral health. For incentives, they provided age-appropriate toothbrushes and toothpaste, floss, two-minute timers, finger brushes for infants, books, and oral health educational materials.

As a result of the work CHWs put into relationship building and tailoring education, tools, and incentives to

families' needs and preferences, many families were receptive to learning and adopting new behaviors to support their children's oral health.

Strategic Community Settings

The Pilot proved that families often are more open to engaging in conversation around oral health in settings in which they are comfortable, such as their child's school, the library, community events, and other community settings. CHWs also used attractive set-ups, such as decorated tables, and provided interactive tools and incentives to engage families.

Moreover, several clinics integrated the assessment into well-child visits, helping to bridge the medical-dental divide. The clinics re-organized well-child visits to allow time for CHWs time to sit with the family and conduct the ECOHA.

Suportive Technology

The ECOHA app demonstrated the role of technology in facilitating CHWs' relationship with families and supporting the transfer of oral health information from CHWs to families. Despite barriers outlined below, the simply worded questions and the logic of the tool succeeded in guiding an interactive exchange between CHWs and families, supporting families' learning and adoption of positive oral health behaviors. As mentioned, the app was available in both Spanish and English, addressing language access barriers.

Supporting Families During Crises

The positive relationships CHWs built with families proved to be invaluable during the COVID-19 pandemic. Once COVID-19 stay-at-home orders were in place, the CHWs reached

out to families by phone and video to assess children's oral health risk; provide oral health education; connect families with urgent and emergency oral health care; and help families access other essential resources, such as such as food, housing, legal advice, education, and other supports. They also mailed families incentives and tools to support the oral health education. Between March and September 2020, the CHCs reached 5,796 families with COVID-19-related support.[3]

This work was critical. For many families, the CHWs may have been the only individuals reaching out to them to check on their oral health and overall health and wellbeing. Further, the CHCs knew that it was more important than ever for families to maintain good oral health at home so that they did not have to interact unnecessarily with the formal health care system during the PHE. Just as importantly, the CHWs helped families that had oral health emergencies get their needs met, especially during a time when guidance around seeking dental care was everchanging and confusing.

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[3] Because both the VDH and ECOHA teams worked for the same CHCs, CHCs did not differentiate which team did outreach to families during the pandemic, given that the activity was the same.

Lessons Learned and Course Corrections
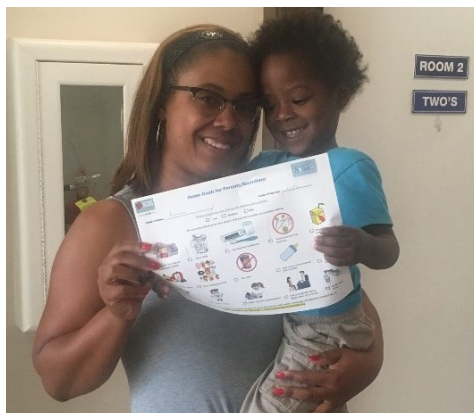
The CHCs, CHWs, and LDPP-IE support team members identified several lessons related to implementation of the Pilot. Many of the lessons related to ensuring the CHWs were equipped to support families, while other lessons dealt with technology issues. When possible, the support team made mid-course corrections to improve the project. In cases where immediate changes could not be made, the support team translated the relevant lessons learned into recommendations for post-pilot spread and sustainability.

Ongoing Engagement and Support of Community Health Workers

Critical to the success of this project was providing opportunities for CHWs to express their needs for support and then responding to those needs in a timely fashion. While the project got off to a slow start, resulting in the CHWs not having initial direction and support, within a few months, the support team began to assess CHWs' needs through surveys, focus groups, and guided discussions. For example, the support team learned that the CHWs had several training needs and the CHWs wanted more opportunities to engage with each other to share lessons learned and best practices.

In response, the support team provided several training sessions on using the app and the portal, data collection and reporting, motivational interviewing, the basics of oral health, the changes to the federal Public Charge rule and Medi-Cal eligibility, and meeting the oral health needs of children with special needs. During the COVID-19 pandemic, CNU offered the CHWs and other CHC staff the opportunity to participate in an eight-week motivational interviewing training.

To create peer learning opportunities, the support team coordinated sessions for CHWs to share best practices and lessons learned around, for example, forging relationships with community sites as places to conduct the ECOHA, using CHWs' relationships with families to identify and address other health and social support needs, and strategies for engaging families during the pandemic. These meetings were in person before the COVID-19 pandemic and transitioned to videoconferencing once stay-at-home orders were in place.

Empowering CHWs to Use the App as a Tool Designed to Support Their Work with Families

Through focus groups with the CHWs, the support team learned that the CHWs needed additional guidance on the objectives of the project, how to use the app itself, and how the logic of the electronic app supports relationship building with families. For example, many CHWs thought they were required to go through every education component in the app, resulting in the assessment taking upwards of 15 minutes or more to complete. Families simply did not have this amount of time, and they stopped engaging when they were anxious about time. After training, CHWs understood that the intent of the educational components in the app was for CHWs to identify one or two items to focus on, based on a child's risk for dental disease. This made it easier for families to begin to adopt new behaviors, without feeling overwhelmed.

In addition, many CHWs thought that they were supposed to focus on quantity over quality—securing as many assessments as possible—rather than focusing on relationship building and helping one family at a time adopt positive oral health behaviors. For example, some CHWs printed the ECOHA questions and handed out the sheets to large number of parents to complete, enabling the CHWs to collect many assessments in a short amount of time. They would call them at a later time to provide education and/or send education materials home with families, instead of using methods, such as motivational interviewing, to engage parents. Finally, several CHWs conducted oral health educations with groups of families, instead of one-on-one, and asked families to fill out the assessment on paper either before or after the education session.

Once the support team provided training and ongoing opportunities for questions and discussion among the

support team and CHWs, the CHWs understood how to use the app and why the project was designed the way it was. As a result, they were eager to use it with families as was intended.

Improvements to the Technology

While the app was successful in serving as a tool to support oral health risk assessments and education, throughout the Pilot, the CHWs identified several needed improvements to the tool. For example, the app currently only allows for an assessment of one child in a family at a time. The CHW must re-enter common family information, such as parents' names and contact information, to conduct an assessment on a sibling. In addition, the app could better cater to very young children, ensuring that they do not get a high-risk score if they have not visited a dentist, given that many families do not take their child to the dentist within the first few months of life. Some CHWs found the app too lengthy, and some CHWs felt that the educational components could be more visual and less wordy. As we look to improve the tool, it will be critical to incorporate this and additional feedback from users as well as involve CHWs directly in the design of the next iteration of the app.

Further, in the past five years since this project was envisioned, technology and how we interface with it have changed. It will be important to conduct a landscape analysis of the needs of the target community and the electronic tools that can meet those needs. For example, we may consider a tool that families themselves can use on their own and in additional languages. In addition, we may consider integrating the questionnaire into other assessment and care management tools, such as electronic health records and other screening tools that assess the health,

social, economic, and other needs of families and children. Finally, we may consider loading the app onto already existing computing devices, such as the phones and tablets of the user, instead of having a tablet solely for the ECOHA app.

Equipment and Wi-Fi

First, early in implementation, we learned that there are many areas in the Inland Empire without reliable Wi-Fi, resulting in CHWs unable to complete ECOHAs. As a result, many CHWs created paper versions of the app to fill out and then later input into the app, undermining the functionality of the app and increasing CHWs' workload by having to re-enter data. First 5 Riverside responded by supporting CHCs' purchase of portable Wi-Fi devices or powered Wi-Fi antennas—such as Plum Cases or Cradle Point devices—or allowing CHCs to use paper when there were no other solutions to accessing the internet.

Second, some CHWs experienced technical difficulties with the app not working properly on the tablets. First 5 Riverside spent a good deal of time and resources toward the beginning of the project replacing tablets. Moving forward, if tablets or other devices are used, it will be important to test equipment and systems before on-the-ground staff start using the tools with families.

Electronic Support for Care Coordination

While the portal has some tracking capabilities, CHWs quickly realized that they needed a more robust tool—such as an electronic care management system—to support their work with families in educating them and connecting them to a dental home and other services. They wanted a tool that tracked all of their activities and reminded them to conduct follow-up activities.

Instead, informed by the CHWs, the support team created a paper tracking tool in Excel to support CHWs' care management work. While CHWs appreciated the Excel tool, we know that technology can better support CHWs in conducting care coordination activities. As we look toward sustainability and integrating ECOHA into long-term systems in the Inland Empire and statewide, it will be important to include an interactive electronic care management tool into the strategy.

Connecting to Clinical Care

Unfortunately, even before the PHE, many families faced barriers to keeping dental appointments, even when CHWs scheduled appointments for families and followed up with them to remind them of their appointment. This is not unusual for families with young children-working parents/guardians juggle multiple family responsibilities, work, and other obligations. Regrettably, this means that children may not get the care they need.

To address this barrier, many of the CHWs developed creative strategies to support the families in following through with appointments. One CHW found that texting families two hours prior to their scheduled visit increased the number of appointments kept. Another CHW allowed ECOHA families to simply walk-in to clinics on certain days without an assigned appointment.

While these strategies helped decrease no-show rates, systems changes are needed to truly make a dent in this barrier. We must bring more care to families in the community and make sure that families have easy access to affordable transportation, can take time off of work, and have the supports they need to take care of the health of their families.

Toward Spread and Sustainability: Recommendations

Through the ECOHA Pilot, we learned that the qualities of CHWs—being in the community and focusing on relationship building, education, and care coordination—played a critical role in helping families adopt positive oral health behaviors and connecting families to appropriate dental care. The ECOHA app served as an important tool in facilitating CHWs' relationship with families, supporting the identification of dental disease risk, and transferring oral health information to families.

While it is disappointing that the LDPPs were not included in the State's request to extend the Medi-Cal 2020 waiver, with the right commitment and by building on the lessons learned and best practices of the Pilot, we have an opportunity to continue to integrate ECOHA into community systems of care through the following recommendations.

Invest in and Support a Robust Community-Based Health Workforce

▶ **Engage additional community-based workers.** Now that we have tested this project with CHWs, it makes sense to expand this work to additional members of the community-based workforce, including home visitors, early

learning providers, and others. These individuals embody similar skills sets and approaches in engaging families. As of this writing, First 5 Riverside is integrating the ECOHA into its new electronic care management system used by home visitors.

In addition, we must recruit community-based workers that speak additional languages so that we can better meet the oral health needs of the Inland Empire's diverse communities.

▶ **Provide training and support to the community-based workers using the tool.** In order for current and additional CHWs, home visitors, and others to adopt the tool, they will need to be supported. Otherwise, they may not understand the reasoning behind the tool or how to properly use it to promote positive oral health behaviors among families. Therefore, we must provide training, materials, incentives for families, peer learning opportunities, and other resources to support broad adoption of the tool and supporting activities. Importantly, these activities should be co-designed with community-based workers to ensure they truly meet their needs.

Strengthen Community Use and Applicability of the Tool

▶ **Develop a tool that families can use on their own.** Optimally, community-based providers would be the main user of electronic tools to support families' adoption of positive oral health behaviors, using evidence-based education methods and care coordination skills. However, we recognize the benefit in making the tool available to families themselves; not all families are connected to a community-based provider, and many families have access to and the skills to guide themselves through technology tools. Importantly, it will be critical to develop a tool that is informed by families and can facilitate meaningful change, given the absence of a trained individual to support families in the process.

▶ **Create a stand-alone application that can be loaded onto existing devices.** While loading the ECOHA app onto a tablet was an excellent way to pilot the tool, having a tablet just for this tool may not be feasible nor desirable in the long run. Aside from the cost of purchasing tablets,

most community-based providers and families would most likely prefer to access the tool from existing electronic platforms, such as their own personal or work phones, tablets, and computers.

▶ **Integrate the assessment into existing electronic tools.** Many health and social support entities have begun to develop tools to facilitate assessments and coordination around families' comprehensive health, social, emotional, and economic assets and needs. It makes sense to include oral health in these tools. As mentioned, First 5 Riverside has developed such a tool for its contracted home visitors and is currently incorporating ECOHA into it for launch in the beginning of 2021. In addition, with funding from First 5 Riverside and First 5 San Bernardino, Loma Linda University Children's Hospital is creating Help Me Grow Inland Empire, a regional model for electronically screening young children for developmental and other needs and connecting families to health and social services. By integrating ECOHA into these systems, we support families in adopting positive oral health behaviors, while helping families and providers alike understand the role oral health plays in the overall health and wellness of children and families.

Further, the state and many local government agencies, such as local departments of health, are adopting electronic case management, surveillance, data collection, and data management tools to support the families they work with around a host of health and social issues as well as track and develop strategies to fill gaps in services. Including ECOHA in these electronic tools would support children getting

their oral health care needs met, while supporting data collection around communities' oral health infrastructure, including gaps in services.

Finally, while ECOHA is in Spanish and English, it will be critical to ensure that whatever tool is developed is translated into multiple languages. While Spanish and English are the most common languages spoken in the Inland Empire, more than forty percent of residents speak a non-English language, including languages other than Spanish.[4]

Create and maintain a system-wide back-end database

In the current version of the ECOHA tool, a system for allowing the clinics to download data to their own record system was not developed. And the data from this project will not be available once the current funding ends. As we strive for a more integrated system, it will be important to develop a system to allow the data to be carried over from one electronic system to another to facilitate continuity for families.

Create Electronic Dynamic Tools to Support Care Management Activities

As mentioned above, one of the critical missing elements of the Pilot was an electronic care management tool for CHWs to track families' assessment results, track their interactions with families, remind them to follow up with families and conduct other activities, and collect related data. In addition, such a tool could also support data collection around the challenges identified by families in adopting positive oral health behaviors and other metrics. This could then help inform policies and strategies

geared toward improving children's oral health.

Urge Local Oral Health Programs, Starting with Those in Riverside and San Bernardino Counties, to Adopt Such a Tool

The activities associated with the ECOHA tool mirror many of the objectives of many local oral health plans. For example, both Riverside and San Bernardino counites' oral health plans include objectives around increasing access to preventive services, oral health education, and care coordination as well as providing these services in community sites, early childhood education sites, schools, and WIC offices. These plans also include supporting the community-based workforce in delivering preventative oral health services and integrating oral health into medical and social support services that families seek. The ECOHA tool and its associated community-based workforce can help these and other counties meet their oral health goals for families.

Invest in Continuous Learning and Improvement

As new ways to help families improve their oral health are identified and as technology evolves, we need to ensure the tool remains relevant in effectively facilitating oral health assessments, education, and connections to dental homes. Therefore, it is critical to create a process to continually assess the content of the tool, the technology components of the tool, and how it is being used. Moreover, this process, including recommendations for change, should center on feedback from families and the community-based workforce as they know best what works well in the field.

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[4] DataUSA: Riverside County https://datausa.io/profile/geo/riverside-county-ca#demographics; DataUSA: San Bernardino County https://datausa.io/profile/geo/san-bernardino-county-ca#demographics

Next Steps

As of publication, we are in the midst of the COVID-19 pandemic. While reaching low-income children and families of color in community settings has always been an ideal strategy in helping families get the culturally and linguistically appropriate services they need, evolving public health guidance and protocols may limit access to in-person dental services. It is important to ensure that children and families—especially those in the communities of color disproportionately impacted by COVID-19—maintain good oral health to prevent dental disease and emergencies now and in the future. Policymakers, community leaders, and other decisionmakers should build on the lessons from the ECOHA Pilot to leverage technology and adopt community-based solutions to advance oral health equity for low-income children and children of color in California.