Medi-Cal 2020 Waiver Evaluation
Evaluation Plan for the Dental Transformation Initiative

I. Introduction

Within the Medi-Cal 2020 Waiver, the Dental Transformation Initiative (DTI) represents a critical strategy to improve dental health for eligible Medi-Cal children by focusing on high-value care, improved access, and utilization of performance measures to drive delivery system reform. More specifically, this initiative aims to increase the number of children receiving preventive dental services, prevent and treat more early childhood caries, and increase continuity of care for children, within the waiver's five program years from January 1, 2016 through December 31, 2020. In addition, to help accomplish these aims the Department of Health Care Services (DHCS) is also undertaking efforts to increase the number of Medi-Cal dental providers, and is engaging with stakeholders, Safety Net Clinics, Fee-For-Service providers and Dental Managed Care Plans and providers. Given the importance of oral health to the overall health of an individual, California views improvements in dental care as critical to achieving better health outcomes overall for Medi-Cal children.

The DTI covers four Domains:

Domain 1: Increase Preventive Services Utilization
This domain aims to increase preventive dental service utilization among children ages 1 through 20 by ten percentage points over the five-year duration of DTI (two percentage points per program year), through incentive payments made to providers in addition to reimbursement under the DHCS Dental Schedule of Maximum Allowances (SMA) for provider payments. Utilization is defined as the percent of eligible beneficiaries who receive preventive dental services. An increased number of beneficiaries receiving preventive services, rather than an increase in the total preventive services provided demonstrates increased utilization.

Incentive payments are made to providers based on whether the service office location meets or exceeds State-predetermined goals for the number of beneficiaries to receive any preventive service. Service office locations are eligible to earn full incentive payments of 75 percent of the SMA when meeting a benchmark that represents a 2-percentage point increase in beneficiaries receiving preventive services, or partial incentive payments at 37.5 percent of the SMA reflecting achievement of a 1 to 1.99 percentage point increase in beneficiaries receiving preventive services. The incentive payment of 75 percent of SMA for the 11 eligible preventive services varies from $3.00 to $86.25.

Because dental providers have up to 12 months from the date of service to submit claims and the waiver requires the most recent year of complete data, DHCS uses calendar year 2014 (January 1, 2014 to December 31, 2014) preventive services utilization by beneficiaries with at least 90 continuous days eligibility as the baseline for Domain 1. A benchmark is calculated based on the number of beneficiaries who visited a service office location in the baseline year plus a two percent increase in each

program year. The benchmark for a new service office location, without 2014 baseline claims data, is a two percent increase above the average number of beneficiaries who visited existing service office locations in the same county.

Domain 2: Caries Risk Assessment and Disease Management Pilot

Under this four-year domain, dental providers in selected pilot counties will be eligible to receive incentive payments for performing pre-defined caries risk assessments (CRAs), developing treatment plans, and providing nutritional and motivational counseling for Medi-Cal children ages 6 and under based upon the child's risk. This domain seeks to prevent and mitigate oral disease through the delivery of preventive services in lieu of more invasive and costly procedures (restorative services). Claims data and number of beneficiaries with no more than a one-month gap of eligibility for State Fiscal Year (SFY) 2013-2014 and SFY 2014-2015 were collected and analyzed to select pilot counties and project the fiscal impact of this domain. Pilot counties were selected by the department through an analysis identifying counties with a high percentage of restorative services, a low percentage of preventive services, and an indication of likely participation by enrolled service office locations. Instead of having a baseline year, Domain 2 uses a control group to determine the effectiveness of CRA and treatments. The control group is defined in paragraphs below.

Aim one of this domain is to decrease caries risk levels among CRA utilized children from the pilot counties over the four years of domain 2 implementation. This goal is based on a research article (Ng, 2014) which showed 28 percent lower rates of new cavitation lesions compared to baseline historical controls over two and half years in seven participating hospitals. DHCS proposes a goal of 20 percent of the CRA utilized children age six and under from the pilot counties will have lowered their level of caries risk.

Aim two is to decrease the number of emergency room (ER) visits for dental related reasons, excluding dental trauma, among the targeted children for this domain. The goal is based on the same research article (Ng, 2014) which showed pain related to untreated decay compared to baseline historical controls, which had 27 percent improvement over two and a half years in the seven participating hospitals. DHCS proposes a goal of a 20 percent decrease in ER visits among CRA utilized children age six and under from the pilot counties compared to the control group – Medi-Cal beneficiaries with same age group, caries risk levels and counties of residency who do not receive CRA treatment.

Aim three is to decrease the number of children receiving dental surgery under general anesthesia (GA). The goal is based on the same research article (Ng, 2014) which showed the referrals for restorative treatment under GA in the operating room had 36 percent improvement over two and half years in the seven participating hospitals, compared to baseline historical controls. DHCS proposes a goal of a 20 percent decrease in use of GA among CRA utilized children ages six and under from the pilot counties compared to the control group mentioned above.

The CRA reimbursement amount is $126.00, which includes procedure codes D0601, D0602, and D0603 - Caries risk assessment – Low, Moderate, and High respectively, D1310 - Nutritional counseling and D9993 - Motivational interview. Provider frequency limitations allow low risk beneficiaries to receive a CRA every six months, moderate risk beneficiaries to receive a CRA every four months, and high risk beneficiaries to receive a CRA every three months. The CRA reimbursement amount for D1354-Interim caries arresting medication is $35.00 for high risk beneficiaries every six months. Cost-benefit ratios, also known as costs per capita based on the Medi-Cal 2020 Special Terms and Conditions (STCs), are $252.00 for low risk, $441.00 for moderate risk and $700.00 for high risk beneficiaries.

Domain 3: Continuity of Care

This domain seeks to increase continuity of care for the targeted population over 2, 3, 4, 5, and 6 continuous year periods by making available incentive payments to dental service office locations in selected pilot counties who have maintained continuity of care through providing recall examinations to their enrolled Medi-Cal children ages 20 and under. Continuity of care means the targeted population re-visits the same dental service office locations over two, three, four, five, and six continuous years over the domain demonstration period (January 1, 2016 through December 31, 2020). The goal of Domain 3 is to improve the continuity of care for targeted children in participating counties, through annual examinations (D0120, D0150, or D0145) with their established dental provider, with a goal of at least a 5 percentage point improvement over the course of the domain years. The baseline period for Domain 3 is calendar year 2015.

Incentive payments are calculated for each beneficiary by year(s) of continuity of care, on a tiered schedule, based on the number of years a service office location maintains continuity of care with the same beneficiary. The incentive payment by beneficiary by continuity of care in tier year 1 is $40.00 per person, in tier year 2 is $50.00 per person, in tier year 3 is $60.00 per person, in tier year 4 is $70.00 per person and in tier year 5 is $80.00 per person.

The calculation of two-year continuity of care is same as the performance metrics defined in the STCs. The numerator is the number of children age twenty and under who received an examination from the same service office location with no gap in service for two continuous years. The denominator is the number of children age twenty and under enrolled in the delivery system during the measurement periods. To be consistent with Domain 1 and 2, the baseline year continuity of care is calculated by children age twenty and under received an examination from the same service office location in both calendar year 2014 and 2015.

Domain 4: Local Dental Pilot Programs (LDPPs)

Local Dental Pilot Projects (LDPPs) will address the above-described domains through pilot programs aimed at increasing preventive services, CRAs and disease management and continuity of care through alternative programs and potentially use of

strategies focused on rural areas, including local case management initiatives and education partnerships. The LDPPs are not to be duplicative of the efforts undertaken by DHCS in the aforementioned domains.
DHCS intends to make incentive payments to pilots that target an identified population of Medi-Cal eligible children and are deemed appropriate to fulfill specific strategies linked to one (1) or more of the domains delineated above. The specific strategies, target populations, payment methodologies, and participating entities are to be proposed by the entity submitting the application for participation and included in the submission to DHCS. Each LDPP application designates a "lead entity" that is a county, Tribe, Indian Health Program, UC or CSU campus and will coordinate the LDPP and be the single point of contact for DHCS and the Centers for Medicare and Medicaid Services (CMS). Each LDPP shall identify the lead and participating entities, target populations, collaboration plans, services and care coordination, pilot project innovations, interventions and/or strategies, data sharing, monitoring and reporting, financing structure, funding request, and budget for the LDPP.

The approved 15 LDPPs are as follows:

- Alameda County
- California Rural Indian Health Board, Inc.
- California State University, Los Angeles
- First 5 Kern
- First 5 San Joaquin
- First 5 Riverside
- Fresno County
- Humboldt County
- Northern Valley Sierra Consortium
- Orange County
- Sacramento County
- San Luis Obispo County
- San Francisco City and County Department of Public Health
- Sonoma County
- University of California, Los Angeles

II. Demonstration Goals and Objectives

The primary goal of the DTI is to improve dental health for eligible Medi-Cal children by focusing on high-value care, improved access, and utilization of performance measures to drive delivery system reform. More specifically, this initiative aims to increase the use of preventive dental services, prevent and treat more early childhood caries, and increase continuity of care for children. The evaluation will examine progress toward each of these goals.

The aim of the evaluation is to determine the causal impacts of the DTI Demonstration on how incentive payments influence:

- The utilization of preventive services amongst Medi-Cal children ages 1 through 20, with the goal of increasing utilization rates by at least 10 percentage points over a five-year period. (Domain 1 & Domain 4)
- Provider participation in a program to treat early childhood caries with the following goals to be achieved:
    1. A 20 percent decrease in CRA risk level among CRA utilized children age six and under from the pilot counties compared to the control group – Medi-Cal beneficiaries with same age group, caries risk levels and counties of residency who do not receive CRA treatment.
    2. A 20 percent decrease in use of ER visits among CRA utilized children age six and under from the pilot counties compared to the control group – Medi-Cal beneficiaries with same age group, caries risk levels and counties of residency who does not receive CRA treatment.
    3. A 20 percent decrease in use of GA among CRA utilized children ages six and under from the pilot counties compared to the control group mentioned above.

- The continuity of care for targeted children age twenty and under in participating counties, through annual examinations with their established dental provider, with a goal of at least a 5 percentage point improvement in two-year continuity of care over the demonstration period. (Domain 3 & Domain 4)

A. Research Questions and Hypotheses

Evaluation questions and related hypotheses are as follows:

Domain 1 & 4:

- Question: Will the payment incentives lead to higher utilization rates for preventive services?
- Hypothesis: The participating service office locations will increase the number of Medi-Cal children to whom they provide preventive dental services by at least ten percentage points over a five-year period.

- Question: Will incentive payments lead to an increase in Medi-Cal provider participation?
- Hypothesis: At least a five percent increase in the number of providers will be motivated to enroll as Medi-Cal providers within five years as a result of the availability of incentive payments.

- Question: Will an increase in the number of providers participating in Medi-Cal lead to an increase in the number of children receiving preventive dental services?

- Hypothesis: To the extent that provider incentive payments are an effective method of increasing provider participation in Medi-Cal, an increase in the number of providers will result in an increase in the number of children receiving preventive dental services by 10 percentage points over a five-year period.

Domain 2 & 4:

- Question: Do provider incentive payments lead providers to perform CRA for the targeted population?
- Hypothesis: Provider incentive payments are effective in encouraging providers to perform CRA for the targeted population.

- Question: Do provider incentive payments lead providers to ensure completion of appropriate treatment modalities for the management of early childhood caries?
- Hypothesis: Provider incentive payments ensure completion of appropriate treatment modalities for the management of early childhood caries by requesting a bundle submission of CRA procedures in one claim to receive incentive payments. This will result in a 20 percent of children ages six and under from the pilot counties to reduce their level of caries risk by the end of the demonstration of Domain 2.

- Question: Does adhering to DTI demonstration protocols lead to a decline in the number of ER services for non-traumatic dental emergencies for children ages six and under in Domain 2 pilot counties?
- Hypothesis: The number of ER services for non-traumatic dental emergencies among the CRA utilized beneficiaries will be lower than the control group by 20 percent.

- Question: Does adhering to DTI demonstration protocols lead to a decline in the use of dental related GA for children ages six and under in Domain 2 pilot counties?
- Hypothesis: The use of dental related GA among the CRA utilized beneficiaries will be lower than the control group by 20 percent.

Domain 3 & 4:

- Question: Are incentive payments effective in promoting continuity of care for targeted children?
- Hypothesis: Incentive payments are an effective method of promoting continuity of care for targeted children in participating counties and will achieve at least a 5 percentage point improvement in two-year continuity of care, over the demonstration period.

Domain 1, 2, 3, & 4:

- Question: Will the provider incentive payments for preventive services and continuity of care have a more favorable cost benefit ratio than that of CRA?

- Hypothesis: The provider incentive payments for preventive services and continuity of care provide a more favorable cost benefit ratio than that of CRA. Cost benefit ratio is measured as cost per capita, meaning the amount of incentive payments divided by number of beneficiaries who contributed to the payment of a year.

B. Evaluation Design and Approach

Determination of the best approach to evaluate the causal effects of the DTI demonstration is challenging. When considering alternative evaluation designs, the implementation of some DTI Domains in select counties versus statewide, uncertainty regarding participation of dental providers and variation among strategies implemented among LDPP awardees must be taken into account. All dental providers in a select county and/or LDPPs may not be ready to participate in the Domains immediately. It is likely that Domain implementation will not be tightly tied to stated implementation dates. As a result, the start dates used in data collection or analyses will in some instances be based on an individual dental provider's implementation start dates, rather than California's stated implementation dates.

The proposed evaluation will use an interrupted time series design that, under a multiple baseline design, allows implementation of the respective Domains at multiple points staggered over time with a hypothetical outcome of measurement of treatment access or quality of care. Changes in outcomes following Domain implementation, coupled with the absence of changes in other counties that were not selected for the Domain may suggest that the change observed resulted from the implementation of the demonstration. A multiple baseline design can be used to study the changes created by the demonstration.

To determine whether incentive payments have been effective in meeting the goals of the DTI demonstration, the evaluation will examine the availability of services along the full continuum of dental care, dental services provided to eligible Medi-Cal children and target populations, performance metrics for each of the Domains and any health care cost offsets resulting from appropriate use of dental services using a logic model.

To determine the cost benefits of the DTI, a cost-benefit analysis of the DTI and each of the Domains, as well as any health care cost offset resulting from the appropriate use of dental services, will be conducted.

C. Performance Measures

Domain 1 & 4

The baseline year will consist of data from the most recent complete year preceding implementation of the waiver. The metrics that will be used for monitoring domain success are:

1. Percentage of beneficiaries who received any preventive dental service during the measurement period, which is calculated as follows:

Numerator: Number of unduplicated children ages one (1) through twenty (20) enrolled in Medi-Cal for at least ninety (90) continuous days who received any Medi-Cal covered preventive dental service (D1000-D1999) in the measurement period.

Denominator: Number of unduplicated children ages one (1) through twenty (20) enrolled in Medi-Cal for at least ninety (90) continuous days during the measurement period.

2. Claims data to determine the number of service office locations in each county that are providing preventive dental services to children, compared to number of these locations in the baseline year.

3. Statewide, the number and percentage change of Medicaid participating dentists providing preventive dental services to at least ten (10) Medicaid-enrolled children in the baseline year, and in each subsequent measurement year.

A preliminary report will be delivered only to CMS for internal review six (6) months following the end of the applicable DY. An updated report will be delivered to CMS and published publicly twelve (12) months following the end of the applicable DY

Domain 2 & 4

The Department will collect data and report on the following performance measures:

1. Number of, and percentage change in, restorative services;

2. Number of, and percentage change in, preventive dental services;

3. Utilization of CRA CDT codes and reduction of caries risk levels (not available in the baseline year prior to the Waiver implementation);

4. Change in use of emergency rooms for dental related reasons among the targeted children for this domain; and

5. Change in number and proportion of children receiving dental surgery under general anesthesia.

The Department will also track and report on, for children in age ranges under one, one through two, three through four, and five through six, the utilization rates for restorative procedures (D2000-D2999) and all dental treatment procedures (D2000-D9999) vs preventive services (D1000-D1999) to determine if the domain has been effective in reducing the number of restorations and other dental treatments being performed.

To measure the goals of this domain, ICD codes for non-traumatic ER, dental procedure codes for GA and oral surgery will also be collected and analyzed to give a more complete picture of the services and make it helpful to evaluate the effect of the intervention.

Because preventive services do not yield immediate effects, the Department will be required to collect data on these performance measures at annual intervals for many years to determine correlation and statistical significance.

The Department will also track and report on the utilization of CRA and treatment plan service to monitor utilization and domain participation.

A preliminary report will be delivered only to CMS for internal review six (6) months following the end of the applicable DY. An updated report will be delivered to CMS and published publicly twelve (12) months following the end of the applicable DY.

Domain 3 & 4

The baseline year will be based on data from the most recent complete state fiscal year.

Using claims data, DHCS will determine the number of beneficiaries who have remained with their same service office location for two (2), three (3), four (4), five (5), and six (6) year continuous periods following the establishment of the baseline year throughout the demonstration period. This will be calculated as follows:

Numerator: Number of children age twenty (20) and under who received an examination from the same service office location with no gap of calendar year in service for two (2), three (3), four (4), five (5), and six (6) year continuous periods. A recall visit must take place within the second calendar year no matter the number of months between the two visits in two calendar years. For example, if a beneficiary first visited a dental service office location in January 2015 and then visited the same location for the second time in December 2016, the location who treated this beneficiary will still receive a unit of incentive payment due to this beneficiary’s return in 2016.

Denominator: Number of children age twenty (20) and under enrolled in the delivery system during the measurement periods.

This measure is similar to the Dental Quality Alliance measure Usual Source of Services, with the exception that the Department would incent over a longer continuous period.

A preliminary report will be delivered only to CMS for internal review six (6) months following the end of the applicable DY. An updated report will be delivered to CMS and published publicly twelve (12) months following the end of the applicable DY.

Domain 4

DHCS intends to review, approve, and make incentive payments available to pilots that target an identified population of Medi-Cal eligible child beneficiaries in accordance with the requirements established by the Department and deemed appropriate to fulfill specific strategies linked to one (1) or more of the domains delineated above. The specific strategies, target populations, payment methodologies, and participating entities shall be proposed by the entity submitting the application for participation and included in the submission to the Department. DHCS shall approve only those applications that meet the requirements to further the goals of one (1) or more of the three (3) dental domains. Each pilot application shall designate a responsible county who will coordinate the pilot. DHCS reserves the right to suspend or terminate a pilot at any time if the enumerated goals are not met, corrective action has been imposed, and/or poor performance continues.

A preliminary report will be delivered only to CMS for internal review six (6) months following the end of the applicable DYPY. An updated report will be delivered to CMS and published publicly twelve (12) months following the end of the applicable DYPY.

D. Data Collection ([or Data Sources] by performance measure)

The data sources included in this section are described in greater detail in the Appendix 1.

1. **Administrative Data Sources**

a. Medi-Cal Eligibility Data System (MEDS): MEDS contains data on all Medi-Cal beneficiaries statewide, including demographic information and residential addresses.
b. Medi-Cal Claims and Encounter Data (DHCS data warehouse): The DHCS data warehouse, known as the Medi-Cal Management Information System/Decision Support System (MIS/DSS) contains data for Medicaid claims, which provides

identifying information on Medi-Cal eligible beneficiaries that can be linked to other datasets.

c. Medi-Cal Provider Master File (PMF): The PMF contains data for enrolled Medi-Cal dental providers and safety net clinic providers, including service office locations, pay-to addresses and delivery system details.
d. Surveillance Utilization Review System (SURS): Suspicious claim activity is tracked through SURS to prevent fraud, waste, and abuse.

In addition to the above datasets, data from any other dataset that may become available during the evaluation will be assessed to determine whether the data would add substantially to the planned analyses. If so, these datasets will be incorporated into the evaluation to the extent possible.

2. New Data Collection Activities

a. Stakeholder Surveys: Stakeholder surveys will address multiple needs. For example, Medi-Cal beneficiary and dental provider surveys may include questions on access to care, quality of care, and/or whether provider incentive payments are an effective method to encourage service office locations to provide preventive dental services and continuity of care to more Medi-Cal children or enroll as a Medi-Cal dental provider.
b. Chart Review: Beneficiary dental records at dental provider service office locations may be reviewed to inform evaluation activities.
c. Document Review: The evaluation may consider other relevant data points such as enrollment data, provider audits or grievance reports, in order to inform evaluation activities. These activities will complement but not duplicate planned review processes, which are intended to ensure that baseline requirements from the STCs are met.

III. Data Analysis Strategy (including discussion of challenges and proposed solutions)

The proposed strategy can be divided into three broad areas: Access, Quality, and Cost. The measures proposed for each of the areas are described below.

A. Access Measures

Hypotheses:

1. Provider incentive payments are an effective method to encourage dental service office locations to provide preventive dental services to targeted Medi-Cal children. Progress will be measured across all Domains by conducting a comparative analysis of the before and after utilization measures. This will entail the measurement of provider participation figures for actual number of providers, as well as number of claims received in the fee for service and managed care delivery systems. Utilization will also be measured by age stratifications consistent with CMS 416 methodology to gauge the extent of success within each Domain. Comparative analysis for proximate counties prior to the

demonstration with similar population and/or utilization that were not selected for participation will be conducted and as provided in Appendix 1, Evaluation Methodology Models.

2. Provider incentive payments are an effective method for increasing Medi-Cal provider participation, which could improve access to care for children. Progress will be measured across all Domains by conducting a comparative analysis of the before and after utilization measures. This will entail the measurement of provider participation figures for actual number of providers, as well as number of claims received in the fee for service and managed care delivery systems. Utilization will also be measured by age stratifications consistent with the CMS 416 methodology to gauge the extent of success within each Domain. Comparative analysis for proximate counties prior to the demonstration with similar population and/or utilization that were not selected for participation will be conducted and as provided in Appendix 1, Evaluation Methodology Models.
3. Provider incentive payments are effective in encouraging providers to perform CRA for the targeted population. Progress will be measured by comparing the utilization trends for CRA treatment plan and assessments by the CDTs within this domain. As CRA is not a covered benefit statewide, there are specific challenges imposed in this Domain as there is not a control county in which to compare. Rather, a study of the progress through all counties will be conducted.
4. Conducting CRA and initiation of treatment planning yields earlier diagnosis of caries and dental disease in children. Early diagnosis can reduce a child's risk level in the future years and lead to increased compliance with the caries management plan over the time. Progress will be measured by conducting a comparative analysis by distinguishing the CDTs that are utilized within this Domain and assessing whether the risk level associated with the child also affects the provider's ability to complete the CRA treatment plan and assessments. As CRA is not a covered benefit statewide, there are specific challenges imposed in this Domain as there is not a control county in which to compare. Rather, a study of the progress through all counties will be conducted. Stratifications consistent with the CMS 416 methodology will be utilized.
5. Utilization of emergency room visits for dental issues among the Domain 2 participating beneficiaries will decline. Utilization of emergency room visits will be measured across all of the pilot counties for Domain 2 and compared against counties similarly situated and in close geographic proximity to assess if the number of emergency room visits declines. Further analysis will also be performed to trend if counties in which there is a higher rate of completion of appropriate treatment for the management of childhood caries affects the ratio of restorative to preventive services as well as has a residual effect resulting in the decline of emergency room services. Comparative analysis Statewide will be conducted and as provided in Appendix 1, Evaluation Methodology Models.
6. Utilization and expenditures for dental related general anesthesia for target children will decline. Utilization of general anesthesia will be measured across all of the pilot counties for Domain 2 and compared against similarly situated and in close geographic proximity to assess if the number of general anesthesia

declines. Further analysis will also be performed to trend if counties in which there is a higher rate of completion of appropriate treatment for the management of childhood caries affects the ratio or restorative to preventive services and if there is a residual effect resulting in the decline of emergency room services. Comparative analysis Statewide will be conducted and as provided in Appendix 1, Evaluation Methodology Models.

7. Provider incentive payments are an effective method of promoting continuity of care for targeted children. Progress will be measured across all Domains by conducting a comparative analysis of the before and after percentage measures in a year by year comparison for continuity of care. This will entail the measurement of total number beneficiaries in comparison to the number of beneficiaries that continued to see the same provider on an annual basis. Utilization will also be measured by age stratifications consistent with the CMS 416 methodology to gauge the extent of success within this Domain. Comparative analysis for proximate counties prior to the demonstration with similar population and/or utilization that were not selected for participation will be conducted. Comparative analysis for proximate counties prior to the demonstration with similar population and/or utilization that were not selected for participation will be conducted and as provided in Appendix 1, Evaluation Methodology Models.
8. Promising practices will be identified with the implementation of CRA and disease management and LDPPs. Comparative analysis for proximate counties prior to the demonstration with similar population and/or utilization that were not selected for participation will be conducted and as provided in Appendix 1, Evaluation Methodology Models.

Access will be evaluated using the following measures:

- Provider enrollment, beneficiary eligibility, encounter data, and claims data will be used to evaluate access to preventive services, continuity of care, emergency services, general anesthesia utilization, and provider enrollment for periods prior to the implementation of the demonstration pilots and subsequent to implementation of the pilots.
- Claims data will be analyzed to examine changes in access and whether the frequency of preventive services, CRA and treatment, and continuity of care have increased, remained the same, or decreased for the target populations. Claims data will be examined to determine changes in utilization of emergency room visits for dental services and utilization for dental related general anesthesia utilization to determine whether emergency room visits for dental services or utilization of dental related general anesthesia have declined, remained the same, or increased for the target populations.
- Medi-Cal beneficiary and dental provider surveys regarding access to care will be used to measure perceptions of access to care.

B. Quality Measures

Hypothesis:

1. Promising practices will be identified with the implementation of CRA and disease management and LDPPs. Progress will be measured by conducting a comparative analysis by distinguishing the CDTs that are utilized within this Domain and assessing whether the risk level associated with the child also affects the provider's ability to complete the CRA treatment plan and assessments, and assessing if the increased number of CRAs has a correlation to the improvement of care by decreasing new cavitation, pain, and operating room referrals within the targeted population.

Quality will be evaluated using the following measures:

- The team will analyze the information collected through data analysis, interviews, trending program costs, utilization, and document review.
- Qualitative research will be conducted where key stakeholders (providers, administrators, beneficiaries) will go through different levels of surveys and interviews across all four domains. Interviews will target evaluation questions focused on implementation processes, incentives, effectiveness of the programs/pilots, improvement opportunities, and sustainability.
- Surveys and interviews the evaluator plans to conduct include:
    - A web-based survey of a statewide sample of Medi-Cal dental providers that can support descriptive and impact analyses. The intent is a sample of 1,403 practices stratified by domain, with oversampling of Domain 2 and 3 practices. All providers would get questions relevant to Domain 1, with additional sections for questions relevant to Domains 2 and 3.
    - A computer-assisted telephone interview survey with a sample of Medi-Cal beneficiaries in Domain 2 and 3 counties to learn about their experiences with different aspects of the demonstration and their views on dental care. The intent is a sample size of 1,754 beneficiaries stratified by domain. We will compare beneficiaries served by Domain 2 opt-in providers versus others served by providers who do not opt in.
    - In-depth qualitative telephone interviews with (1) a sample of dental providers in Domain 2 and 3 counties about their experiences and perceptions, and (2) state officials, provider associations, and other stakeholders about contextual and other factors influencing the implementation and outcomes of the DTI. The work consists of approximately 60 telephone interviews for at least two rounds with the following types of informants (number of each in parentheses): MCOs (3), safety net clinics (3 clinics each in four Domain 2 and four Domain 3 counties, for a total of 24 clinics), and other providers (3 providers each in four Domain 2 and four Domain 3 counties1 for total of 24 providers) and state officials, provider associations, and other stakeholders (9).
- Benchmarks will be set initially and the quality measures will be trended periodically to assess the progress of the programs/pilots within each domain.
- Provider enrollment, beneficiary eligibility and claims data will be used to evaluate preventive services, continuity of care, emergency services, general

anesthesia, and provider enrollment for periods prior to the implementation of the demonstration project and subsequent to implementation of the pilots.
- Medi-Cal beneficiary and dental provider surveys will be used to measure perceptions of quality of care.
- Grievance reports and provider audits will be leveraged to track the type of concerns received by beneficiaries and providers.

C. Cost Measures

Hypotheses:

1. Utilization of emergency room visits for dental issues among the targeted children in Domain 2 will decline.
2. Utilization and expenditures for dental related general anesthesia utilization for target children in Domain 2 will decline.
3. The provider incentive payments for preventive services and continuity of care provide a more favorable cost benefit ratio than that of CRA. The cost benefit ratio is defined above

Costs will be evaluated using Medi-Cal claims data and the actual dollar amounts paid for dental services and DTI incentive payments for calendar time periods pre and post implementation on a quarterly basis. The following measures will be examined:

- Change in overall average costs for Medi-Cal children who receive preventive services, CRA and disease management, and/or continuity of care.
- Change in emergency room utilization for dental services among beneficiaries participating in Domain 2 to assess if there is a decrease in the cost of emergency room utilization based on increased utilization of preventive care services.
- Change in utilization and expenditures for dental related general anesthesia utilization among beneficiaries participating in Domain 2.
- Change in preventive services utilization and costs.
- Differences in costs among Medi-Cal children that received DTI services and beneficiaries that did not, analyzed to the extent possible by geographic location, delivery system, and type of service.

IV. Analysis Plan

A. Statistical Data Analysis

Administrative data and survey data will be collected and analyzed across the State and different Domains, pre-implementation and throughout the demonstration years to account for implementation periods and comparisons among participating and non-participating Medi-Cal dental providers. A variety of models may be used to analyze DTI statistical data. These analyses will be used to assist DHCS in answering the stated research questions.

For annual longitudinal quantitative data, a generalized linear model will be used to identify changes over time. These mixed effects models are similar to a multivariate regression model. Mixed effects regression models can account for the correlation seen between years within the same county. For example, one county may implement a Domain quicker than another county, which will influence the next year's measurement within that county. Generalized linear models are helpful in accounting for differences at a county level, such as multiple delivery systems while other counties may not have these. An analogous set of analyses can be conducted using a logistic mixed model to account for binary outcomes over time.

Where data is sufficient, a multiple baseline approach may be applied to account for different implementation periods and comparisons between two county types, for example, looking at data pre-implementation, partial implementation when some counties have implemented a Domain and some have not, and post-implementation, using a separate mixed effects model for each piece of the data.

Multivariate regression models using indicator variables for opt-in status (e.g. Domain 2) along with other possible confounding factors may be used to control for differences based on characteristics such as Medi-Cal enrollment, age, or race. It is also possible to test for interactions between confounding variables and opt-in status and when looking at binary outcomes, it is possible to account for differences using logistic regression.

Data may be insufficient for the analysis models described. In these cases, repeated measure methods may be used to compare baseline to any specific later observation or composite of later observations.

For surveys of beneficiaries or dental providers, statistical significance is a consideration since surveys will be conducted on sample sizes. The number of surveys may be adjusted up or down based on resource availability and the numbers of beneficiaries or providers participating in a Domain will be critical to the ability to detect an effective size in estimating the pre-and-post change of a continuous outcome.

B. Qualitative Analysis

Data collected will be analyzed separately as well as across the Domains, different groups, and over time to identify themes and patterns. Detailed information will provide an understanding of experiences, which will be used to supplement and expand on the quantitative data sets to answer the research questions. A majority of the evaluation resources will be devoted to quantitative research, although qualitative research will also be used to put quantitative results in context. The evaluator will conduct a web-based survey of a statewide sample of Medi-Cal dental providers that can support descriptive and impact analyses; a computer-assisted telephone interview survey with a sample of Medi-Cal beneficiaries in Domain 2 and 3 counties to learn about their experiences with different aspects of the demonstration and their views on dental care; an in-depth qualitative telephone interviews with (1) a sample of dental providers in Domain 2 and 3 counties about their experiences and perceptions, and (2) state

officials, provider associations, and other stakeholders about contextual and other factors influencing the implementation and outcomes of the DTI; and site visits focused on samples of the Domain 4 LDPP demonstrations.

DHCS will contract with the evaluator to provide a multivariate analysis that employs appropriate comparisons and integrates administrative, survey, and qualitative data to assess the impact of DTI interventions on provider participation, service use, expenditures, continuity of care, and related outcomes. Among the assortment of tools available to the evaluator are NVivo and Atlas both which are used for coding and analysis of qualitative data. A synthesis of quarterly reports and domain-specific monitoring and performance data used by DHCS in operating the demonstration program will also be presented in demonstrate qualitative findings and analysis.

The evaluation work will be inclusive of results from both qualitative and quantitative data sets, consider how they contribute to answering the research questions in the relevant Domains, and examine whether and where the results from the data sets converge, complement, expand one another, and/or perhaps contradict one another.

V. Evaluation Implementation

A. Evaluation Timeline

California shall submit the draft Evaluation Plan for the DTI on September 19, 2016. CMS shall provide comments on the draft design and the draft evaluation strategy within 60 days of receipt, and California shall submit a final design within 60 days of receipt of CMS' comments. The state must implement the evaluation design, and describe progress relating to the evaluation design in each of the quarterly and annual progress reports.

The draft Evaluation Plan will be posted on the DHCS DTI webpage for stakeholder review and comment upon submission to CMS. Stakeholders will also be able to submit comments and questions regarding the draft via the DTI email box. The final design will include a summary of stakeholder comments and questions and a description of any changes made to the final design based upon stakeholder input.

Consistent with 42 CFR 431.424(d), the state must submit to CMS an interim evaluation report in conjunction with its request to extend the demonstration, or any portion thereof. California must submit to CMS a draft of the evaluation final report by December 31, 2021.

B. Independent Evaluator

California has identified an independent evaluator and is negotiating a contract to perform the DTI evaluation. A data use agreement will be included in the contract to allow for the sharing of data with and access to data by the independent entity for purposes of conducing the DTI evaluation. California's selection has no conflict of interest.

References

Ng, M. W. (2014, March 3). Disease Management of Early Childhood Caries: ECC Collaborative Project. *Internation Journal of Dentistry*, p. 10.