Identifying and Implementing Oral Health Quality Indicators for the Maternal and Child Health Population: 2018–2019 Report

Prepared by

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Dental Quality Alliance

National Maternal and Child Oral Health Resource Center

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Contents

PURPOSE

The Center for Oral Health Systems Integration and Improvement (COHSII) works with key stakeholders to improve systems of care[1] in support of a high-quality, person- and family-centered approach to address the oral health needs of the maternal and child health (MCH) population. COHSII is a consortium led by the National Maternal and Child Oral Health Resource Center (OHRC) at Georgetown University (GU) and is supported by a cooperative agreement from the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA). The goal of this 4-year project (2017-2021) is to address three goals: (1) provide technical assistance and training (TA/T) to Title V recipients, (2) establish a set of MCH oral health quality indicators of care, and (3) develop and disseminate oral health educational resources for health professionals working in, or with, Title V agencies. OHRC partners with the Dental Quality Alliance (DQA) and the Association of State and Territorial Dental Directors (ASTDD) in this consortium.

Specifically, DQA is assisting OHRC with goal 2 of the project (i.e., establish a set of MCH oral health quality indicators to monitor services delivered in public health programs and systems of care). Progress to date has included (see www.mchoralhealth.org/cohsii/quality.php):

- Establish and support a Quality Indicator Advisory Team (QIAT) to guide and inform the identification and use of MCH oral health quality indicators.
- Conduct an environmental scan of existing oral health quality indicators and concepts.
- Identify a set of MCH oral health quality indicators that can potentially be used in public health programs and systems of care.
- Develop a user guide with specifications for implementation.
- Pilot implementation of the set of MCH oral health quality indicators by Title V recipients.

[1] The "system of care" is a constellation of programs and services designed to improve the health of the population by increasing access to quality health services, strengthening the health workforce, building healthy communities, improving health equity, and strengthening program operations. Within this constellation lies the oral health care delivery system, a loosely organized network of private practices and the oral health safety net. The private practice community, primarily solo and small group practices, serves about two-thirds of the U.S. population, many of whom have commercial dental benefits or pay out-of-pocket. The remaining one-third is served by the oral health safety net, which includes private practitioners participating in Medicaid and the Children's Health Insurance Program (CHIP), and private or government–supported health care programs (e.g., tribally operated clinics, community health centers (CHCs), health department clinics, school-based health centers, mobile dental programs, clinics in dental schools and dental hygiene programs).

The purpose of goal 2 is to provide MCHB with a set of MCH oral health quality indicators to establish baseline levels of performance that can be used to inform and guide national, state, and local organizations in their efforts to measurably improve the oral health of the MCH population. Work toward achieving goal 2 was guided by the QIAT**.** Members of the team are listed in Appendix 1 and include national and state experts representing pediatric oral health, oral health and medical professional organizations, state MCH programs, state oral health programs, CHCs, and managed care organizations.

This report is the second in a series of reports that provides the results from the QIAT's efforts to date (see *Oral Health Quality Improvement for the Maternal and Child Health Population: Identifying a Set of Quality Indicators*). It includes identifying the quality indicators, developing a user guide with indicator technical specifications and implementation guidance, and identifying state MCH programs to pilot implementation of the indicators.

COHSII Year 1 Activities

Identifying a Framework for Oral Health Quality Performance Measurement and Improvement

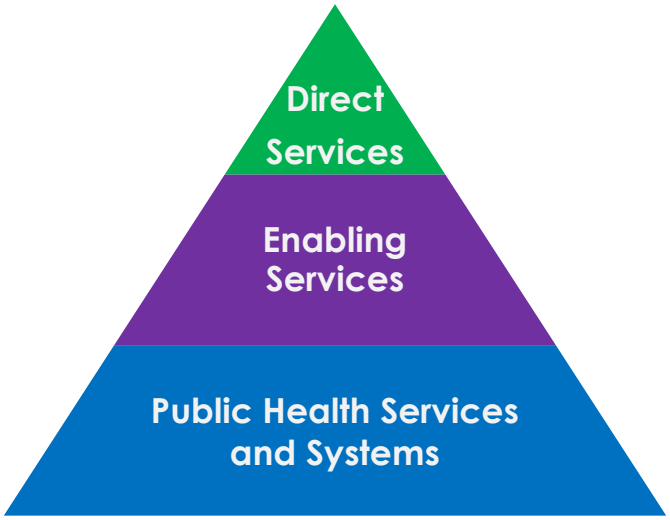
Development of a set of oral health quality indicators for the MCH population began with the identification of a framework to support an integrated multi-level approach to quality measurement and improvement. A framework for oral health quality performance measurement and improvement provides a model that specifies elements that can and should be measured and monitored to ensure a systematic process of improving quality of services. Clinical care is estimated to contribute as little as 10 to 20 percent to health outcomes.[2] Consequently, a framework for improving the health of the MCH population must take into account the significant impact of non-clinical factors, including social, economic, and environmental factors and health behaviors, on health outcomes.

A framework for oral health quality performance measurement and improvement can help align improvement efforts within the Department of Health and Human Services (HHS) agency and programs that serve the MCH population. Such a framework can also provide a structure for classifying and prioritizing quality indicators and for identifying measurement gaps. The QIAT developed a framework for goal 2 to encompass key elements of the MCH

[2] McGovern L, Miller G, Hughes-Cromwick P. 2014. *The Relative Contribution of Multiple Determinants to Health Outcomes*. Princeton, NJ: Robert Wood Johnson Foundation.

Pyramid of Services (Figure 1), which identifies three categories: direct services, enabling services, and public health services and systems.

Figure 1. MCH Pyramid of Services and Public Health Services for the MCH Population



MCHB defines these categories as follows:[3]

Direct Services—Direct services are preventive, primary, or specialty clinical services for pregnant women, children, and adolescents, including those with special health care needs.

Enabling Services—Enabling services are non-clinical services (i.e., not included as direct or public health services) that enable individuals to access health care and improve health outcomes. Enabling services include, but are not limited to, case management, care coordination, referrals, translation/interpretation services, transportation, eligibility assistance, health education for individuals or families, environmental health risk reduction, and outreach.

Public Health Services and Systems—Public health services and systems are activities and infrastructure to carry out the core public health functions of assessment, assurance, and policy development, and the 10 essential public health services. Examples include standards and guidelines development; needs assessment; program planning, implementation, and evaluation; policy development; quality assurance and improvement; work force development; and population-based disease-prevention and health-promotion campaigns.

The framework for oral health quality performance measurement and improvement developed by the QIAT identifies:

[3] Health Resources and Services Administration, Maternal and Child Health Bureau. N.d. *Glossary* [webpage]. Rockville, MD: Health Resources and Services Administration, Maternal and Child Health Bureau.

- Three categories of services: "systems" (programs or collections of elements or components organized for a common purpose), "community-based systems and supports," and "care" (services provided directly to individuals, generally in clinical settings).
- Five measurement domains adapted from the Donabedian model for measuring quality: access, utilization, structure, process, and outcomes.[4]
- Multiple quality performance constructs or elements within each category of service and measurement domain.

The framework for oral health quality performance measurement and improvement developed by the QIAT is depicted in Figure 2, with related definitions provided in Table 1.

Figure 2. Proposed Framework for Oral Health Quality Performance Measurement and Improvement

Domains	System	Community-Based Systems and Supports	Care
Access	Eligibility Provider availability	Transportation	Provider availability Appointment availability
Utilization	Use of services Site of care	Use of services Site of care	Scope of services Use of services Site of care
Structure	Leadership coordination Health information technology Transitions to adulthood	Facilitating service-delivery programs in community sites Health information technology Supportive environment in a medical-dental neighborhood based on needs	Leadership coordination Service-delivery partnerships in community sites Health information technology

[4] Donabedian A. 1966. Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly* 44(3) (Suppl):166-206. Reprinted as Donabedian A. 2005. Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly* 83(4):691-729.

Domains	System	Community-Based Systems and Supports	Care
	Provider training Scope of benefits Level of funding Policy linked with evidence Facilities and equipment		Provider training Coding
Process	Enrollment Person/family-centered care Population education Case management	Enrollment (outreach) Person/family-centered care Community needs assessment Case management	Enrollment (assistance) Person/family-centered care Culturally competent care Case management Evidence-based care Referral
Outcome	Health status (population) Patient-reported outcomes Health care system experience Health literacy	Health status (community) Patient-reported outcomes Health care system experience Health literacy	Health status (individual) Patient-reported outcomes Care experience Health literacy

Table 1. Quality/Performance Indicator Constructs/Element Definitions

Provider—Oral health providers and other health providers (e.g., physicians, nurses, nurse midwives, nurse practitioners, physician assistants) providing oral health services.
MCH Population—Women of reproductive age, pregnant women, infants, children, and adolescents, including those with special health care needs.

Construct	Definition
Domain: Access	
Eligibility	Clear policies and user-friendly tools to support eligibility verification and continuity of eligibility in private and public programs.[5]
Provider Availability	The availability of providers to ensure that benefits for beneficiaries are accessible without unreasonable travel or time delays.
Transportation	Accessible and affordable transportation services are available to connect patients to care sites.
Appointment Availability	Appointments are available during early morning, evening, and weekend hours in addition to typical business hours.
Scope of Services	Range of services provided to pregnant women and children of various ages.
Domain: Utilization	
Use of Services (indicator)	Provision and utilization of services by a group of individuals identified by enrollment in a health plan or through use of clinical services.[6]
Site of Care (indicator)	Timely care provided in an appropriate setting.
Domain: Structure	
Leadership Coordination	Program leaders work across programs in the state to optimize resources, services, and supports.
Service-Delivery Partnerships in Community Sites	Services are provided in community-based clinical settings and/or in conjunction with other organizations or programs.
Health Information Technology	Interoperable health records and data aggregation technologies (including between private and public programs) (e.g., registries) across multiple levels of the health care system are in place to support care coordination, care continuity, referral systems, and data sharing along with the ability to report quality indicators at each level of the health care system (e.g., dental sealants provided to children and adolescents enrolled in Medicaid in school-based programs should be accounted for). Providers should be able to access data on quality or performance indicators (e.g., via practice and/or systems dashboards).

[5] Definitions adapted from Association of Maternal and Child Health Programs. 2014. *Standards for Systems of Care for Children and Youth with Special Health Care Needs*.
[6] National Quality Measures Clearinghouse.

Construct	Definition
Case Management	A collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet a person's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes.[7]
Transitions to Adulthood	Adolescents receive services necessary to make transitions to all aspects of adult life, including adult health care, work, and independence (e.g., care for adolescent with special health care needs).[8]
Establishment of a Medical-Dental Neighborhood that Provides a Supportive Environment Based on Needs	The medical-dental neighborhood is a clinical-community partnership that provides the medical, dental, and social supports necessary to enhance health, with the patient-centered medical home coordinated with the patient-centered dental home, serving as the primary "hub" and coordinator of health care delivery.[9] The medical-dental neighborhood is composed of a patient-centered medical home (PCMH), coordinated with a patient-centered dental home (PCDH), and the constellation of other clinicians providing health care services to patients within it, along with community and social service organizations and state and local public health agencies. The PCMH, the PCDH, and the surrounding medical-dental neighborhood can focus on meeting the needs of patients but can also incorporate aspects of the health needs of the population and overall community in its objectives.[10]
Provider Training	Clinical providers and non-clinical team members receive training that incorporates evidence-based guidelines, integration of oral health care and primary health care, caring for diverse populations, and quality-improvement principles and methodologies.
Scope of Benefits	Coverage of services based on nationally recognized guidelines, recommendations, and regulations (e.g., Bright Futures; Early and Periodic Screening, Diagnostic, and Treatment [EPSDT]; U.S. Preventive Services Task Force) for oral disease prevention and oral health promotion.

[7] Case Management Society of America. 2018. *What Is a Case Manager* [webpage].

[8] Adapted from Association of Maternal and Child Health Programs. 2014. *Standards for Systems of Care for Children and Youth with Special Health Care Needs*. Washington, DC: Association of Maternal and Child Health Program.

[9] Adapted from Patient-Centered Primary Care Collaborative. 2018. *Medical Neighborhood* [webpage].

[10] Adapted from Taylor EF, Lake T, Nysenbaum J, Peterson G, Meyers D. 2011. *Coordinating Care in the Medical Neighborhood: Critical Components and Available Mechanisms—White Paper*. Rockville, MD: Agency for Healthcare Research and Quality.

Construct	Definition
Level of Funding	Adequate funding and appropriate reimbursement policies are established based upon actuarially sound methodologies.
Policy Linked with Evidence	Effective, evidence-based policies are in place that support the provision of oral health care services for improving oral health for pregnant women and children.
Facilities and Equipment	Availability of health care facilities (e.g., hospitals, emergency departments, clinics, CHCs, medical offices, dental offices) and equipment (e.g., dental operatory, tele-dentistry equipment and technology to support a virtual dental home) that meet federal and state standards, along with state systems to monitor and certify quality and safety.
Domain: Process	
Enrollment	Mechanisms are established to support enrollment, including continuity of enrollment of pregnant women, infants, children, and adolescents, into private dental insurance coverage and public programs that provide oral health care coverage.
Person- /Family-Centered Care	The provision of care that is respectful of, and responsive to, person and/or family contextual elements, preferences, needs, and values and that ensures that the person's and/or family's values guide all clinical decisions.
Community Needs Assessment	Community-level data are used to identify major oral health needs within the community.
Culturally Competent Care	Care is delivered in a manner that meets the social, cultural, and linguistic needs of people[11] in a manner the person understands.
Case Management	A collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet a person's and family's comprehensive health needs through communication and available resources to promote high-quality, cost-effective outcomes.[5]
Evidence-Based Care	Oral health care is provided using the judicious integration of systematic assessments of clinically relevant scientific evidence (evidence-based guidelines, relating to the person's oral and medical condition and history, with the oral health provider's clinical expertise and the person's treatment needs and preferences).

[11] Betancourt JR, Green AR, Carrillo JE. 2002. *Cultural Competence in Health Care: Emerging Frameworks and Practical Approaches*. New York, NY: The Commonwealth Fund.

Construct	Definition
Referral	Pregnant women, infants, children, and adolescents receive appropriate referrals for recommended care.
Domain: Outcome	
Health Status	The health state of a person or change in health state resulting from health care.
Patient-Reported Outcomes	Any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response.
Care Experience	Experience when a person seeks and receives care, including elements such as ease or difficulty in getting appointments, accessing information, and communicating with health providers.
Health Literacy	The degree to which people have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.[12]

Identifying Existing Indicators Applicable to the MCH Population: Environmental Scan

The framework developed by the QIAT was used to guide the environmental scan. More than 2,000 indicators/concepts (before deduplication) and more than 200 articles (titles, abstracts, and full text, as appropriate) were scanned. Identified indicators/concepts were deduplicated and entered into an Excel spreadsheet with the following details included as available: title, description, denominator, numerator, population, age, indicator type (e.g., access, process, outcome), level (e.g., practice, plan, program), data source (e.g., claims, patient record, survey), availability of detailed specifications, current/prior use, source/steward, and framework domain. More than 400 indicators/concepts were included in the spreadsheet.

Using the results of the environmental scan and the framework as guides, the QIAT identified a preliminary list of indicator concepts for:

- Women of child-bearing age and pregnant women
- Infants, children, and adolescents from birth to age 21 (Hereafter, referred to as "children")

The QIAT engaged in an iterative process to arrive at this preliminary list. Consideration was given to "ideal" indicators that could drive meaningful improvements in quality conceptually, the attributes of the indicators themselves

[12] Office of Disease Prevention and Health Promotion. 2010. *Quick Guide for Health Literacy*. Rockville, MD: Office of Disease Prevention and Health Promotion.

(e.g., whether they were specified and tested for measurement reliability and validity), and implementation feasibility in the short and long terms. Twenty state dental directors provided feedback on the feasibility and importance of using a narrowed set of concepts.

COHSII Year 2 Activities

Building on the development of the environmental scan and the identification of an initial set of MCH indicators during the first year of the project, COHSII pursued the following activities during the second year of the project.

Dissemination of Initial Set of Quality Indicators

The environmental scan and the initial MCH core set were presented to multiple stakeholders, including the Health Resources and Services Administration (HRSA) and the Centers for Medicare & Medicaid Services' (CMS's) Oral Health Technical Advisory Group. Additionally, staff presented at the CMS Quality Conference in January 2019 and at the National Oral Health Conference in April 2019.

Identification and Recruitment of Pilot States

A pilot project overview was developed and shared with potential states (see *Piloting the Implementation of Quality Indicators to Improve the Oral Health of the Maternal and Child Health Population*). Pilot states were recruited from the pool of states that selected the Title V national performance measure for oral health. Each selected state has a team (hereafter referred to as a pilot team) consisting of a project lead designated by the MCH director, the oral health program director, and a Medicaid oral health contact. The team also includes partners with an information technology specialist, data analyst, and other state staff (e.g., epidemiologists, a representative from Medicaid managed care) based on the individual state's structure, make-up, and TA/T needs.

Five states were selected to pilot the initial set of MCH indicators: Georgia, Iowa, Illinois, Michigan, and Rhode Island. An introductory virtual meeting was held for all pilot teams to provide an overview of the project and introduce the project's technical advisors. COHSII has provided the pilot teams with ongoing TA/T.

Indicator Implementation Feasibility Assessment

To assess the pilot teams' ability to implement the initial set of oral health quality indicators, the QIAT developed a feasibility assessment and administered it to all of the teams. The assessment looked at each state's current oral health

improvement activities to determine how they may fit into the project. The assessment also looked at each state's ability to implement the indicators using the following data sources: the Pregnancy Risk Assessment Monitoring System (PRAMS), the Behavioral Risk Factor Surveillance System (BRFSS), Medicaid enrollment and claims data, the Basic Screening Survey (BSS), the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey, the National Survey of Children's Health (NSCH), CMS 416 data, Census Bureau data, and other data sources. Each pilot team completed the assessment with guidance from COHSII technical advisors, as needed. The assessment accurately predicted challenges the states would face during implementation.

Updated Set of Indicators for Near-Term Implementation

During the annual QIAT meeting, the pilot teams were invited to share their current program structure and the findings of their feasibility assessments, including data collection and analysis capabilities, access to data sources, and availability of resources needed to support implementation of the indicators. Based on this information, the QIAT assessed the viability and relevance of the initial indicators that were selected in Year 1. Selected indicators were then removed or added to better align with feedback provided by the pilot teams.

Changes in indicators for women of child bearing age and pregnant women

- Removed *percentage of pregnant women receiving oral health screening or information from medical primary care providers* (state-specific PRAMS question not in wide use)
- Removed *percentage of pregnant women who had a problem with their teeth or gums during pregnancy who received treatment for that problem* (standard [optional] PRAMS question not in wide use)
- Added *percentage of pregnant women who reported having their teeth cleaned by a dentist or dental hygienist during pregnancy* (PRAMS phase 8 core question and data source for the Title V national performance measure for oral health)

Changes in indicators for children

- Removed four access indicators deemed not feasible)
    - *Percentage of children eligible for Medicaid/CHIP who are enrolled in Medicaid/CHIP* (complexity)
    - *Percentage of children currently covered by health insurance or health coverage plan* (not dental specific)
    - *Percentage of children with consistent health insurance coverage during the past 12 months* (not dental specific)
    - *Access to dental care* (data source: Consumer Assessment of

Healthcare Providers and Systems [CAHPS]) (complexity, cost, currently no validated dental-CAHPS questions as part of CAHPS set of surveys targeted toward children and Medicaid beneficiaries)

- Added access indicator *dentists who actively participate in Medicaid per 1,000 EPSDT eligible enrolled children* (data source: Medicaid enrollment and claims)
- Expanded outcome indicators to include the kindergarten basic screening surveys for percentage of children with dental caries experience and percentage of children with urgent dental treatment need

The updated set of indicators was finalized and published. (See *Oral Health Quality Indicators for the Maternal and Child Health Population*.) The updated set includes the indicators that were identified as being both conceptually important within the framework's dimensions of quality of care and feasible for near-term implementation using comparable data and measurement methods. Although most of the indicators can be computed using existing data sources, the indicators have not been used consistently across the MCH population as part of an integrated and cohesive quality-measurement and -improvement strategy. To reduce disparities and promote equitable care across all constructs, it was recommended that the set of indicators be stratified by race, ethnicity, and socioeconomic status where data are available.

Updated Set of Indicators: Women of Child-Bearing Age and Pregnant Women

Summary

Access • Percentage of pregnant women reporting difficulty getting dental care (data source: PRAMS) • Percentage of pregnant women who had insurance to cover dental care during pregnancy (data source: PRAMS)
Utilization • Percentage of pregnant women who reported having their teeth cleaned by a dentist or dental hygienist during pregnancy (data source: PRAMS) • Percentage of women of child-bearing age (18–44 years) who report having a visit to a dentist or dental clinic in the past year (data source: BRFSS)
Outcome • Percentage of pregnant women reporting that they needed to see a dentist for a problem during pregnancy (data source: PRAMS)

Access	
Self-Reported Survey Indicators	
W.1. Percentage of pregnant women reporting difficulty getting dental care **Numerator:** Number indicating "yes" to any of the response options **Denominator:** Number responding to question; exclude unknowns and refusals **Survey item:** Did any of the following things make it hard for you to go to a dentist or dental clinic about the problem you had during *your most recent* pregnancy? For each item, check No if it was not something that made it hard for you or Yes if it was. o I could not find a dentist or dental clinic that would take pregnant patients o I could not find a dentist or dental clinic that would take Medicaid patients o I did not think it was safe to go to the dentist during pregnancy o I could not afford to go to the dentist or dental clinic	Data source: PRAMS Phase 8, Standard Question Y6
W.2. Percentage of pregnant women who had insurance to cover dental care during pregnancy **Numerator:** Number indicating "yes" to the response option: "I had insurance to cover dental care during my pregnancy"	Data source: PRAMS Phase 8, Standard Question Y7

Denominator: Number responding "yes" or "no" to standard question Y7, response option "I had insurance to cover dental care during my pregnancy"; exclude unknowns and refusals **Survey item:** This question is about the care of your teeth *during your most recent pregnancy*. For each item, check No if it is not true or does not apply to you or Yes if it is true. o I knew it was important to care for my teeth and gums during my pregnancy o A dental or other health care worker talked with me about how to care for my teeth and gums o I had my teeth cleaned by a dentist or dental hygienist o I had insurance to cover dental care during my pregnancy o I needed to see a dentist for a **problem** o I went to a dentist or dental clinic about a **problem**	
Utilization	
Self-Reported Survey Indicators	
W.3. Percentage of pregnant women who reported having their teeth cleaned by a dentist or dental hygienist during pregnancy **Numerator:** Number indicating "yes" to core question 17: "During your most recent pregnancy, did you have your teeth cleaned by a dentist or dental hygienist?" **Denominator:** Number responding "yes" or "no" to core question 17; exclude unknowns and refusals **Survey item:** During *your most recent* pregnancy, did you have your teeth cleaned by a dentist or dental hygienist? o No o Yes	Data source: PRAMS Phase 8, Core Question 17
W.4. Percentage of women of child-bearing age (18-44 years) who report having a visit to a dentist or dental clinic in the past year **Numerator:** Number who report having been to the dentist or dental clinic within the past year **Denominator:** Number of female respondents, aged 18-44 years; exclude unknowns and refusals **Survey item:** Including all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists, how long has it been since you last visited a dentist or a dental clinic for any reason? [Response options only read if necessary.] o Within the past year (any time less than 12 months ago) o Within the past 2 years (1 year but less than 2 years ago) o Within the past 5 years (2 years but less than 5 years ago)	Data source: BRFSS Section 7: Oral Health, Question 7.1

○ 5 or more years ago ○ Don't know/not sure ○ Never	
Outcome	
Self-Reported Survey Indicators	
W.5. Percentage of pregnant women reporting that they needed to see a dentist for a problem during pregnancy **Numerator:** Number indicating "yes" to the response option: "I <u>needed</u> to see a dentist for a **problem**" **Denominator:** Number responding yes or no to question Y7, response option "I <u>needed</u> to see a dentist for a **problem**"; exclude unknowns and refusals **Survey item:** This question is about the care of your teeth <u>*during*</u> *your most recent pregnancy*. For each item, check No if it is not true or does not apply to you or Yes if it is true. ○ I knew it was important to care for my teeth and gums during my pregnancy ○ A dental or other health care worker talked with me about how to care for my teeth and gums ○ I had my teeth cleaned by a dentist or dental hygienist ○ I had insurance to cover dental care during my pregnancy ○ I <u>needed</u> to see a dentist for a **problem** ○ I <u>went</u> to a dentist or dental clinic about a **problem**	Data source: PRAMS Phase 8, Standard Question Y7

Updated Set of Indicators: Children

Summary

Access • Dentists who actively participate in Medicaid per 1,000 EPSDT eligible enrolled children (data source: Medicaid enrollment and claims)
Utilization • Percentage of children who had a dental visit in the past 12 months (data source: Medicaid enrollment and claims) • Percentage of children at elevated risk receiving preventive dental services (data source: Medicaid enrollment and claims)
Process • Percentage of children at elevated risk receiving at least 2 topical fluoride applications as a dental service (data source: Medicaid enrollment and claims) • Percentage of children at elevated risk receiving at least 2 topical fluoride applications as an oral health service (data source: Medicaid enrollment and claims) • Percentage of children aged 6–9 years at elevated risk who receive sealants in their permanent first molars (data source: Medicaid enrollment and claims) • Percentage of children aged 10–14 years at elevated risk who receive sealants in their permanent second molars (data source: Medicaid enrollment and claims)
Outcome • Percentage of kindergarten children with dental caries experience (treated or untreated tooth decay) (data source: BSS) • Percentage of 3rd grade children with dental caries experience (treated or untreated tooth decay) (data source: BSS) • Percentage of kindergarten children with urgent dental treatment needs (data source: BSS) • Percentage of 3rd grade children with urgent dental treatment needs (data source: BSS)

Access	
System-Level Administrative Databases Indicators	
C.1. Dentists who actively participate in Medicaid per 1,000 EPSDT eligible enrolled children **Numerator:** Number of dentists who bill $10,000 or more during the year for enrolled children eligible for the EPDST benefits in the state's Medicaid program **Denominator:** Number of EPSDT eligible enrolled children (in thousands)	Data source: Medicaid administrative enrollment and claims data

Utilization	
System-Level Administrative Databases Indicators	
C.2. DQA Utilization of Dental Services: Percentage of all enrolled children under age 21 who received at least one dental service within the reporting year **Numerator**: Unduplicated number of children who received at least one dental service **Denominator**: Unduplicated number of all enrolled children under age 21	Data source: Medicaid administrative enrollment and claims data
C.3. DQA Preventive Dental Services for Children at Elevated Caries Risk: Percentage of enrolled children who are at "elevated" risk (i.e., "moderate" or "high") who received a topical fluoride application and/or sealants within the reporting year **Numerator**: Unduplicated number of children at "elevated" risk (i.e., "moderate" or "high") who received a topical fluoride application and/or sealants as a dental service **Denominator**: Unduplicated number of enrolled children at "elevated" risk (i.e., "moderate" or "high")	Data source: Medicaid administrative enrollment and claims data
Process	
System-Level Administrative Databases Indicators	
C.4. DQA Topical Fluoride for Children at Elevated Caries Risk, Dental Services: Percentage of enrolled children aged 1–21 years who are at "elevated" risk (i.e., "moderate" or "high") who received at least 2 topical fluoride applications within the reporting year **Numerator**: Unduplicated number of children at "elevated" risk (i.e., "moderate" or "high") who received at least 2 topical fluoride applications as a dental service **Denominator**: Unduplicated number of enrolled children aged 1-21 years at "elevated" risk (i.e., "moderate" or "high")	Data source: Medicaid administrative enrollment and claims data
C.5. DQA Topical Fluoride for Children at Elevated Caries Risk, Oral Health Services: Percentage of enrolled children aged 1–21 years who are at "elevated" risk (i.e., "moderate" or "high") who received at least 2 topical fluoride applications as oral health services within the reporting year **Numerator**: Unduplicated number of children at "elevated" risk (i.e., "moderate" or "high") who received at least 2 topical fluoride applications as oral health services **Denominator**: Unduplicated number of enrolled children aged 1–21 years at "elevated" risk (i.e., "moderate" or "high")	Data source: Medicaid administrative enrollment and claims data

C.6. DQA Sealants for 6–9 Year-Old Children at Elevated Risk: Percentage of enrolled children in the age category of 6–9 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent first molar tooth within the reporting year **Numerator**: Unduplicated number of all enrolled children age 6–9 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent first molar tooth as a dental service **Denominator**: Unduplicated number of enrolled children age 6–9 years at "elevated" risk (i.e., "moderate" or "high")	Data source: Medicaid administrative enrollment and claims data
C.7. DQA Sealants for 10–14 Year-Old Children at Elevated Risk: Percentage of enrolled children in the age category of 10–14 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent second molar tooth within the reporting year **Numerator**: Unduplicated number of enrolled children age 10–14 years at "elevated" risk (i.e., "moderate" or "high") who received a sealant on a permanent second molar tooth as a dental service **Denominator**: Unduplicated number of enrolled children age 10–14 years at "elevated" risk (i.e., "moderate" or "high")	Data source: Medicaid administrative enrollment and claims data
Outcome	
State-Level Screening Survey Indicators	
C.8. Percentage of kindergarten children with dental caries experience (treated or untreated tooth decay) **Numerator**: Number kindergarten children with treated or untreated tooth decay **Denominator**: Number of kindergarten children screened	Data source: BSS
C.9. Percentage of 3rd grade children with dental caries experience (treated or untreated tooth decay **Numerator**: Number 3rd grade children with treated or untreated tooth decay **Denominator**: Number of 3rd grade children screened	Data source: BSS
C.10. Percentage of kindergarten children with urgent dental treatment needs **Numerator**: Number of kindergarten children needing urgent dental care **Denominator**: Number of kindergarten children screened	Data source: BSS

C.11. Percentage of 3rd grade children with urgent dental treatment needs **Numerator**: Number 3rd grade children needing urgent dental care **Denominator**: Number of 3rd grade children screened	Data source: BSS

User Guide

A user guide was developed that contains technical specifications for each oral health quality indicator and guidance on using the indicators for reporting on the MCH population by the pilot teams during 2019. The user guide will be updated annually and will incorporate learnings from the pilot teams' implementation experiences.

Implementation Challenges and Strategies: Findings of the Feasibility Assessment

Following the pilot teams' completion of the feasibility assessment, the technical advisory team held individual phone interviews with each team to gather more in-depth information and gain clarification about the state's organizational infrastructure, available datasets, data analysis capacities, and other issues related to the state's ability to collect, analyze, and report on the indicators. Based on these interviews, the steering committee identified the following key themes that encompass both challenges and promising strategies that states have used or are considering to address the identified challenges.

Interagency Relationships

Challenges

Feasibility-assessment results indicated a pressing need for leadership support to facilitate communication, alignment, and data sharing among state agencies, organizations, departments, and programs engaged in oral health promotion. The absence of common language to use when discussing programs and data as well as competing priorities within and among agencies, organizations, departments, and programs were highlighted. Teams also noted significant barriers to sharing data and a lack of expertise in oral health and/or MCH within key state agencies, organizations, departments, and programs.

Strategies

- Foster collaborative relationships at the state level among agencies, organizations, departments, and programs, including those involved with MCH programs/populations, oral health programs, and Medicaid/CHIP and those administering the BRFSS and PRAMS.

- Create and participate in joint-agency committees to promote the alignment of priorities (e.g., among MCH programs, oral health programs, and Medicaid programs).
- Establish a mini-roundtable (e.g., state oral health leadership institute) that brings representatives from external organizations (e.g., academia, oral health coalitions) and state agencies, organizations, departments, and programs together to address oral health in the MCH population.
- Demonstrate the value of oral-health-data collection, and establish and align oral health priorities among the various entities involved with delivering services to the MCH population.

Data Availability

Challenges

Survey data. Challenges with survey data, such as data from BRFSS and PRAMS, include inconsistent administration of the surveys within states and difficulties MCH programs may encounter when seeking to add new oral health questions to the surveys. The latter challenge may result from the cost of adding new questions and competing content areas for adding new questions.

BSS. Owing to the significant resources required to conduct these screenings, most states conduct them once every 5 years (or less frequently), and there may be a significant lag between data collection and reporting.

Administrative claims data. Although the MCH population is broader than the Medicaid population, most state MCH programs do not have access to non-Medicaid claims data. State MCH programs noted difficulty even with accessing Medicaid administrative claims data because of data-sharing limitations and limited staffing resources within state Medicaid programs. In addition, MCH programs that are able to obtain claims data may have limited resources and expertise to devote to appropriately analyzing these data.

Strategies

Survey Data

- Involve stakeholders (e.g., MCH coalitions) and secure leadership buy-in to assist in removing barriers to accessing state-level interagency or interdepartmental data.
- Demonstrate the value of oral health data collection to entities that determine which questions to include on future surveys.
- Obtain funding support from other state agencies, organizations, departments, and programs and federal agencies (e.g., HHS, U.S. Department of Agriculture) with aligned interests to add additional questions to surveys (e.g., BRFSS, PRAMS) or to support screening surveys.

Administrative Claims Data

- Establish and maintain sustainable interagency and interdepartmental agreements and relationships.
- Obtain funding to create and maintain statewide data warehouses or registries that contain data from multiple agencies, organizations, departments, and programs.
- Engage other state-level oral health stakeholders (e.g., state dental associations, state oral health coalitions) to collaborate and communicate with the Medicaid agency related to the need for more robust measurement.
- Demonstrate how calculation and analysis of the MCH oral health indicator scores could be useful to other state agencies.
- Offer education and TA/T relating to indicator implementation.

Identification of Pregnant Women and Children with Special Health Care Needs

Challenges

Although there are ways to retrospectively identify pregnant women in medical claims data, pilot teams indicated that it is difficult to systematically identify pregnant women prospectively to target oral-health-service delivery. There can also be challenges with identifying pregnant women retrospectively if there are difficulties with integrating medical and dental claims data. In addition, states noted challenges with identifying children with special health care needs (CSHCN) in claims data.

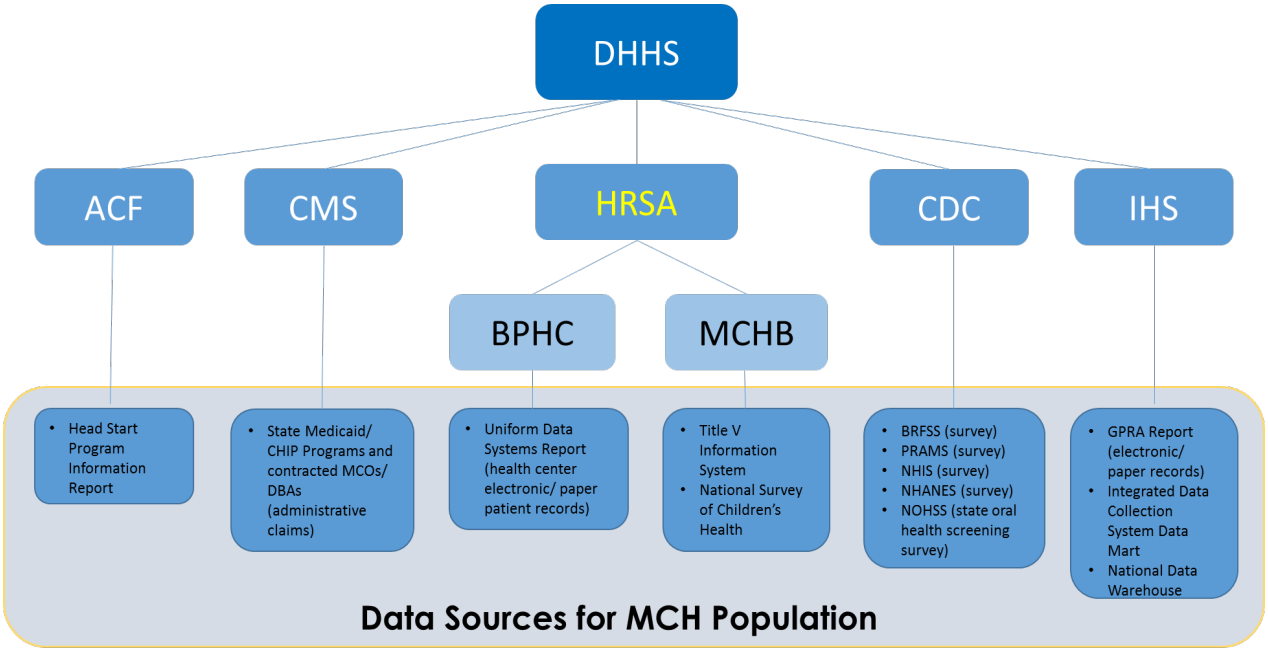
Strategies

- Develop a validated access or process measure of oral health services for pregnant women.
- Link BSS and state educational databases to identify CSHCN.
- Engage external stakeholders to support these efforts (e.g., American College of Obstetrics and Gynecology, MCHB-funded oral health projects).

Limitations of MCH Quality Indicators

Goal 2 of the COHSII project is to establish a set of MCH oral health quality indicators to monitor services delivered in public health programs and systems of care. Figure 3 provides a graphic representation of the different agencies, organizations, departments, and programs within HHS that address health and the associated measurement infrastructure. This figure illustrates a key challenge in implementing a set of MCH quality indicators: the MCH population is served through numerous programs with disparate data-collection systems.

Figure 3: Data Sources for the MCH Population



Challenges in Obtaining Data About MCH Populations

Although data about MCH populations exist, MCH agencies, organizations, departments, and programs may face the following challenges related to obtaining data for the established indicators from existing data sources.

- State MCH programs often rely on other state agencies, organizations, departments, and programs that serve MCH populations for measurement data. Pilot teams noted that this was a significant challenge to implementing the quality indicators. Consequently, building strong relationships should be a priority for these agencies, organizations, departments, and programs.
- While public health program officials are familiar with data from national and state health surveys, self-reported survey data (e.g., BRFSS, PRAMS) are subject to recall bias, sample bias, the social desirability phenomenon, and inconsistent interpretation of questions, among other limitations.[13]
- Other important measurement gaps relate to the following:
    - Dental claims databases often lack the ability to identify pregnant women. Integrated medical-dental claims are needed to identify pregnant women. There are currently no validated, standardized oral health indicators for pregnant women using administrative claims (e.g.,

[13] Centers for Disease Control and Prevention. 2015. Chronic Disease Indicators: Indicator Definitions—Oral Health [webpage]. www.cdc.gov/cdi/definitions/oral-health.html

data from Medicaid or private insurance claims). Consequently, data on the oral health of pregnant women relies heavily on PRAMS, which includes both a core question set and a standard (optional) question set. Core questions used by all states that administer PRAMS lack information to support measurement on many of the domains in this project's framework for oral health quality measurement and improvement (See Figure 2). A broader set of measures is available from the standard questions.[14] For states that do not currently include these optional questions on their PRAMS surveys, it may be challenging to gain both state stakeholder and financial resource support to add these questions to their surveys.

  - Stratification of indicators to identify disparities and measurements specific to CSHCN requires diagnostic data capture within dental claims or the ability to integrate medical claims data with dental claims data. Even when diagnostic data are available, complex methods are often required to identify CSHCN.

- Identifying outcome indicators based on available data sources is an ongoing challenge. Ideally, measurement would focus on individual and population outcomes. However, current data systems limit the ability to capture outcomes-related data. Dental data systems do not consistently capture diagnostic information in a structured format. Electronic patient record systems do not communicate with each other and, consequently, do not allow for aggregation from the clinic level to the plan, program, and population levels. Because of current limitations to reliably and validly measure outcomes, measurement focuses largely on other domains: access, utilization, structure, and process. However, quality-improvement efforts in these other domains should ultimately be aimed toward improving individual and community outcomes and population health and well-being.

The Future: From "Data Silos" to a "Data System"

Different health care financing (e.g., Indian Health Service, Medicaid) and delivery systems (e.g., CHCs) within HHS serve the MCH population. Each of these systems has its own measurement system (data silos), and a cohesive and aligned measurement system for the MCH population has not been established. Given the limitations of existing data sources to support measurement, data infrastructure to support measurement for the MCH population must be improved to establish a future outcomes-oriented measurement system.

[14] Centers for Disease Control and Prevention. 2018. *PRAMS Questionnaires*. Atlanta, GA: Centers for Disease Control and Prevention.

For recommendations on achieving a cohesive and aligned measurement system, see pages 22–27 of the report, Oral Health Quality Improvement for the Maternal and Child Health Population: Identifying a Set of Quality Indicators.

COHSII Year 3: Next Steps

In year 3, the five pilot teams will continue their efforts to implement the updated set of indicators, with TA/T from COHSII. Feedback from the pilot teams will inform further development of the user guide and a collection of frequently asked questions. Additional states may be engaged to participate to continue to inform project development.

COHSII will review the MCHB-funded *Networks for Oral Health Integration (NOHI) within the Maternal and Child Safety Net* applications that will be available August 1, 2019 and determine the feasibility of pilot implementation of oral health quality indicators by NOHI projects to examine the application of quality indicators in policy and in practice.

COHSII will share findings from the pilot implementation and will seek input and recommendations from federal agencies and national organizations to determine how to successfully incorporate quality indicators into policies and practices.

The QIAT will convene in person to discuss findings from the pilot implementation and input from federal agencies and national organizations, reach consensus on quality indicators that can be incorporated into policies and practices, prepare a report for submission to MCHB, and update the user guide.

Appendix 1: Quality Indicators Advisory Team Members and Other Contributors

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