Improving Access to Dental Care through Medical Dental Integration

February 25, 2025

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Denver Health | University of Colorado

Objectives

Describe various approaches to medical-dental integration.

Incorporate medical-dental integration approaches into CHC care delivery.

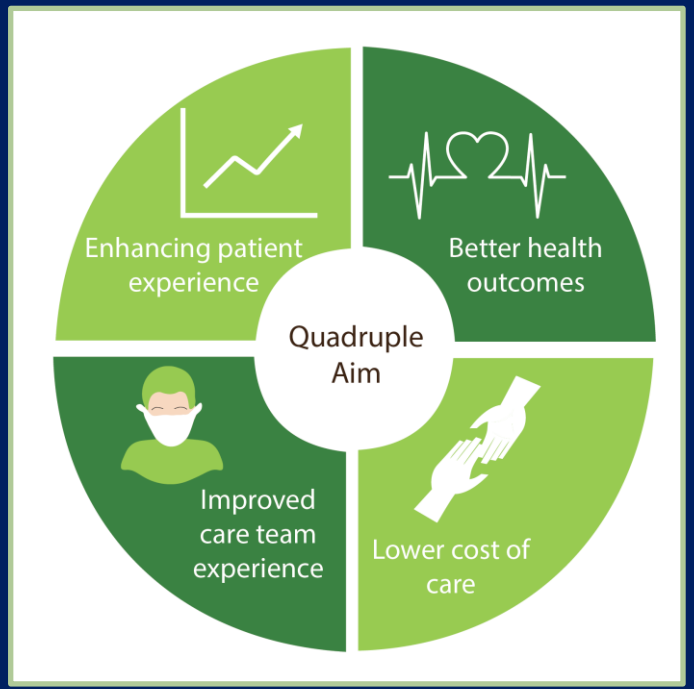
Compare different medical-dental integration approaches.

Recognize medical-dental integration change package key drivers.

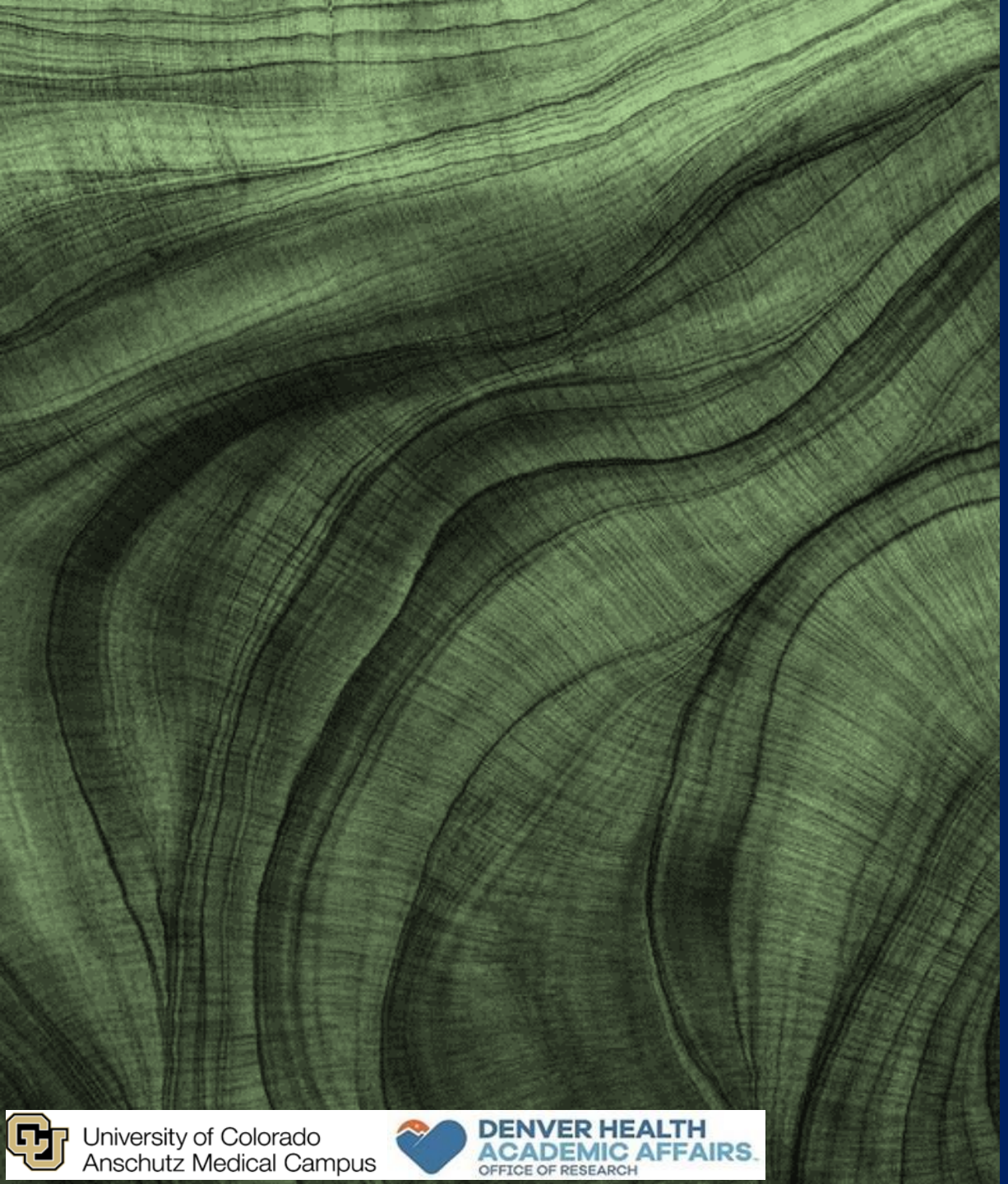
Quadruple Aim

Increase access to care by integrating multidisciplinary services within your primary care setting.

Prevent avoidable ambulatory care sensitive conditions.



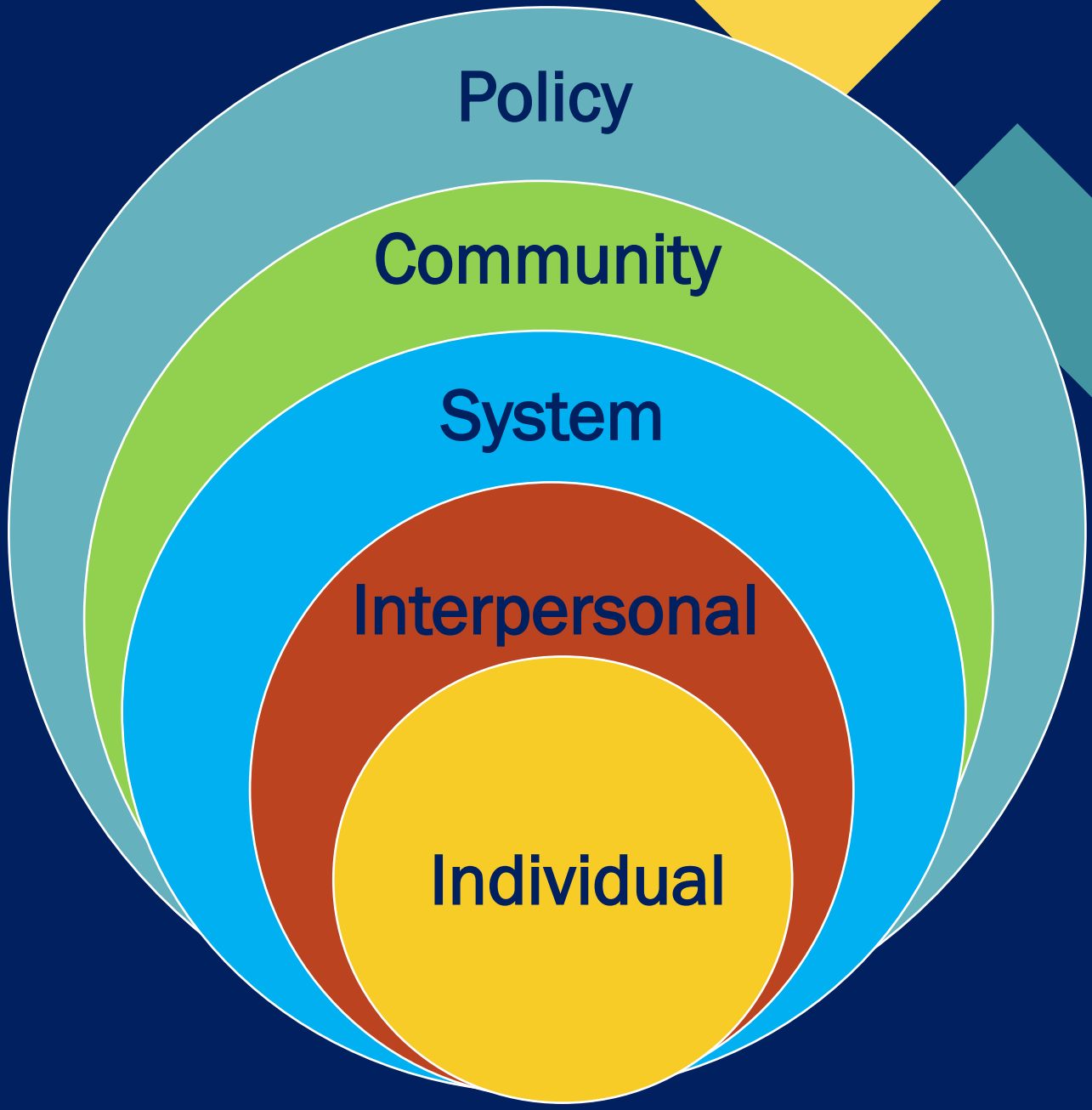

Perspective



Community Health over the Decades

What have we asked of our teams?

Social-Ecological Model of Health

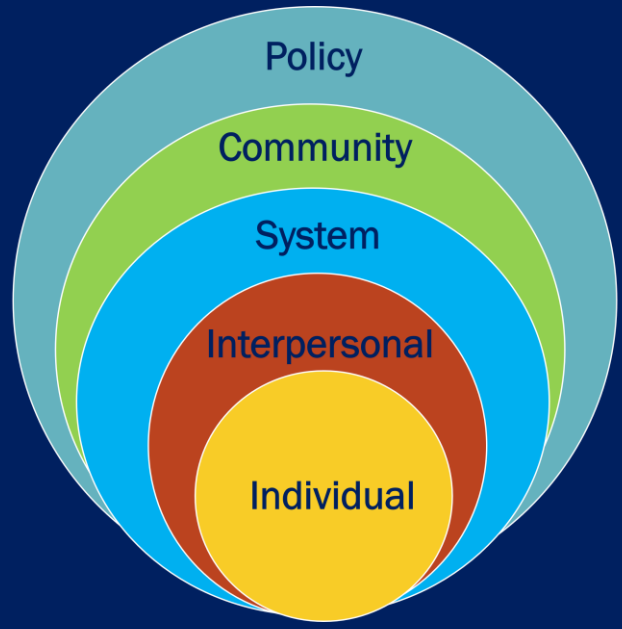


Policy: Affordable Care Act (2008)

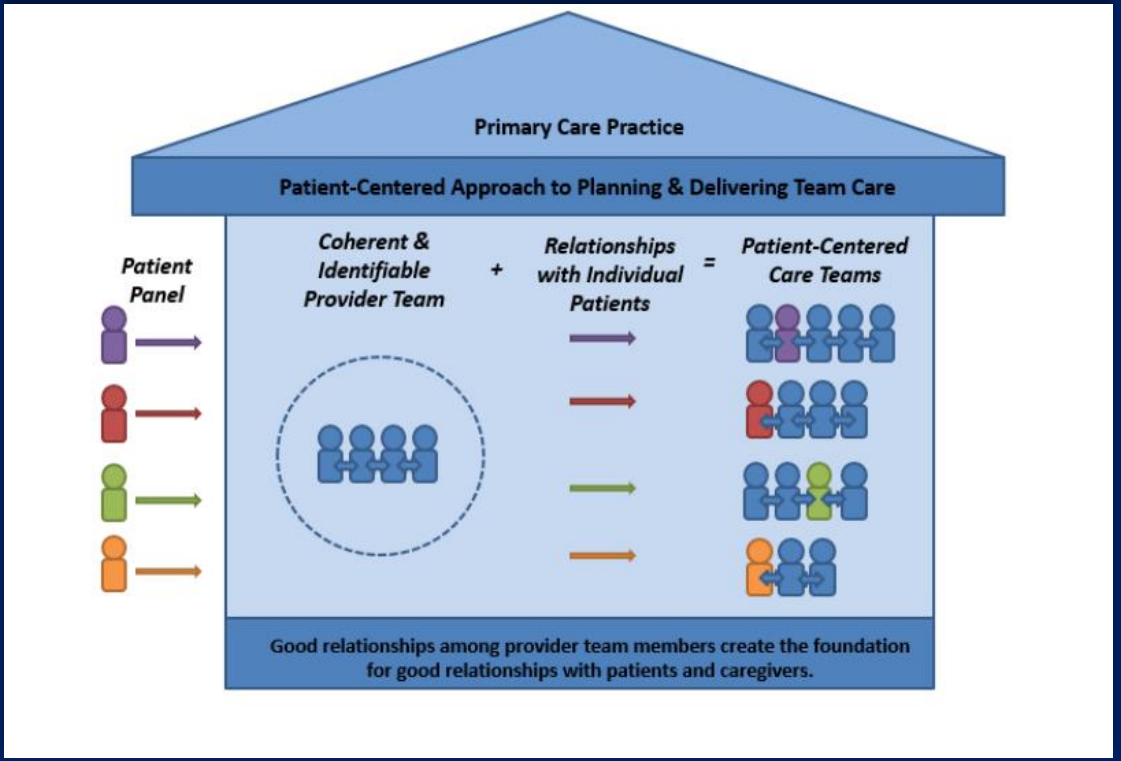
20 million Americans have gained health insurance

Managed care

Population health



Community: Person Centered-Medical Home



Relationship-Based with Empanelment
Partnering with Patients
Respecting patients' unique needs, culture, values and preferences
Supporting patients in learning to manage and organize their own care
Fully including patients and their core caregivers of care plans

https://www.ahrq.gov/sites/default/files/wysiwyg/ncepcr/tools/PCMH/creating-patient-centered-team-based-primary-care-white-paper.pdf

Technology

Electronic health record

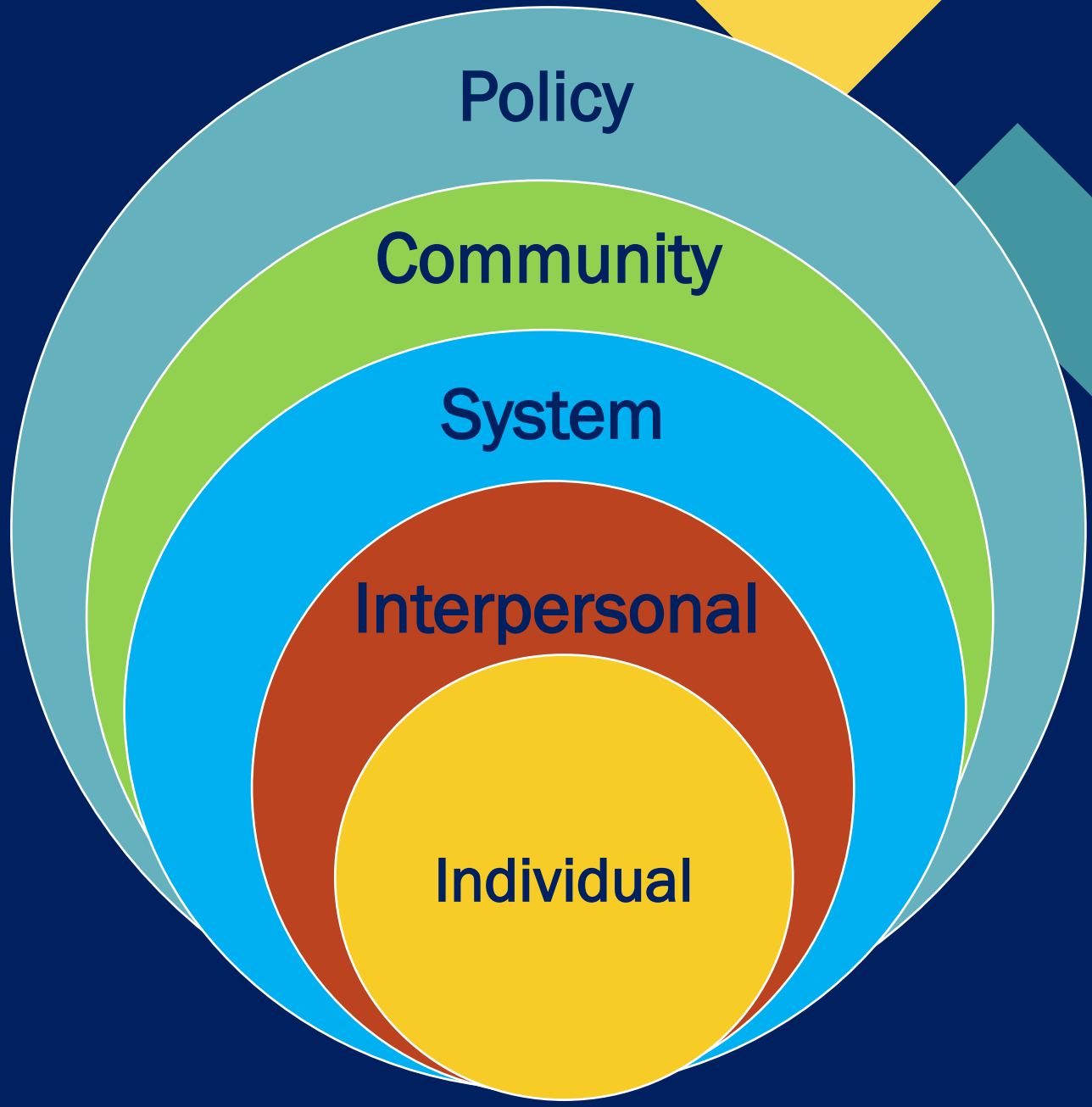
Apps and Social Media

Telehealth

Artificial intelligence

Clinical Management Systems

Interpersonal:



Behavioral Health

Motivational Interviewing

Shared-decision making

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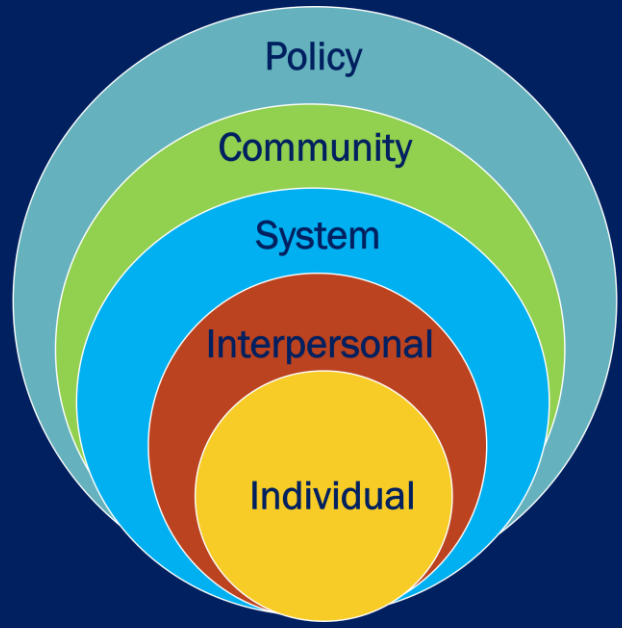
Individual

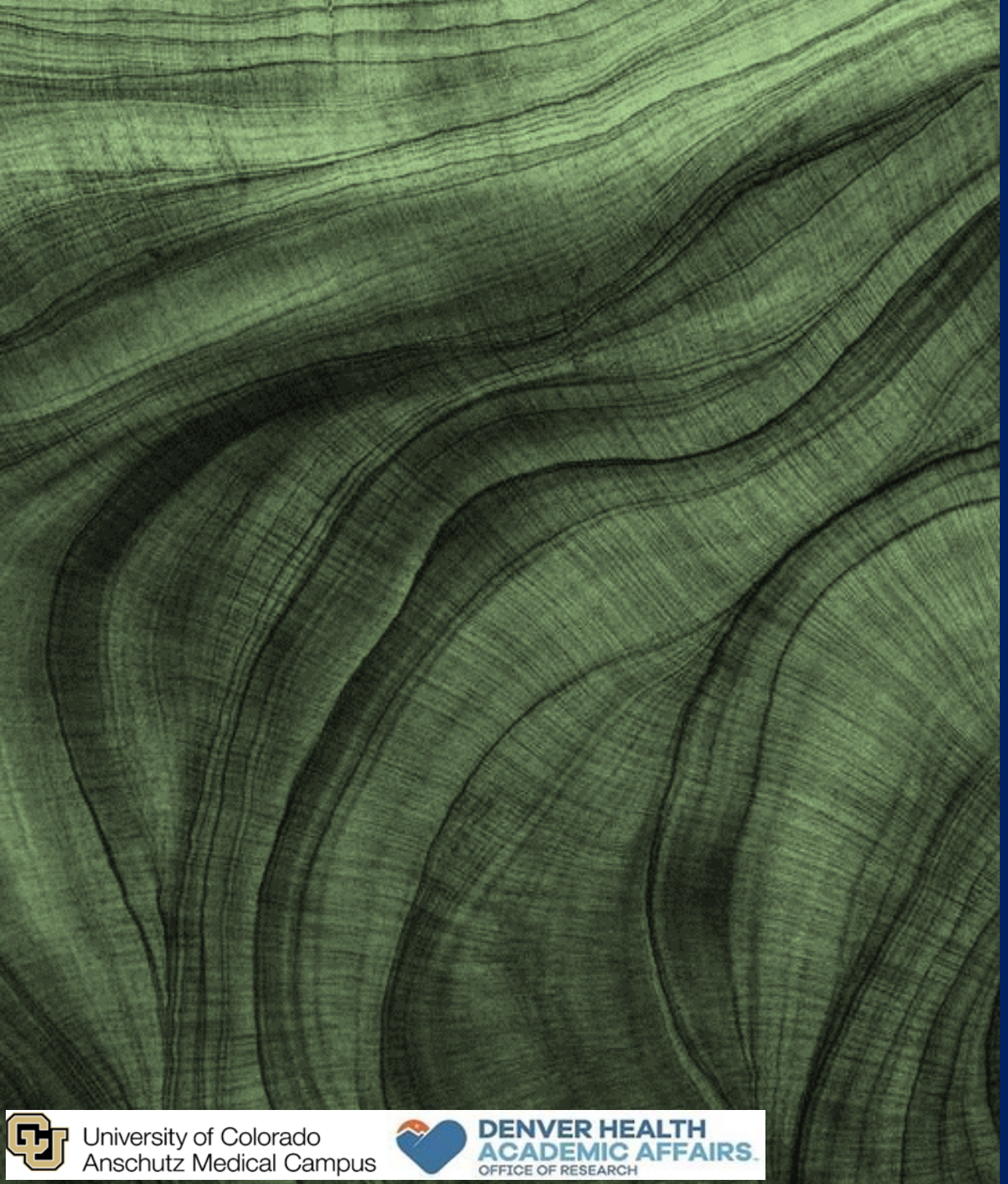
Behavior-related disease

Genetic discoveries

Treatment development



What now?



Medical Dental Integration and Whole Person Health

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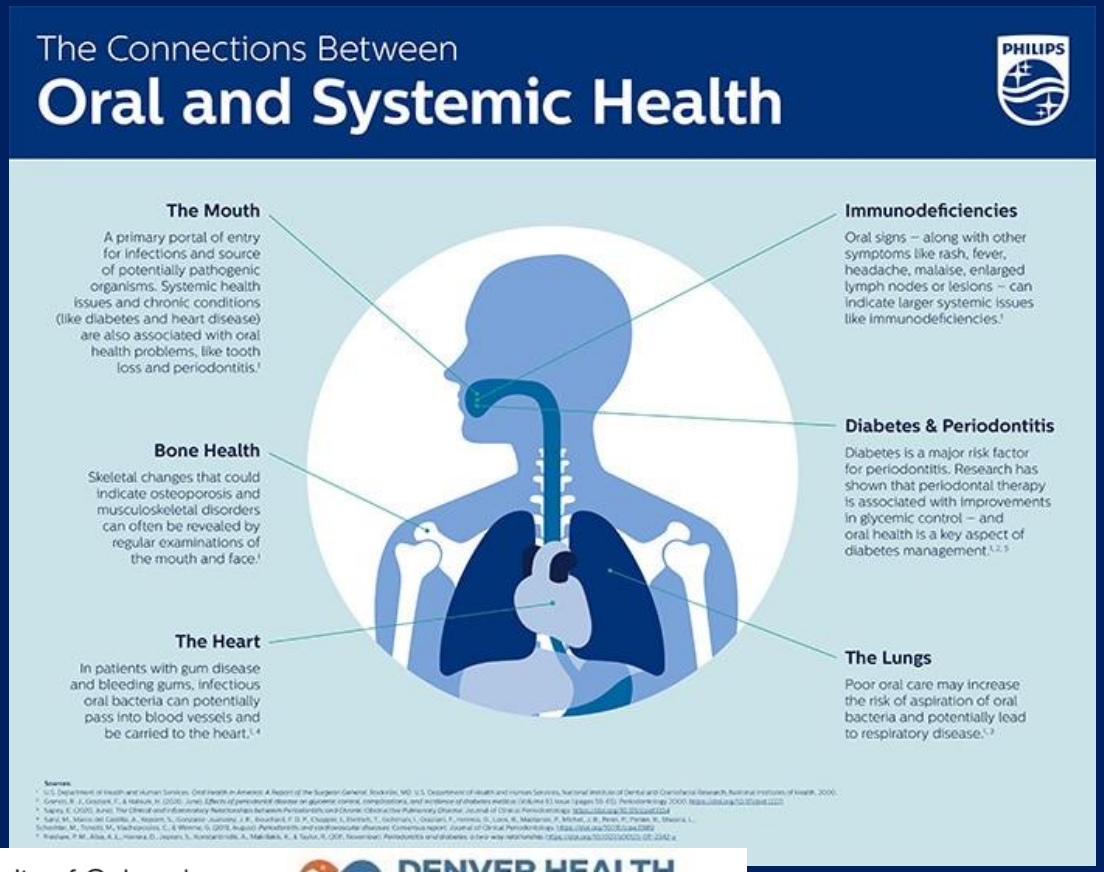
Oral Health and Overall Health

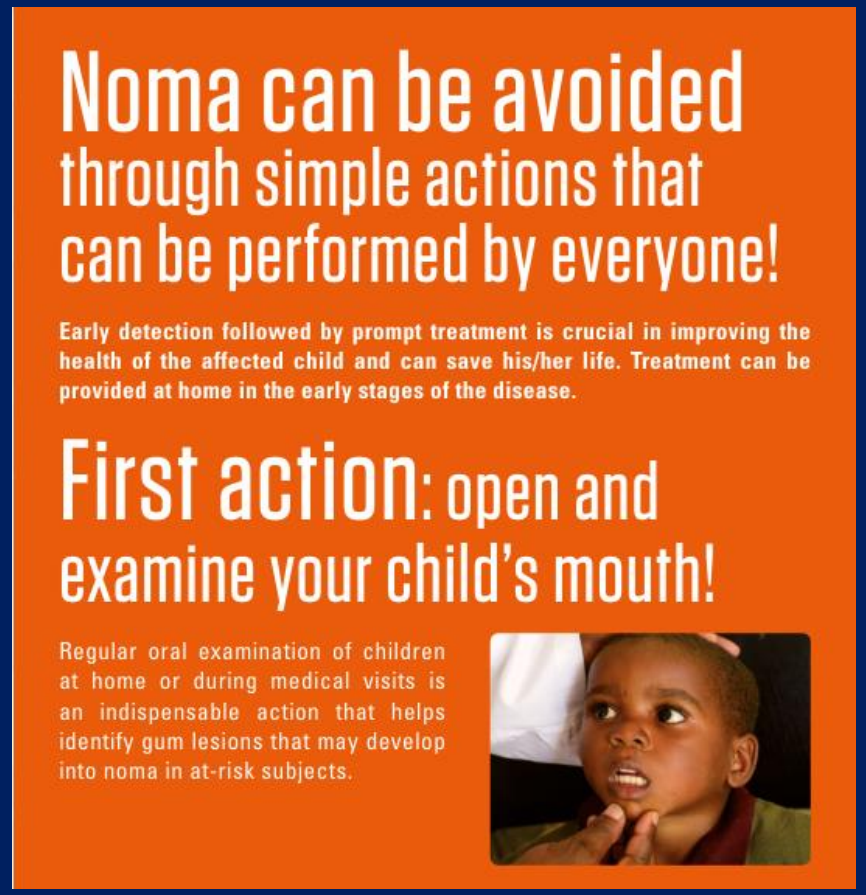
The mouth is part of the body



Coxsackie Virus and Hand Foot and Mouth	Human Papilloma Virus and Oral Cancer
Allergies and allergy medication with xerostomia	Periodontal disease and tooth loss with malnutrition
Developmental Disorders and Gum Disease	Substance Use Disorder and Meth Mouth
Tay-Sachs disease and self mutilation	Bleeding disorders and gum manifestations

The mouth is part of the body

Noma is a severe gangrenous disease of the mouth and face. Its pathogenesis is linked with non-specific polymicrobial organisms and a range of modifiable risk factors and underlying social determinants shared with other neglected tropical diseases (NTDs).



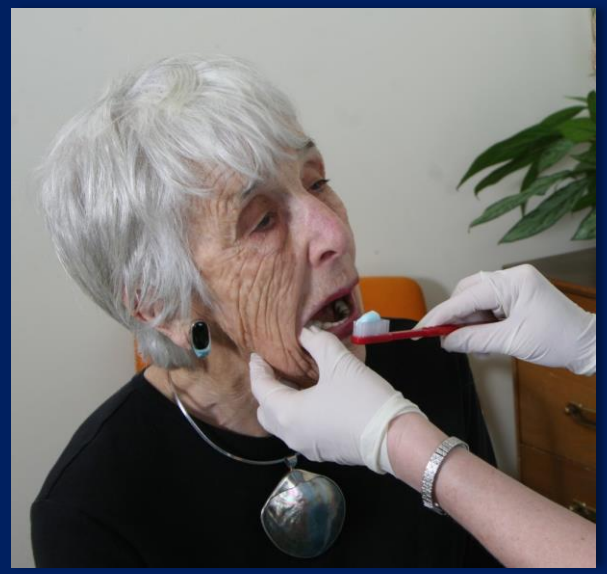
Dental Caries

Pain	Cellulitis	Abscess	Tooth loss
Impaired nutrition	Tooth malalignment	Adult decay	Dental anxiety

Medical Dental Integration

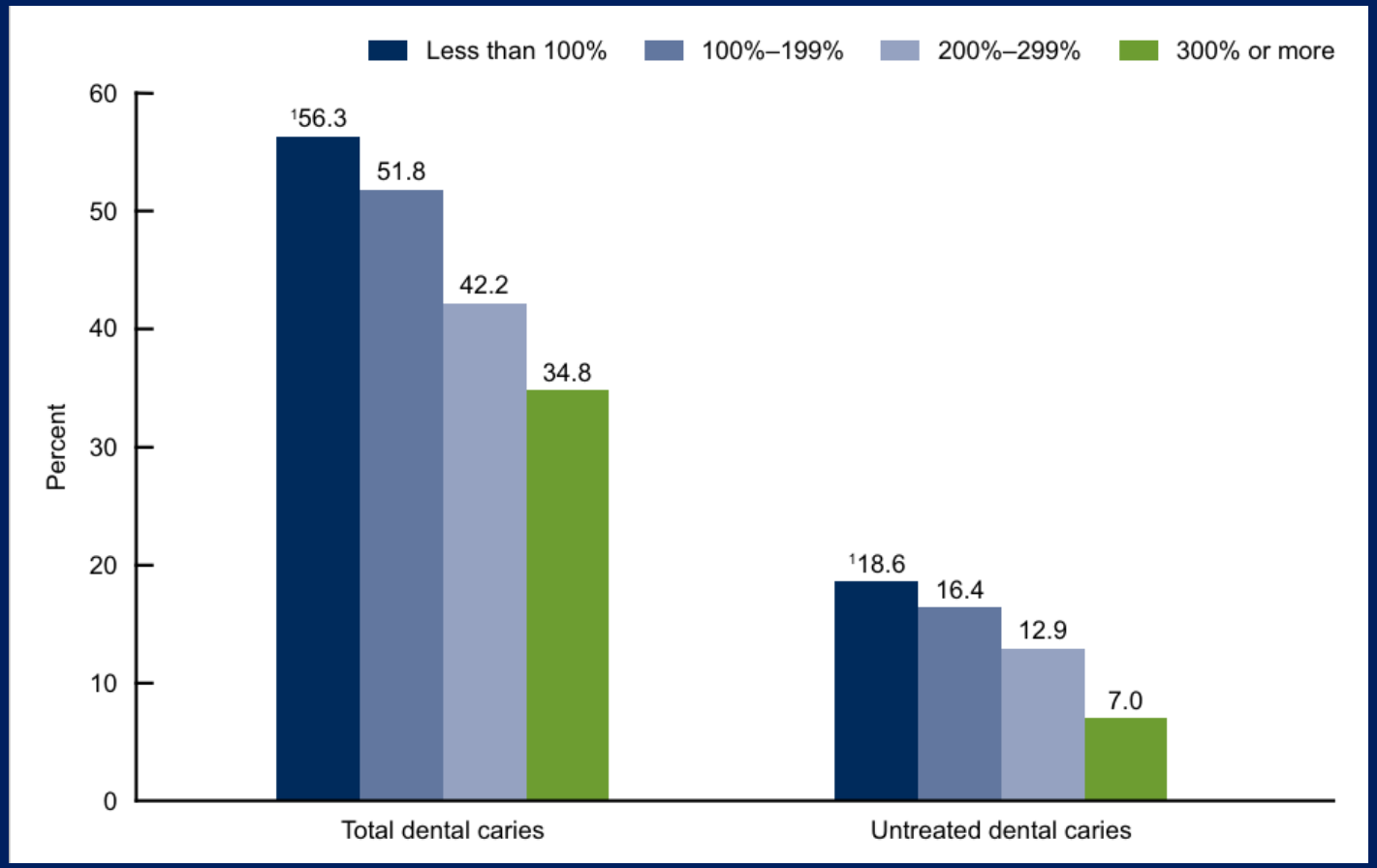
COMMON

OPPORTUNITIES



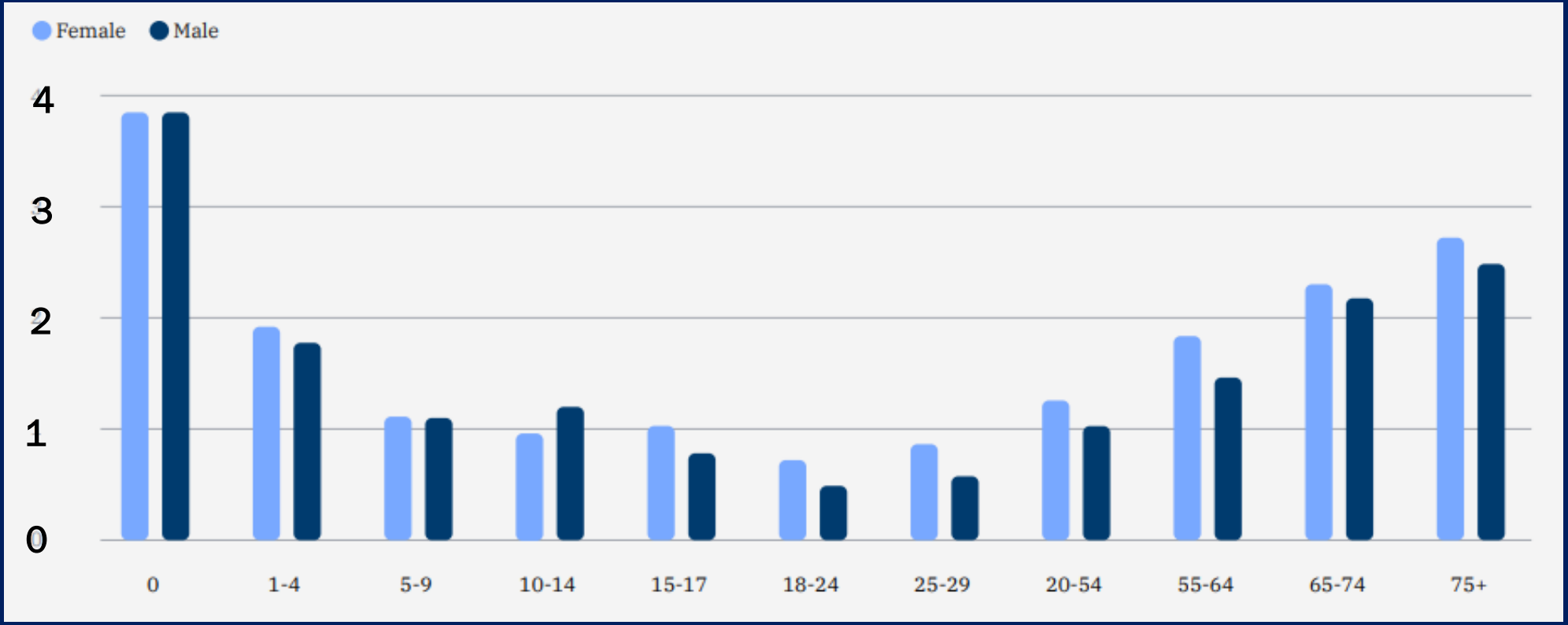
PREVENTABLE

Prevalence of total and untreated dental caries in primary or permanent teeth : youth aged 2–19 years by federal poverty level: United States, 2015–2016



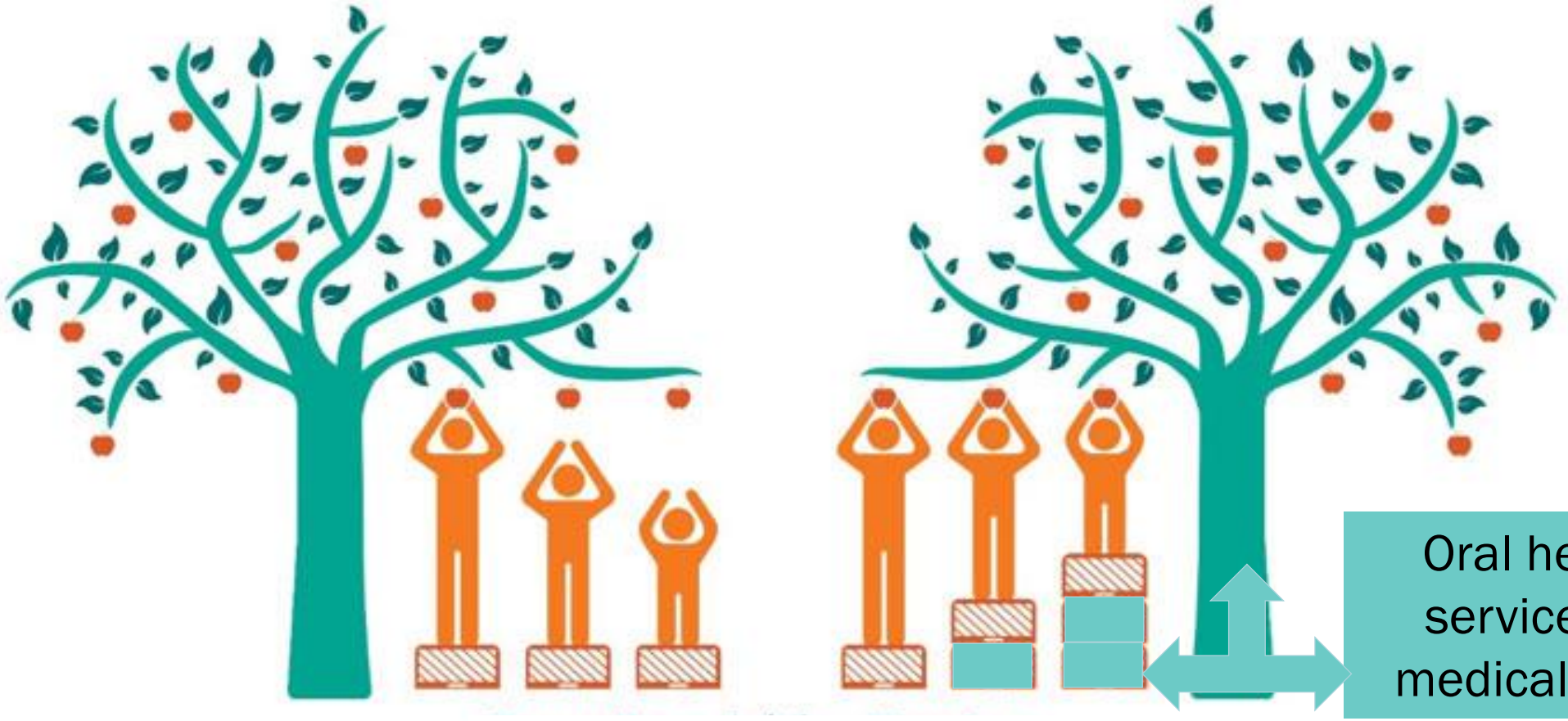
NCHS: National Health and Nutrition Examination Survey, 2015–2016

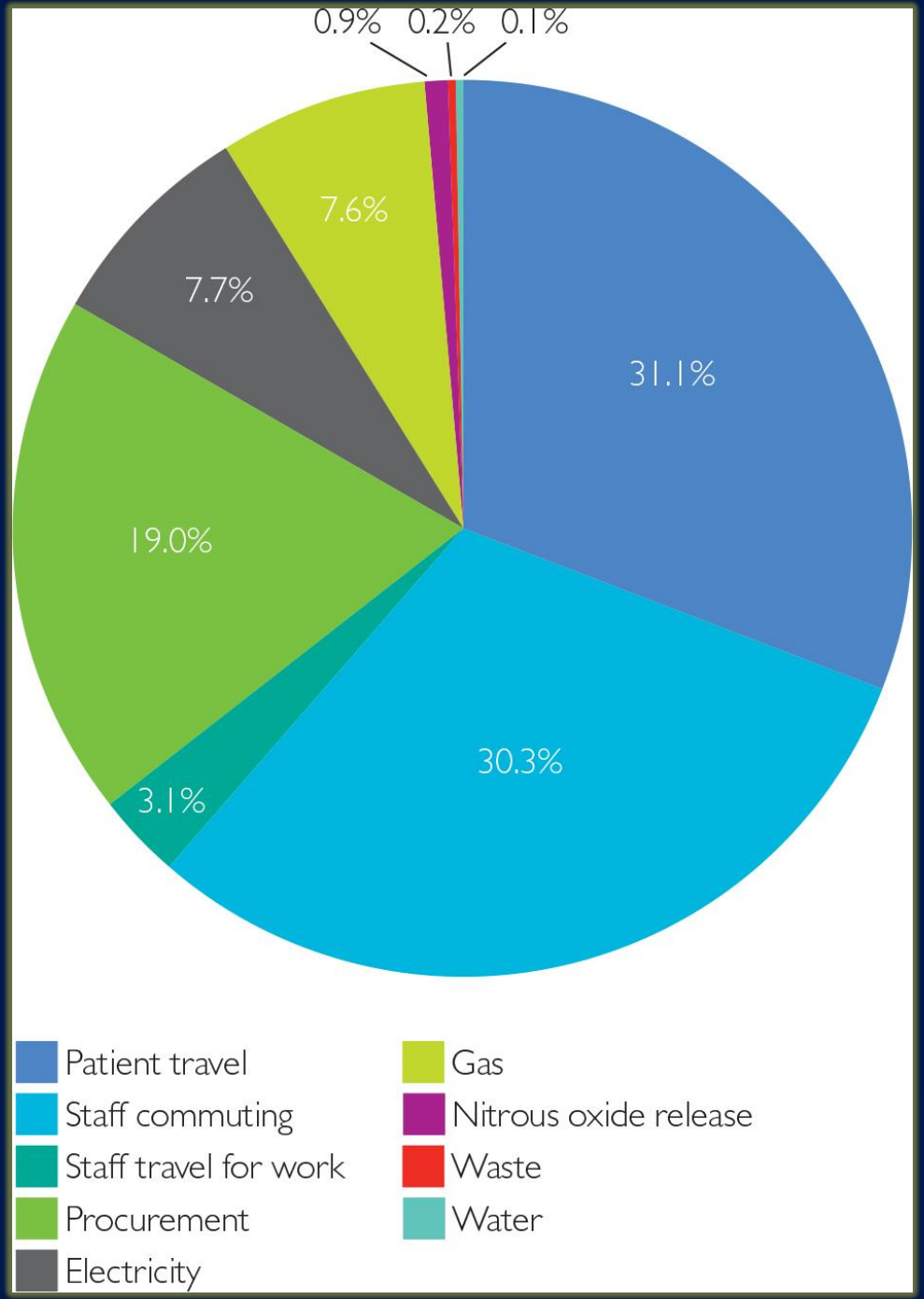
Annual Primary Care Visits



2017 Medical Expenditure Panel Survey

Promoting Health Justice





What impact is dentistry having on the environment and how can dentistry lead the way?

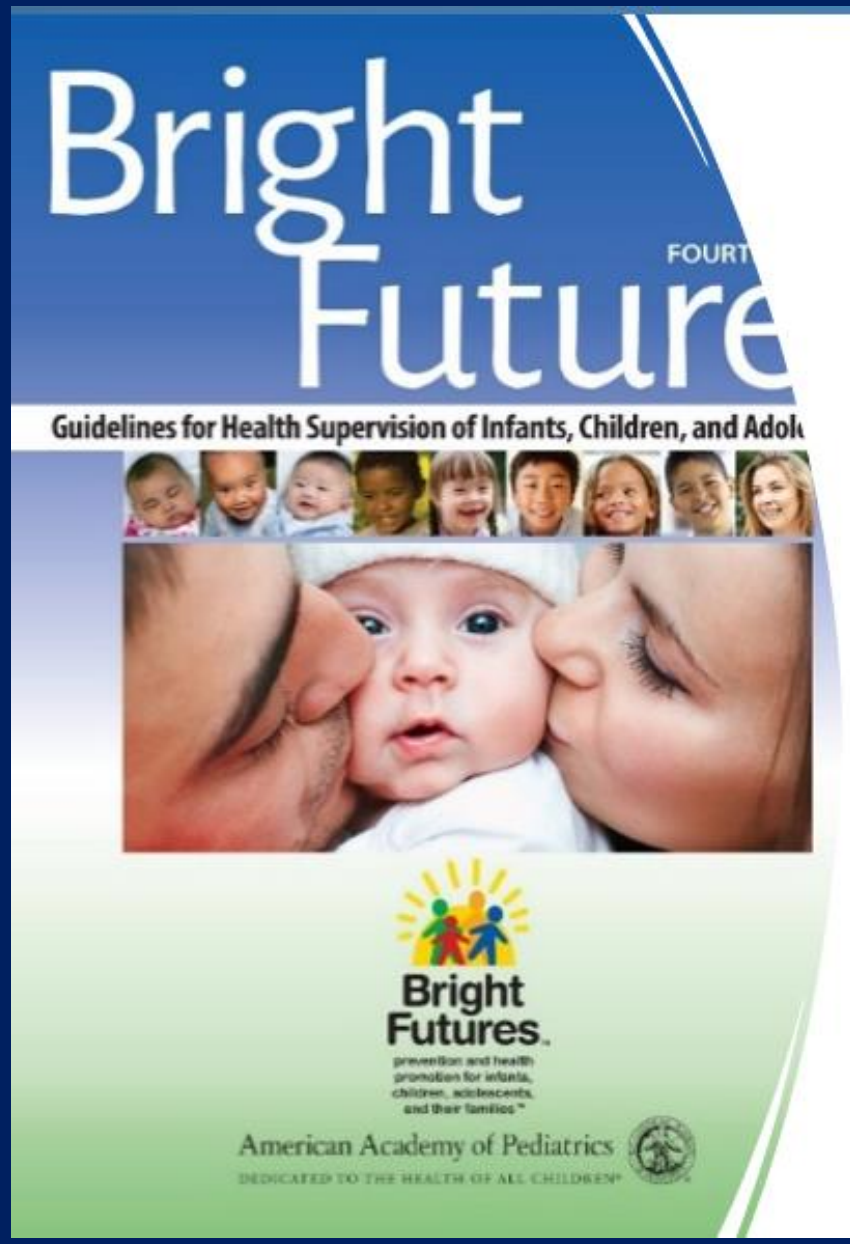
by Gavin J Wilson, Sagar Shah and Hannah Pugh

Integrating sustainable waste management and procurement into daily practice will encourage the dental profession to tackle environmental change.

Authors: Gavin J Wilson, Sagar Shah and Hannah Pugh, Fellows on the Chief Dental Officer's Clinical Fellow Scheme*

**Corresponding author:*
E: hannah.pugh4@nhs.net

Keywords: dentistry, sustainability, carbon footprint, plastic use, climate change, single-use



Preventive Dental Services at Medical Visits

Endorsed by AAP, AAPD, ADA.

AAP Section on Oral Health.

USPSTF Recommendation B.

All 50 states reimburse.

3% (2008) → 18% (2018)

- For children < 3 years of age.
- 1 of 4 bill for FV.

Lewis C, Quinonez R, Sisk B, Barone L, Krol D, Kornfeind KR, Braun PA. Incorporating Oral Health into Pediatric Practice: National Trends 2008, 2012, 2018. Acad Pediatr. 2022 Jun 19:S1876-2859(22)00301-1. doi: 10.1016/j.acap.2022.06.008. Epub ahead of print. PMID: 35732259.

IMPORTANCE A 2014 review for the US Preventive Services Task Force (USPSTF) found that oral fluoride supplementation and topical fluoride use were associated with reduced caries incidence in children younger than 5 years.

OBJECTIVE To update the 2014 review on dental caries screening and preventive interventions to inform the USPSTF.

DATA SOURCES Ovid MEDLINE, the Cochrane Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews (to September 2020); surveillance through July 23, 2021.

STUDY SELECTION Randomized clinical trials (RCTs) on screening, preventive interventions, referral to dental care; cohort studies on screening and referral; studies on diagnostic accuracy of primary care oral examination or risk assessment; and a systematic review on risk of fluorosis included in prior USPSTF reviews.

DATA EXTRACTION AND SYNTHESIS One investigator abstracted data; a second checked accuracy. Two investigators independently rated study quality.

RESULTS Thirty-two studies (19 trials, 9 observational studies, and 4 nonrandomized clinical intervention studies [total 106 694 participants] and 1 systematic review [19 studies]) were included. No study evaluated effects of primary care screening on clinical outcomes. One study (n = 258) found primary care pediatrician examination associated with a sensitivity of 0.76 (95% CI, 0.55 to 0.91) and specificity of 0.95 (95% CI, 0.92 to 0.98) for identifying a child with cavities, and 1 study found a risk assessment tool associated with sensitivity of 0.53 and specificity of 0.77 (n = 697, CIs not reported) for a child with future caries. No new trials of dietary fluoride supplementation were identified. For prevention, topical fluoride compared with placebo or no topical fluoride was associated with decreased caries burden (13 trials, n = 5733; mean caries increment [difference in decayed, missing, and filled teeth or surfaces], −0.94 [95% CI, −1.74 to −0.34]) and likelihood of incident caries (12 trials, n = 8177; RR, 0.80 [95% CI, 0.66 to 0.95]; absolute risk difference, −7%) in higher-risk populations or settings, with no increased fluorosis risk. Evidence on other preventive interventions was limited (education, xylitol) or unavailable (silver diamine fluoride), and no study directly evaluated primary care dentistry referral vs no referral.

CONCLUSIONS AND RELEVANCE There was no direct evidence on benefits and harms of primary care oral health screening or referral to dentist. Dietary fluoride supplementation and fluoride varnish were associated with improved caries outcomes in higher-risk children and settings.

JAMA | US Preventive Services Task Force | EVIDENCE REPORT

Screening and Interventions to Prevent Dental Caries in Children Younger Than 5 Years

Updated Evidence Report and Systematic Review for the US Preventive Services Task Force

Roger Chou, MD; Miranda Pappas, MA; Tracy Dana, MLS; Shelley Selph, MD; Erica Hart, MBS; Rongwei F. Fu, PhD; Eli Schwarz, DDS, PhD, MPH

Sharing

Levels of Medical-Dental Integration

Denver Health

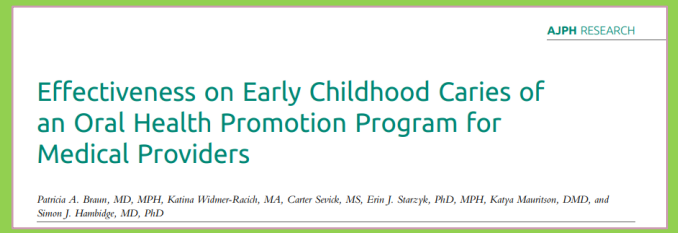
Preventive Oral Health Services in Medical

Pediatrics

Approach

Results

20% ↓ any decay
(46.7% → 37.3%)


AJPH RESEARCH

Effectiveness on Early Childhood Caries of an Oral Health Promotion Program for Medical Providers

Patricia A. Braun, MD, MPH, Katina Widmer-Racich, MA, Carter Sevick, MS, Erin J. Starzyk, PhD, MPH, Katya Mauritson, DMD, and Simon J. Hambidge, MD, PhD

Image credits: Braun

Braun PA, Widmer-Racich K, Sevick C, Starzyk EJ, Mauritson K, Hambidge SJ. Effectiveness on Early Childhood Caries of an Oral Health Promotion Program for Medical Providers. Am J Public Health. 2017; 107:S97-S103.

Quality Improvement

*At least 3 dental visits or fluoride applications by 42 months

N = 1377

Report month: July 2024

Measure type: Peds Oral Health

Population: CHS All

Gender: (All)

Race Ethnicity: (All)

Insurance: (All)

Language: (All)

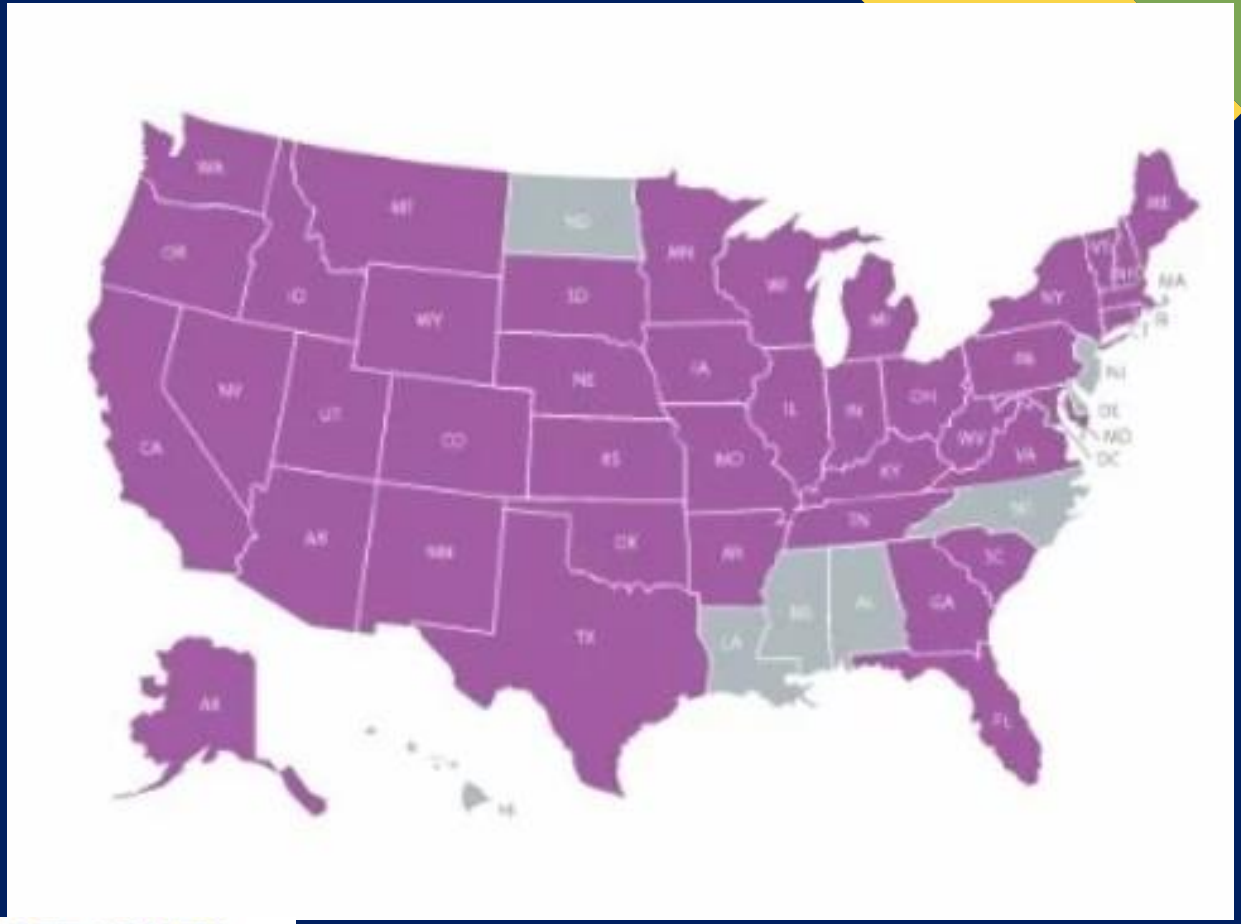
Peds Oral Health Metrics

		50% Dental Visit or Exam by 36 months	75% Fluoride Varnish or Dental Visit or Exam by 18 months	70% 2 Fluoride Varnish or Dental Visit or Exam by 30 months	50% 3 Fluoride Varnish or Dental Visit x 42 months
CHS Overall		76.0%	89.7%	88.5%	90.2%
Family Med	Total	74.2%	93.9%	91.3%	94.8%
Internal Med	Total	44.0%	90.9%	88.0%	80.0%
Peds	Eastside Peds/Teen	94.7%	90.0%	88.6%	88.4%
	Webb Ped Clinic	68.9%	86.3%	84.2%	79.6%
	Westside Peds/Teen	82.1%	86.0%	87.9%	94.4%
SBHC	Total	19.2%	33.3%	100.0%	66.7%

Questions | Discussion

Levels of Medical-Dental Integration

Direct Access to Dental Hygienists



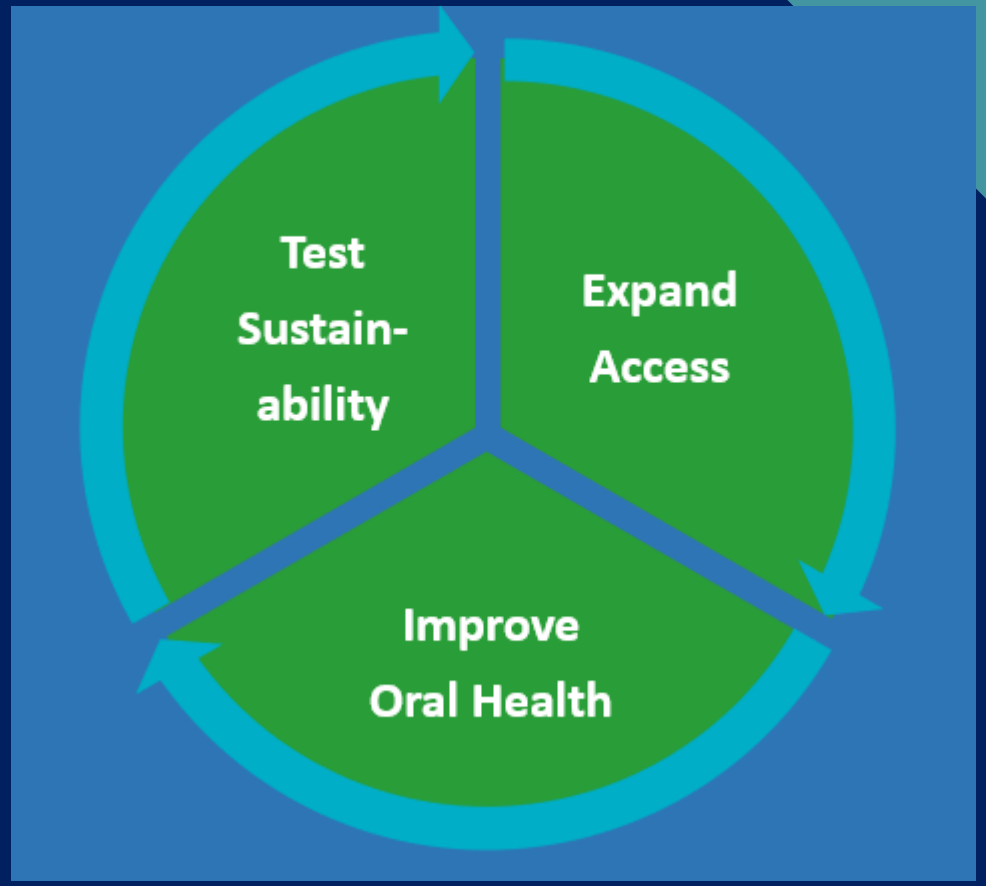
Colorado Medical-Dental Integration (CO MDI) Project

Delta Dental of Colorado Foundation

2007–2013

2007 to present

Co-location



Colorado Medical-Dental Integration (CO MDI) Project

Wave I

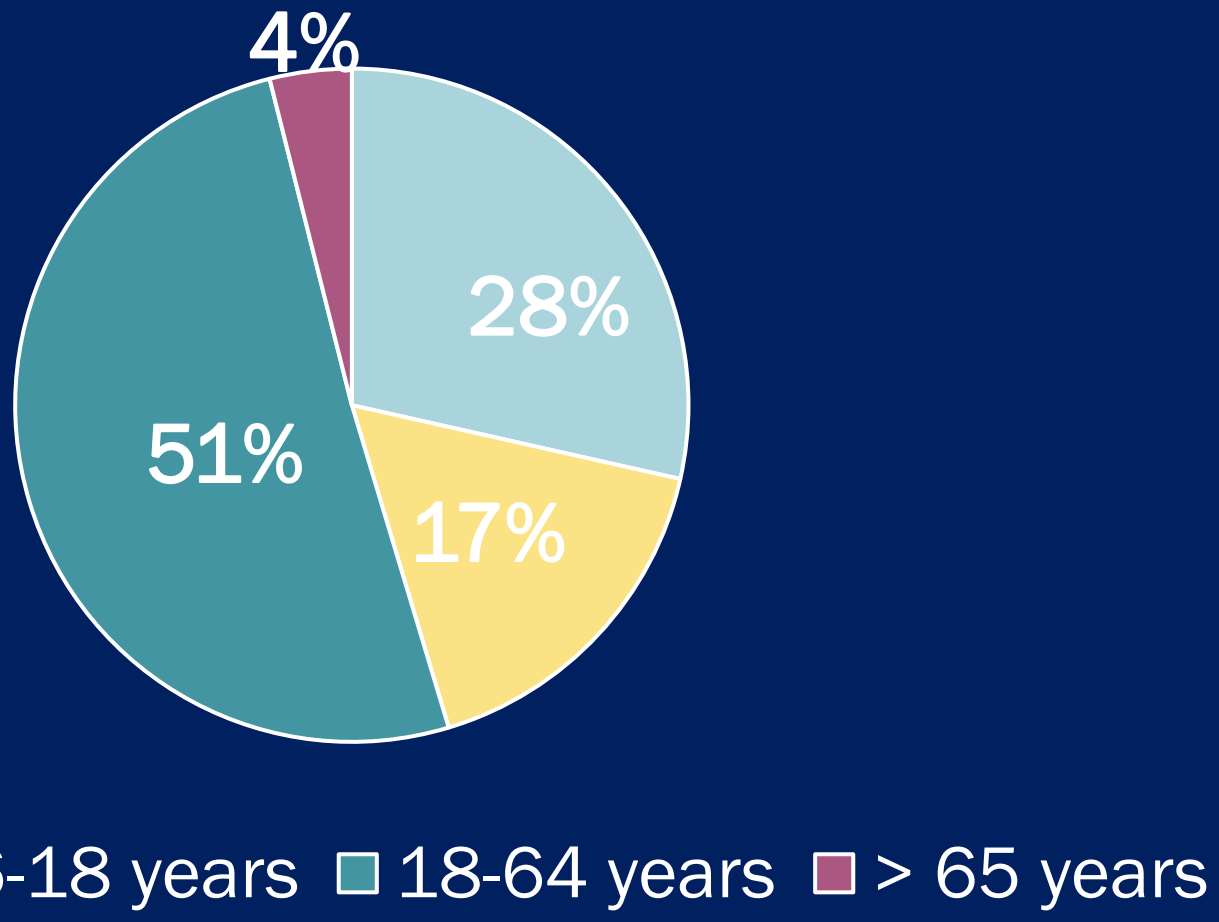
2014–2019

2018–2022

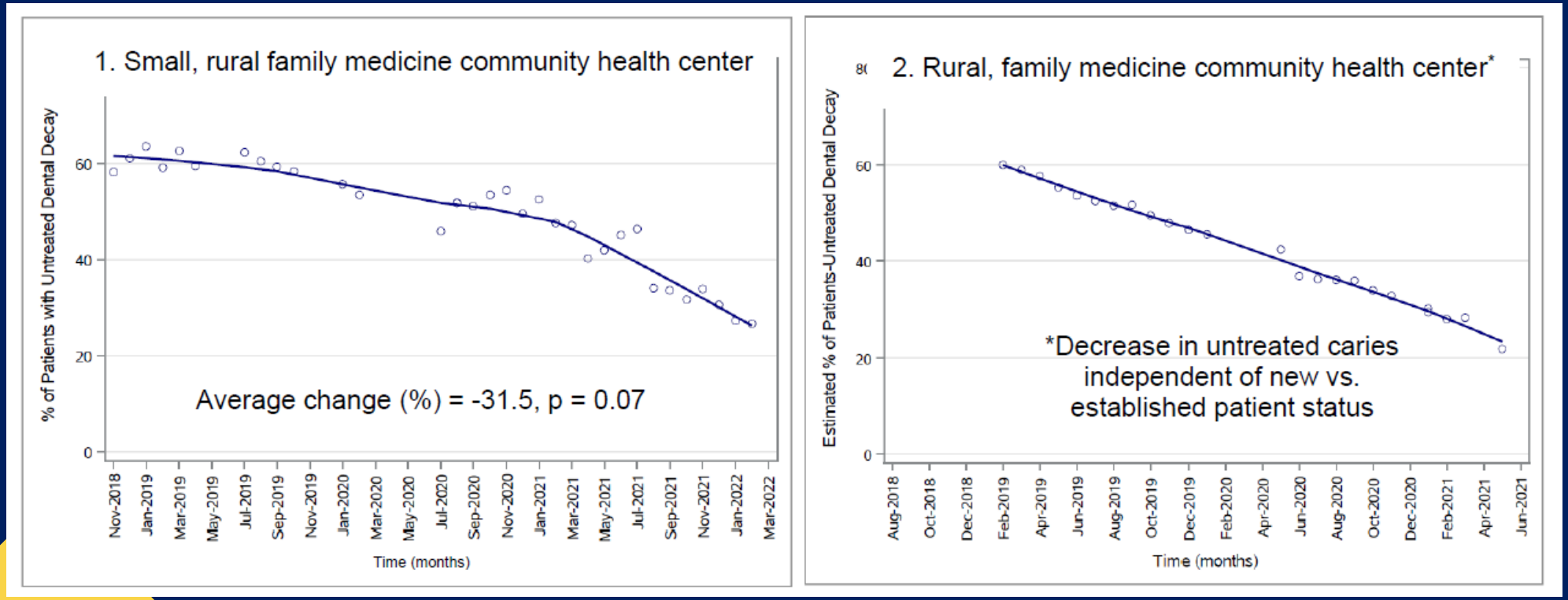
Wave II

Braun PA, Cusick A. Collaboration Between Medical Providers and Dental Hygienists in Pediatric Health Care. The Journal of Evidence-based Dental Practice. 2016 Jun;16 Suppl:59-67. DOI: 10.1016/j.jebdp.2016.01.017.

> 75,000 MDI Visits



Adjusted logistic regression analysis comparing change in proportion patients with untreated dental caries in established patients vs. new patients of dental hygienists; adjusted for time and practice.



Braun, P. A., Chavez, C., Flowerday, C., Furniss, A., & Dickinson, M. (2023). Embedding Dental Hygienists into Medical Care Teams: Implementation and evaluation of a medical-dental integration approach in Colorado. *Journal of dental*

MDI Change Package

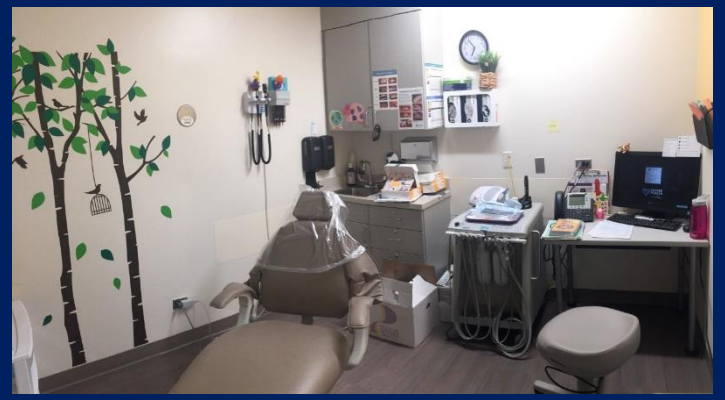
- Engaged Leadership
- Engaged Providers and Staff
- Right Dental Hygienist
- Dedicated Time
- Continuous Process Improvement
- Team Assignments and Adoption
- Team Workflows

Strengths of Integrated Model

- Specialized provider delivering care
- In-depth visit rather than fitting one more thing into a WCC
- More effective coordinated referral to dental provider
- Focus more specifically on oral health
- Communicates importance of oral health to families
- Billing and payment

One size doesn’t fit all

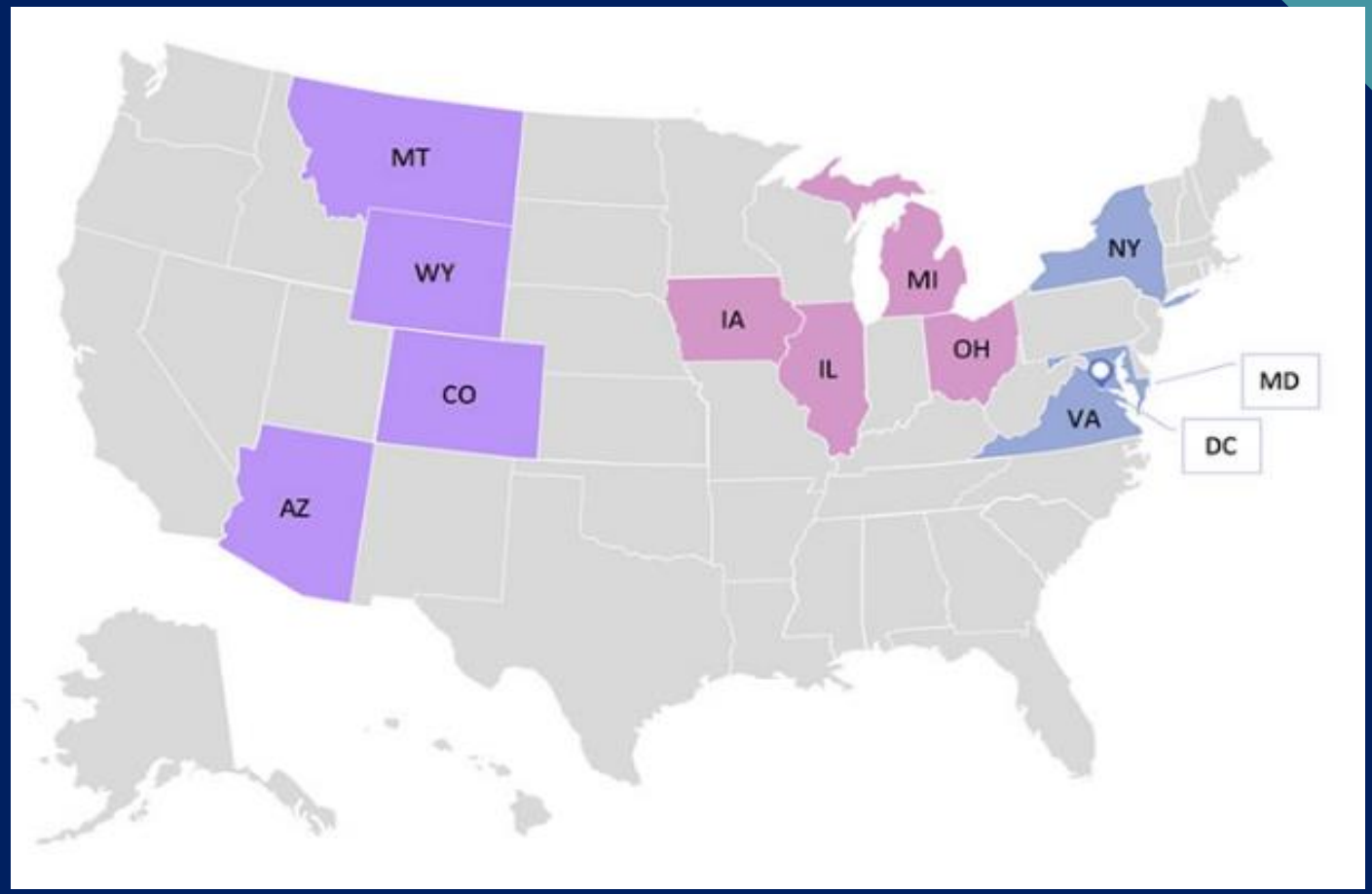
- One model doesn’t fit all
- CHC Oral Health Needs Assessment
- Medical, dental hygiene, hybrid models
- Full scope dental hygiene and oral health screenings



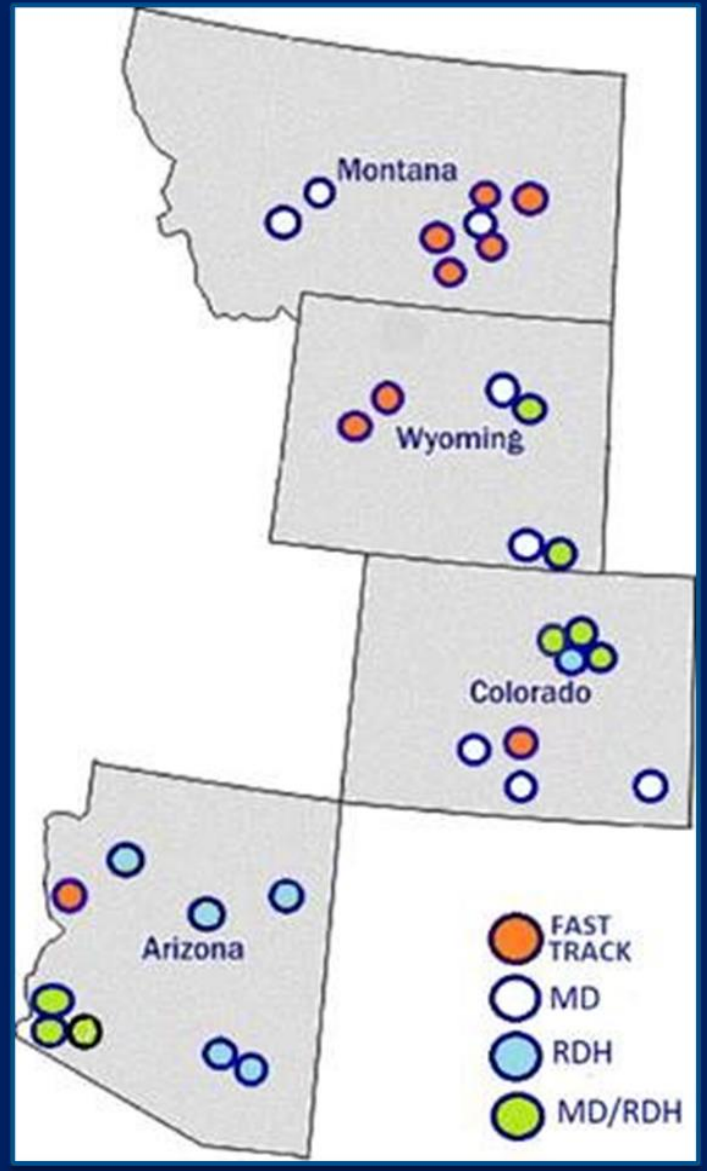
Questions | Discussion

Networks for Oral Health Integration (NOHI) Within the Maternal and Child Health Safety Net Program

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $6.4 million with zero percent financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government.



Networks for Oral Health Integration (NOHI) Within the Maternal and Child Health Safety Net Program



- Southwest MT, (2)
- Riverstone, MT (6)
- CHC Wyoming (3)
- Healthworks, WY (1)
- University of WY (2)
- Denver Health, CO (3)
- Clinica Tepeyac, CO (1)
- Valleywide, CO (6)
- El Rio, AZ (2)
- North County, AZ (4)
- Sunset, AZ (3)

Networks for Oral Health Integration

Improve access to and utilization of comprehensive, high-quality oral health care for pregnant women, infants and children at high risk for oral disease.

Funded by the Maternal and Child Health Bureau, Health Resources and Services Administration (2019-2024)

Caries Risk Assessment	Oral Health Education	Dental Referral	Fluoride Varnish	Patient Engagement

RoMoNOH Approach

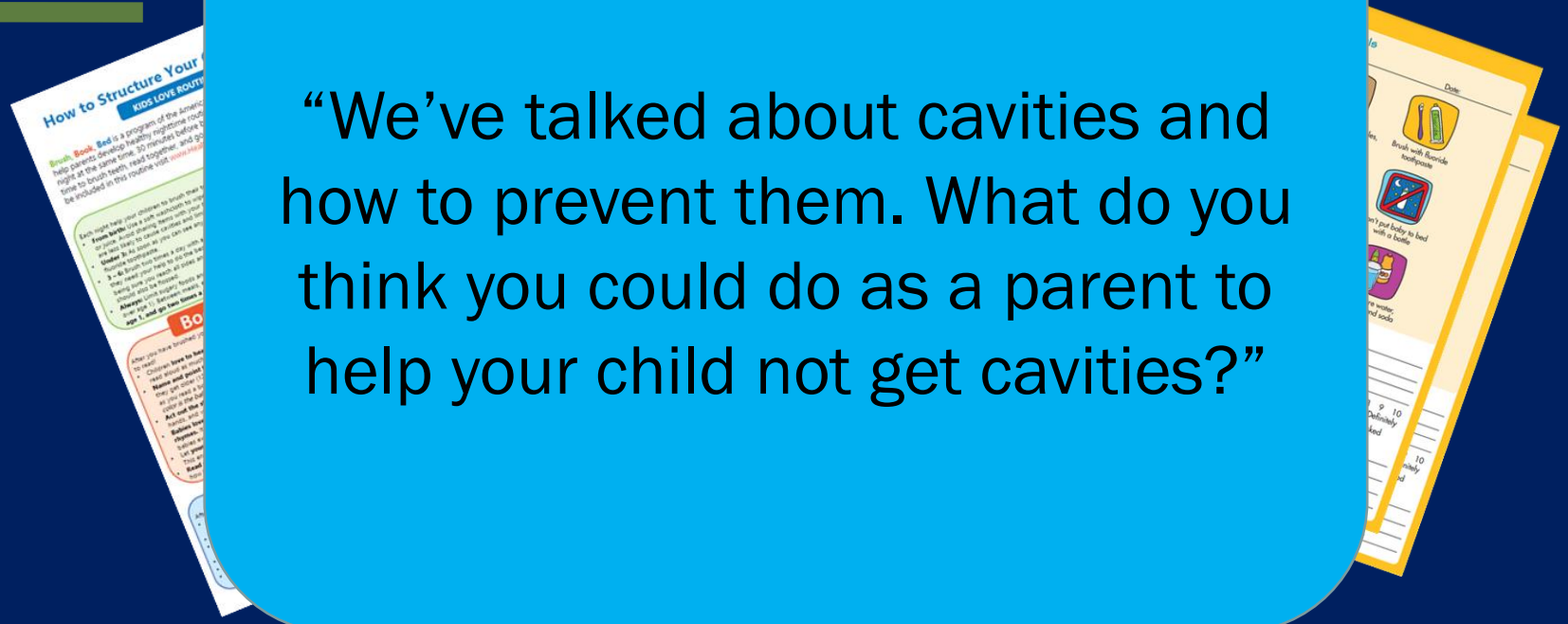
Synchronized, practice facilitation using Primary Care Association coaches	Expanded dental workforce models	Population management	Value-based care with incentive payments	Enhanced patient engagement

MDI Change Package

- Engaged Leadership
- Engaged Providers and Staff
- Right Dental Hygienist
- Dedicated Time
- Continuous Process Improvement
- Team Assignments and Adoption
- Team Workflows

Oral Health Knowledge

Evaluation



"We've talked about cavities and how to prevent them. What do you think you could do as a parent to help your child not get cavities?"

CHCs
19/23 (83%)

2,500 bags sent

2,233 well child visits

Baseline survey
N=426

Follow up survey
N=184 (43%)

Evaluation: Oral Goal Setting

Variable		All, *N* (%) 426 (100)	Follow-up survey completed, *N* (%) 184 (43.2)	Follow-up survey not complete, *N* (%) 242 (56.8)	*p*-value
Oral health goal setting at medical visits intervention delivery					
Did provider talk with you about your child's teeth and gums?	Yes	420 (98.6)	183 (99.5)	237 (97.9)	0.39[b]
	No	5 (1.2)	1 (0.5)	4 (1.6)	
Did you make a goal?	Yes	419 (98.4)	183 (99.5)	236 (97.5)	0.99[b]
	No	7 (1.6)	1 (0.5)	6 (2.5)	
# of goals set	<2	128 (30.0)	57 (31.0)	71 (29.3)	0.7[b]
	≥2	298 (69.9)	127 (69.0)	171 (70.7)	
Confidence in goal	≤6 (not confident)	27 (6.5)	17 (9.4)	10 (4.3)	**0.0350**[b]
	>6 (confident)	389 (93.5)	164 (90.6)	225 (95.7)	

Talla, S., Flowerday, C., Dickinson, M., & Braun, P. A. (2024). Does oral health goal setting during medical visits improve parents' oral health behaviors?. *Journal of public health dentistry*, *84*(1), 28–35. https://doi.org/10.1111/jphd.12597

Evaluation: Oral Goal Setting

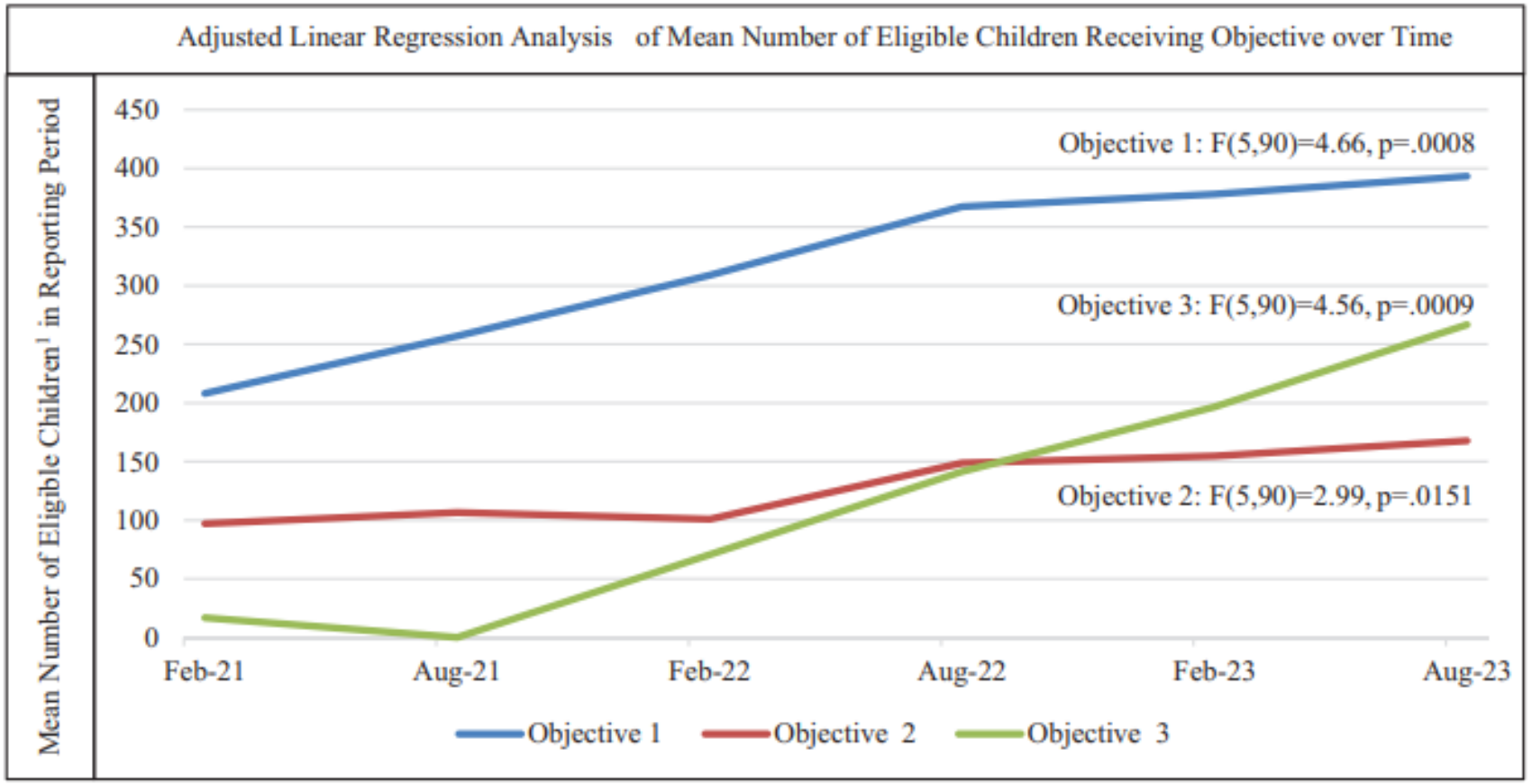
TABLE 4 Unadjusted and adjusted oral health behavior adherence related to oral health goal ($N = 184$).[a]

Exposure		Unadjusted		Adjusted[b]	
Goal	Goal set, *N* (%)	Parameter estimate (standard error)	*p*-value	Parameter estimate (standard error)	*p*-value
Brush my child's teeth more often[c]	97 (52.7%)	0.007 (0.155)	0.965	−0.007 (0.158)	0.9623
Brush my child's teeth more often[d]	97 (52.7%)	0.002 (0.172)	0.992	0.005 (0.173)	0.9735
Brush my child's teeth with fluoride toothpaste	68 (36.9%)	0.519 (0.184)	0.005	0.485 (0.189)	**0.0114**
Keep my mouth germs to myself	49 (26.6%)	0.016 (0.112)	0.886	0.065 (0.115)	0.5706
Only give my child water in their bottle or sippy cup	36 (19.6%)	−0.051 (0.224)	0.820	−0.132 (0.230)	0.5688
Give my child fewer sugary drinks	36 (19.6%)	0.057 (0.113)	0.617	0.075 (0.118)	0.5217
Stop putting my child to bed with a bottle	35 (19.0%)	0.283 (0.122)	0.021	0.273 (0.128)	**0.0347**
Stop putting my child to nap with bottle	35 (19.0%)	0.189 (0.267)	0.482	0.316 (0.276)	0.2544
Give my child tap water with fluoride	33 (17.9%)	0.638 (0.234)	0.007	0.346 (0.192)	**0.0254**

Evaluation: Parent Experience Survey (N = 426)

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
Having my child get his/her dental care at the same time that they get their medical care makes sense to me.	**284 (70%)**	**97 (24%)**	18 (4.4%)	6 (1.5%)
It would be convenient for my child to get his/her dental care from a dental hygienist as part of their medical visit.	**265 (65%)**	**120 (30%)**	17 (4.2%)	3 (0.7%)
Improving the oral health of my child will also improve his/her overall health.	**340 (84%)**	**64 (16%)**	1 (0.2%)	0 (0%)
I don't have enough time for my child to see both a medical and dental provider at the same visit.	17 (4.2%)	39 (9.6%)	**111 (27%)**	**238 (59%)**
Dental problems are not as important as other health problems for my child.	17 (4.2%)	19 (4.7%)	**65 (16%)**	**304 (75%)**

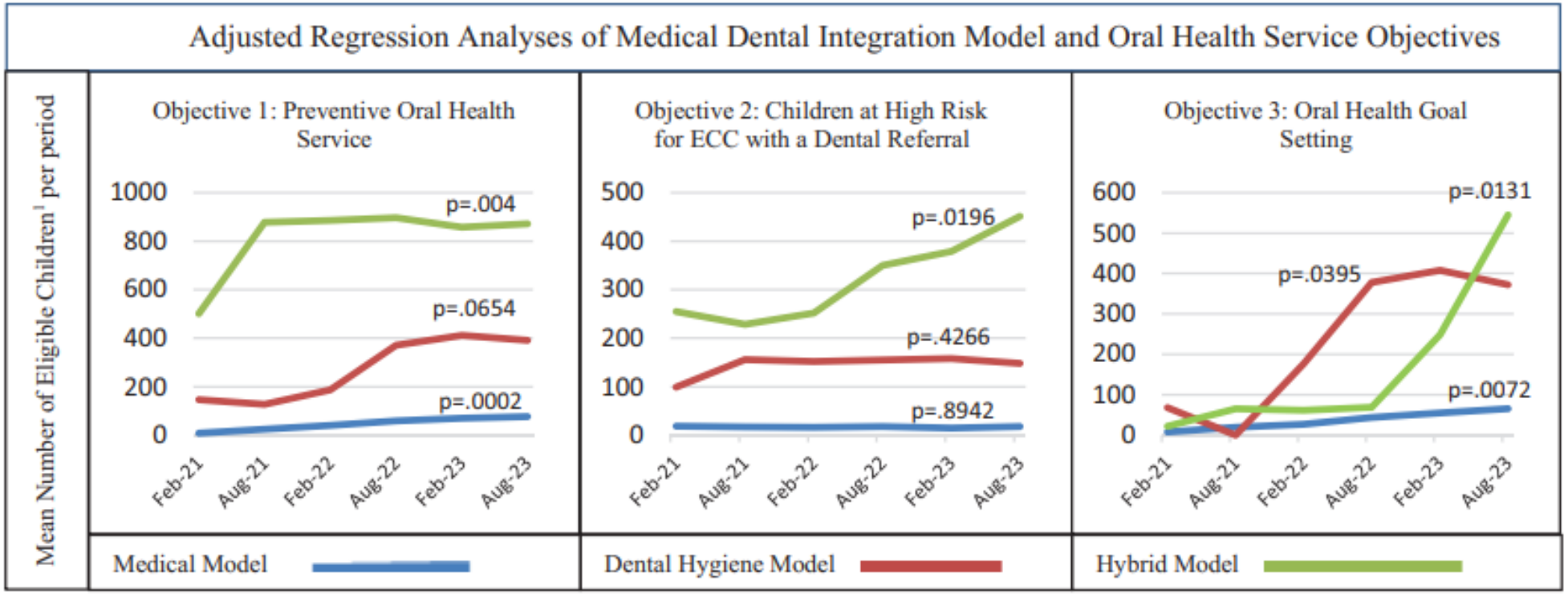
Figure 2. Adjusted linear regression analysis of the proportion of eligible children receiving preventive oral health services.



[1]Eligible children includes children 0-40 months of age seen in each 6-month reporting period for a well childcare visit in the medical clinic and at least 1 previous well childcare visit in the same medical clinic in the child's lifetime. The mean number of eligible children who received the objective-specific oral health services were include for each objective.

Evaluation: Model

Figure 3. Adjusted regression analyses: associations of medical dental integration model and objectives.



[1]Eligible children includes children 0-40 months of age seen in each 6-month reporting period for a well childcare visit in the medical clinic and at least 1 previous well childcare visit in the same medical clinic in the child's lifetime. The mean number of eligible children who received the objective-specific oral health services were included for each objective and medical dental integration model.

Evaluation: Model

Questions | Discussion

Take-Aways

Garnering Leadership Buy-in

- Promote person-centered care
- Build consistent & equitable care through standard work
- Demonstrate ease of processes
- Highlight reduced burden of this work on the medical supportive care team especially the patient access team

Role of Champion

- Voice of medical providers
- Dedicates time to meeting with coach and reviewing quality improvement metrics
- Communicates across teams
- Educates medical team colleagues, at staff and provider meetings
- Finds opportunities for practice improvement
- Sends information back to the team with reminders and tips for making changes

Medical Staff Buy-in and Engagement

- Understands importance and impact of oral health on overall health
- Understands common risk factors across health outcomes
- Sees value of integrated care
- Benefits of interprofessional relationships
- Interested in working on new project

Data Driven Improvement

- Objective measurement of improvement
- Identifies opportunities for improvement
- Motivates teams
- Demonstrates successes

- **Highly motivated, adaptable, problem solver**
- **Respects timeliness and prioritization**
- **Patient navigator to dentist**

Right Hygienist

Lessons Learned

- Medical dental integration is feasible & has potential to improve oral health.
- Different models of care delivery support different communities' needs.
- Medical dental integration happens with practice transformation support.
- Patients value medical dental integration.
- Payment supports implementation of models.

Policy Opportunities

- Maintain Medicaid payment for preventive oral health services at medical visits.
- Expand Medicare Advantage benefit for dental services in medical and dental visits.
- Supportive rules/regulations around expanded dental workforce models.
- Authorize HHS oral health funding to mandatory federal budget appropriations.

Questions | Discussion

Thank you

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