

The Oral-Systemic Connection Across the Lifespan

*Systemic Conditions Linked to
Oral Health Conditions*

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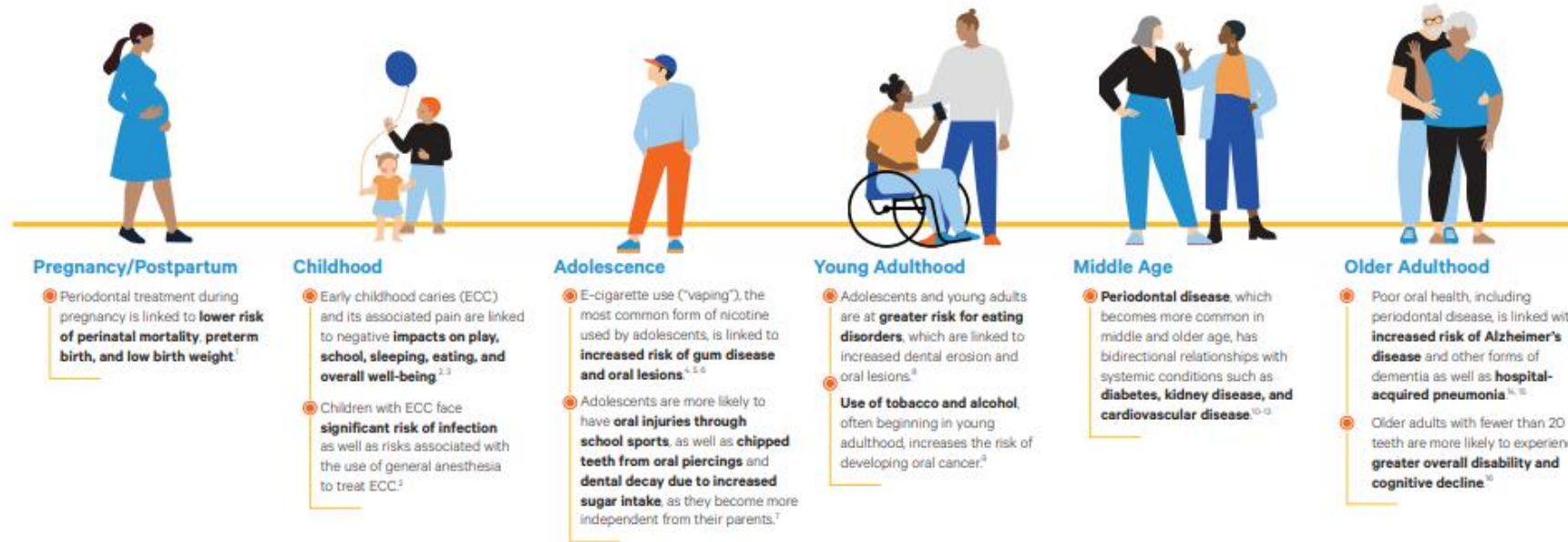
Disclosure

Speakers agree that neither they nor members of their immediate family have any financial relationships with commercial entities that may be relevant to their presentation.

Learning Objectives

- Describe the oral-systemic connection for at least three systemic conditions from across the lifespan, from the prenatal period through older age.
- Discuss how medical-dental integration (MDI) addresses the oral-systemic connection.
- Reflect on how your own program incorporates MDI and ways in which this implementation could be expanded.

The Oral-Systemic Connection Across the Lifespan



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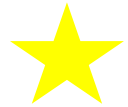


“Oral-Systemic
Interactions and Medical
Dental Integration: A Life
Course Approach”
Review Paper

COMING SOON!

Mid-November 2023

Oral Health During Pregnancy & Postpartum



Patient and provider concerns about safety of dental treatment during pregnancy may lead some to avoid routine care (*George et al., 2012; 2013*)

- Periodontal disease is linked to adverse pregnancy and birth outcomes:
 - Preeclampsia (*Crowder, 2023*)
 - Increased risk of preterm birth (*Manrique-Corredor et al., 2019*)
 - Infant low birth weight (*Padilla-Cáceres et al., 2023*)
- Pregnancy-related hormones may interact with plaque levels and other factors to increase risk of periodontal infection during pregnancy (*Carrillo-de-Albornoz et al., 2012*)



Pregnancy/Postpartum

Oral Health During Childhood

- Misunderstanding that primary teeth are unimportant; “going to fall out anyway” (*Hilton et al., 2007*)
- Early childhood caries (ECC) most common childhood chronic disease (*Casamassimo et al., 2009*)
- ECC linked to:
 - Poor nutrition, weight loss, iron-deficiency anemia (*Clarke et al., 2006; Singh et al, 2020*)
 - Negative impacts on children’s behavior, school performance, overall development
(*Casamassimo et al., 2009*)
- Treatment for ECC under sedation has risks of vomiting, respiratory depression, aspiration
(*Cote & Wilson, 2016*)



Oral Health During Adolescence

- As adolescents become more independent from parents, increased oral health risks
- Vaping (e-cigarette use) most common form of nicotine used by adolescents (*CDC, 2022*)
 - 3% of middle school /14% of high school students used in past 30 days (*CDC, 2022*)
 - Increased risk of periodontal disease, oral lesions (*CDC, 2020; Vohra et al., 2020; Ralho et al., 2019*)
 - Concerns about long-term impacts of high levels of nicotine on the developing brain (*US Surgeon General, 2023*)
- More likely to have oral injuries due to participation in school athletics (*Young et al., 2015*)
- Tongue, lip piercings linked to gingival recession, tooth chipping/cracking (*Plessas & Pepelassi, 2012*)
- Often eat / drink more carbohydrates and sugary beverages, increased caries (*Silk & Kwok, 2017*)



Oral Health During Young Adulthood

- At age 21 years, legally able to buy tobacco and alcohol

(US Food & Drug Administration, 2021; CDC, 2022)

- Chronic use of both increases risk of:
 - Oral cancer *(Moreno-López et al., 2000)*
 - Pulmonary and cardiovascular disease *(Grucza & Bierut, 2006)*
 - Depression *(Jané-Llopis & Matytsina, 2006)*

★ Mean age of onset for Anorexia and Bulimia Nervosa is 18; for Binge Eating Disorder is 21 *(NIMH, 2023)*

- Tooth erosion, gingival recession, enlarged parotid glands *(Presskreischer et al., 2023)*
- Anemia, muscle wasting, hypotension, cardiac damage, and infertility *(NIMH, 2021)*



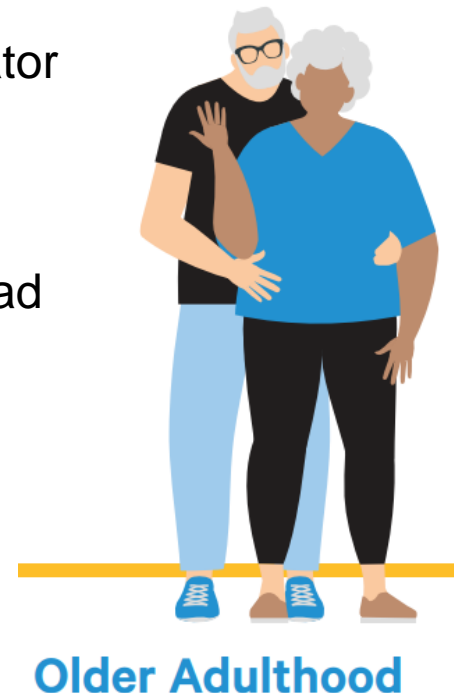
Oral Health During Middle Age

- More than 1/3 of adults over 30 have mild to moderate periodontitis; 7.8% have severe (*Eke et al., 2018*)
- Bi-directional relationship between periodontal disease and diabetes (*Preshaw et al., 2012*)
 - Lower HbA1C levels after treatment for periodontal disease (*Engelbreton & Kocher, 2013*)
- Periodontitis linked with higher risk of stroke and ischemic heart disease (*Byun et al., 2020*)
- Greater risk of peripheral artery disease with periodontal disease, periodontal treatment history, tooth loss
(*Lubaina et al., 2022*)
- Higher levels of low-density lipoproteins (LDL cholesterol) and triglycerides
(*Mattila et al., 2005*)



Oral Health During Older Adulthood

- Periodontitis is linked to significantly increased risk of dementia over 50 (*Lee et al., 2020*)
- Adults aged 75-80 with 5+ periodontal treatments had significantly lower adjusted risk of developing dementia (overall, Alzheimer's, and vascular) (*Saito et al., 2022*)
- Risk of hospital-acquired pneumonia higher with missing teeth, heavy plaque (*Ewan et al., 2015*)
 - Increased oral hygiene care in acute care associated with 85% reduction in non-ventilator hospital-acquired pneumonia (NVHAP; *Guiliano et al., 2021*)
 - Medicaid participants with preventive or periodontal treatment prior to hospitalization had significantly reduced risk of NVHAP (*Thakkar-Samtani, 2020*)



Conclusions

- From the prenatal period through older age, oral health is inextricably linked to overall health
- Dental caries, periodontal disease associated with systemic health conditions that change throughout the life span
- Medical-dental integration critical to provide whole-person care for optimal health at all ages

Thank you for your attention!

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“The Oral-Systemic Connection Through the Lifespan”

<https://www.carequest.org/resource-library/oral-systemic-connection-across-lifespan>

**“Oral-Systemic Interactions and Medical Dental Integration:
A Life Course Approach” Review Paper**

Coming mid-November 2023

Medical Dental Integration Across the Lifespan

Tamanna Tiwari MPH, MDS, BDS

Associate Professor, School of Dental Medicine

University Of Colorado

Promoting integration of oral and medical health at all levels of primary care following a life course approach benefits patients across their lifespan

Why Integrated Health Care Systems Should Understand Oral-Systemic Interactions Through a Life Course Approach

- A life course approach considers factors that act during development and aging, which might influence disease onset.
- Dependent on the timing between exposure to risk factors and disease development and progression at the individual and population levels.

Why is it Important to Oral-Systemic Interactions?

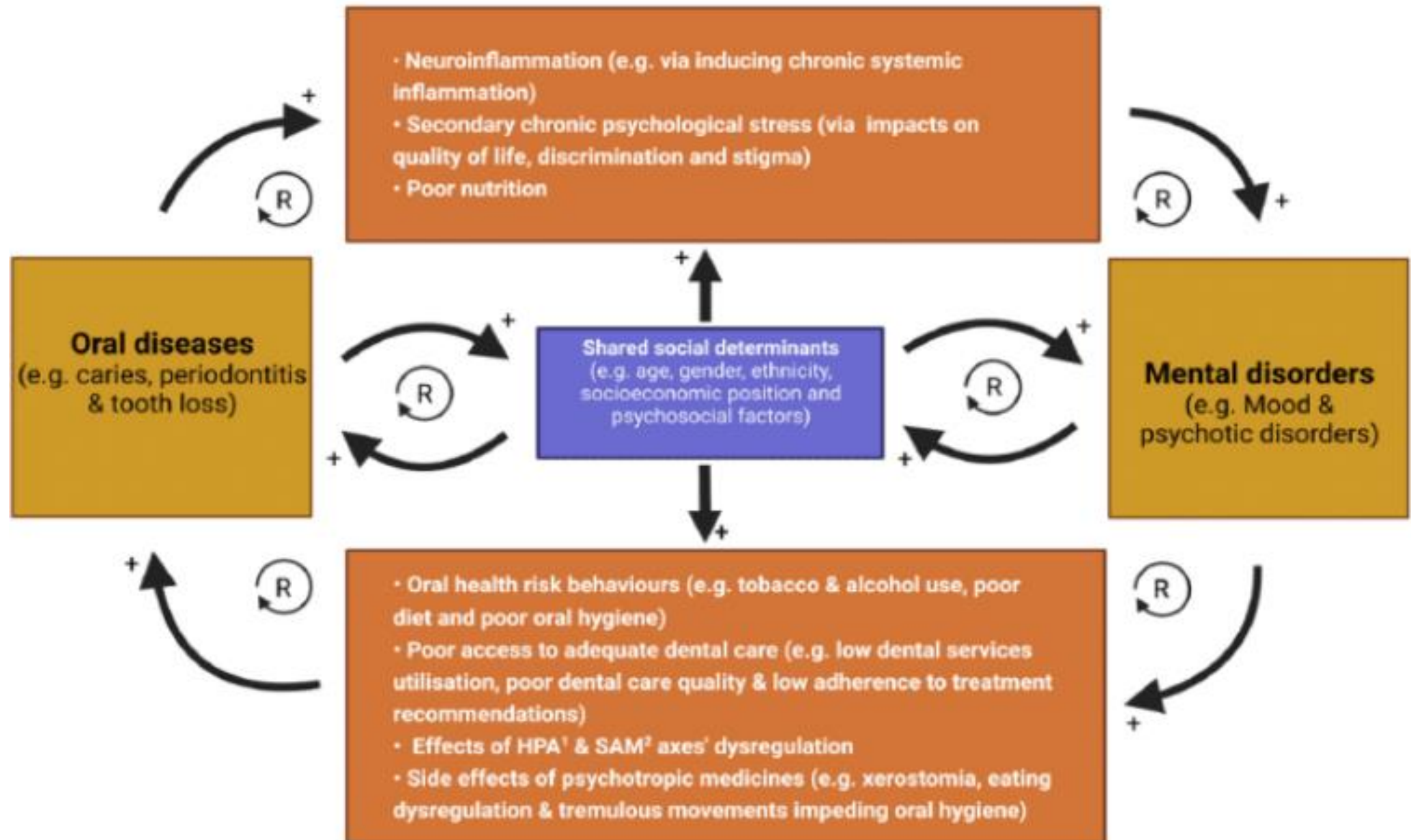
- It follows the framework of *risk accumulation*, critical and sensitive *periods of exposure*, and underlying *socio-environmental determinants* of health experienced at different life course stages.

Life Course Approach for Diseases

- Allows health care providers to screen, refer, and advise patients who may be unaware of their risk factors for many chronic diseases.
- Over 20% of adults with diabetes mellitus and 80% of adults with pre-diabetes are unaware that they have these conditions.

Point-of-care diabetes testing of dental patients :

- 11% of patients were diagnosed with diabetes, and 47% were diagnosed with pre-diabetes.

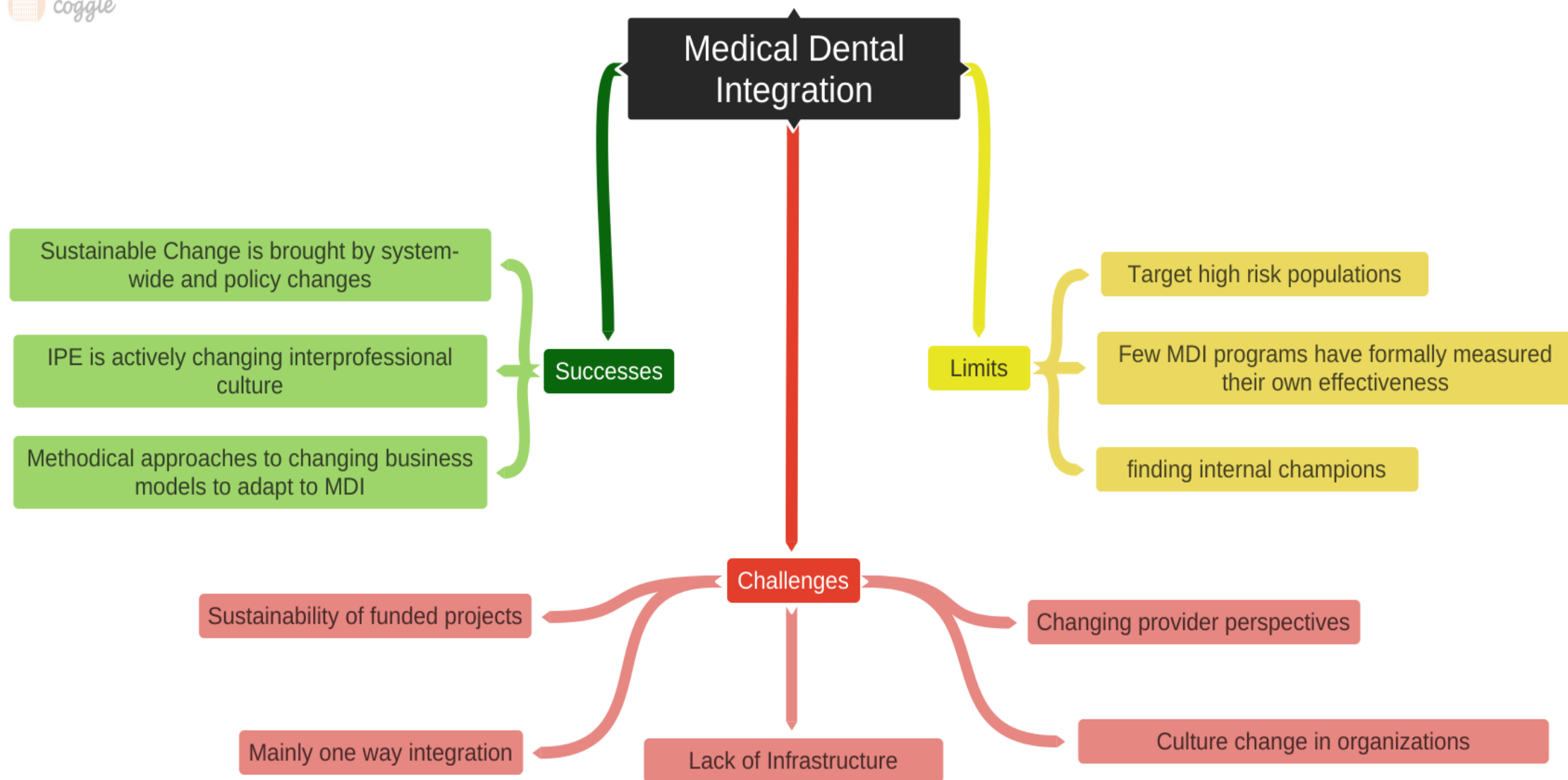


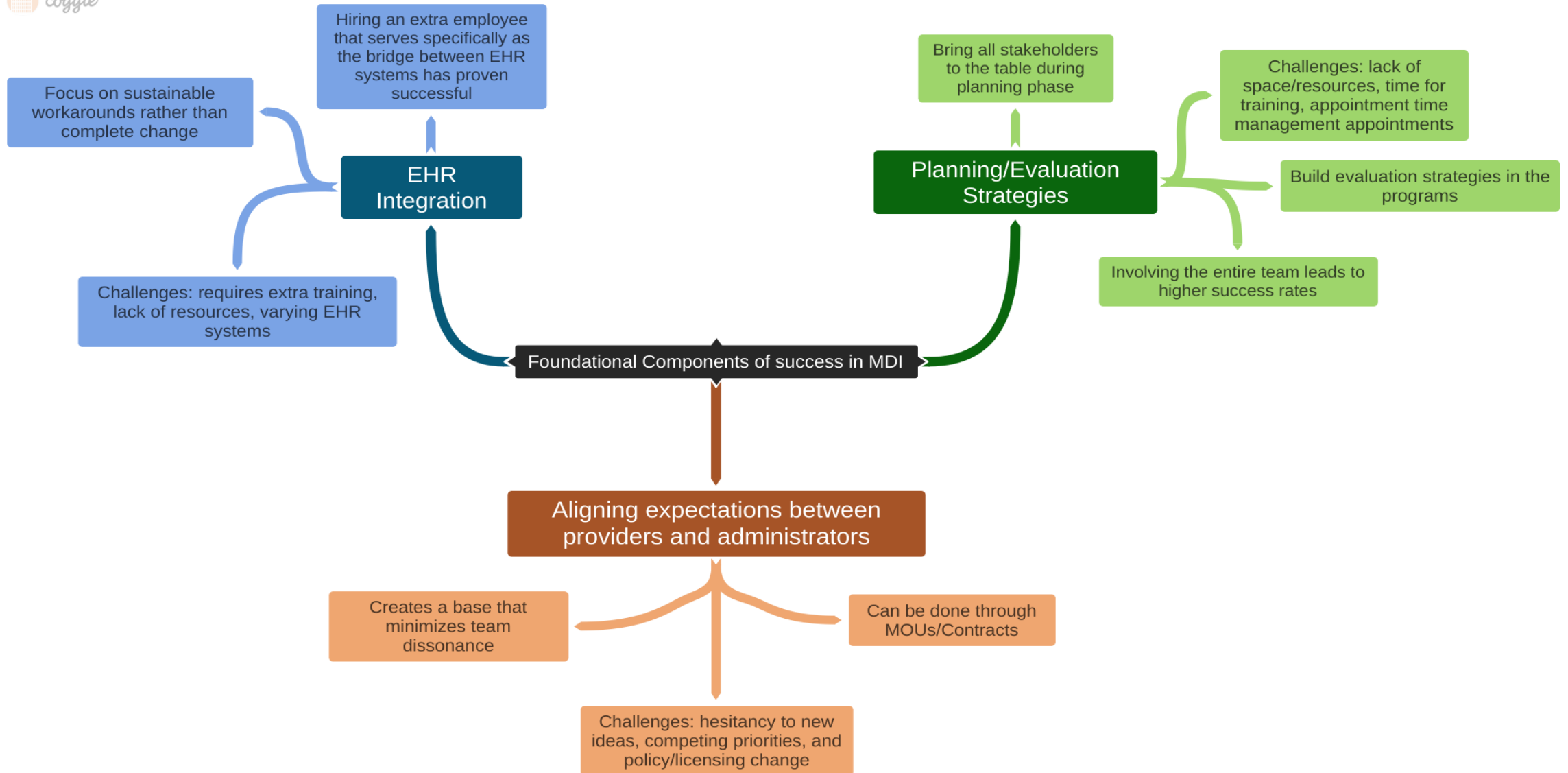
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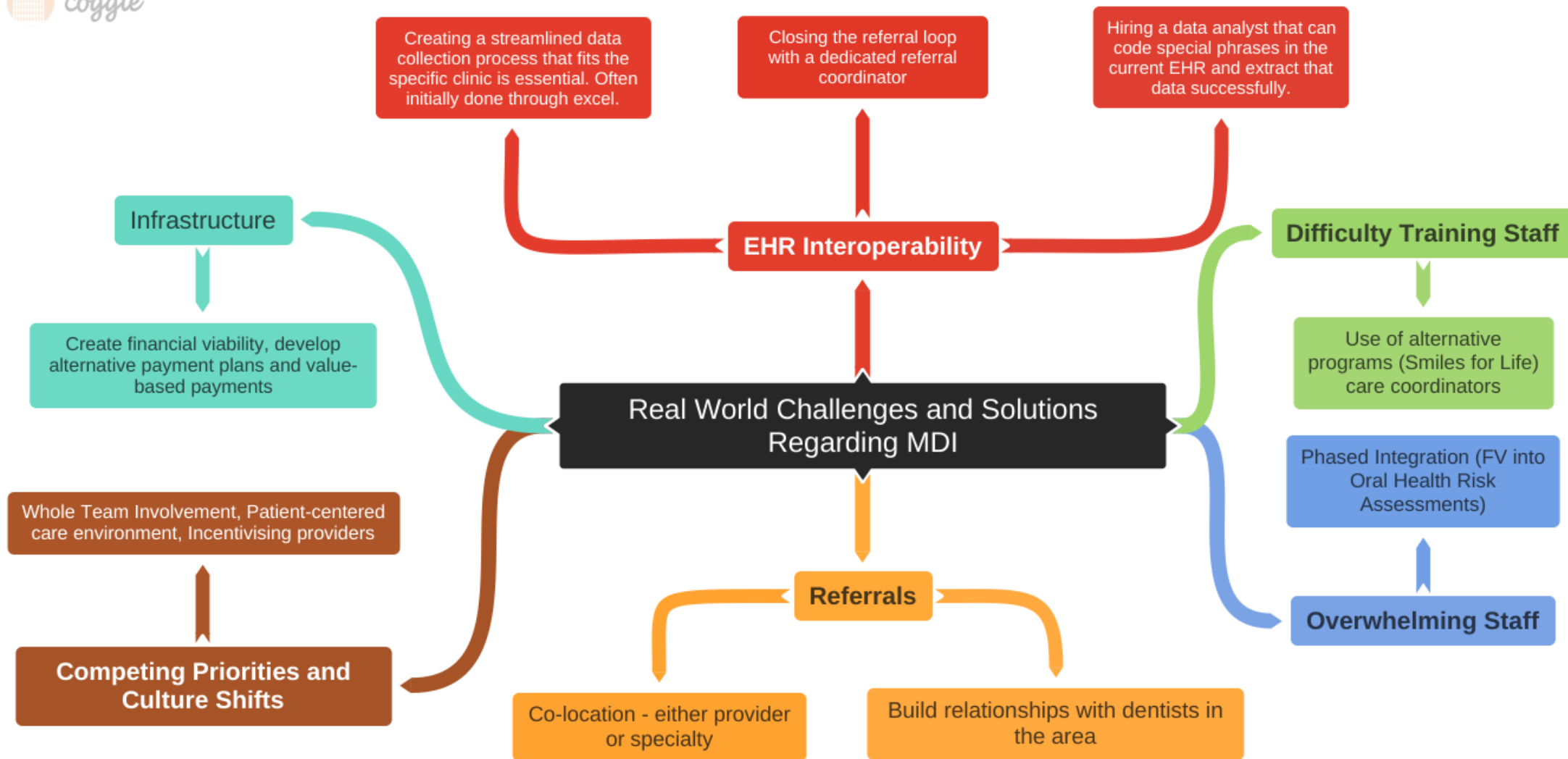
Collaboration & Understanding
your professional role

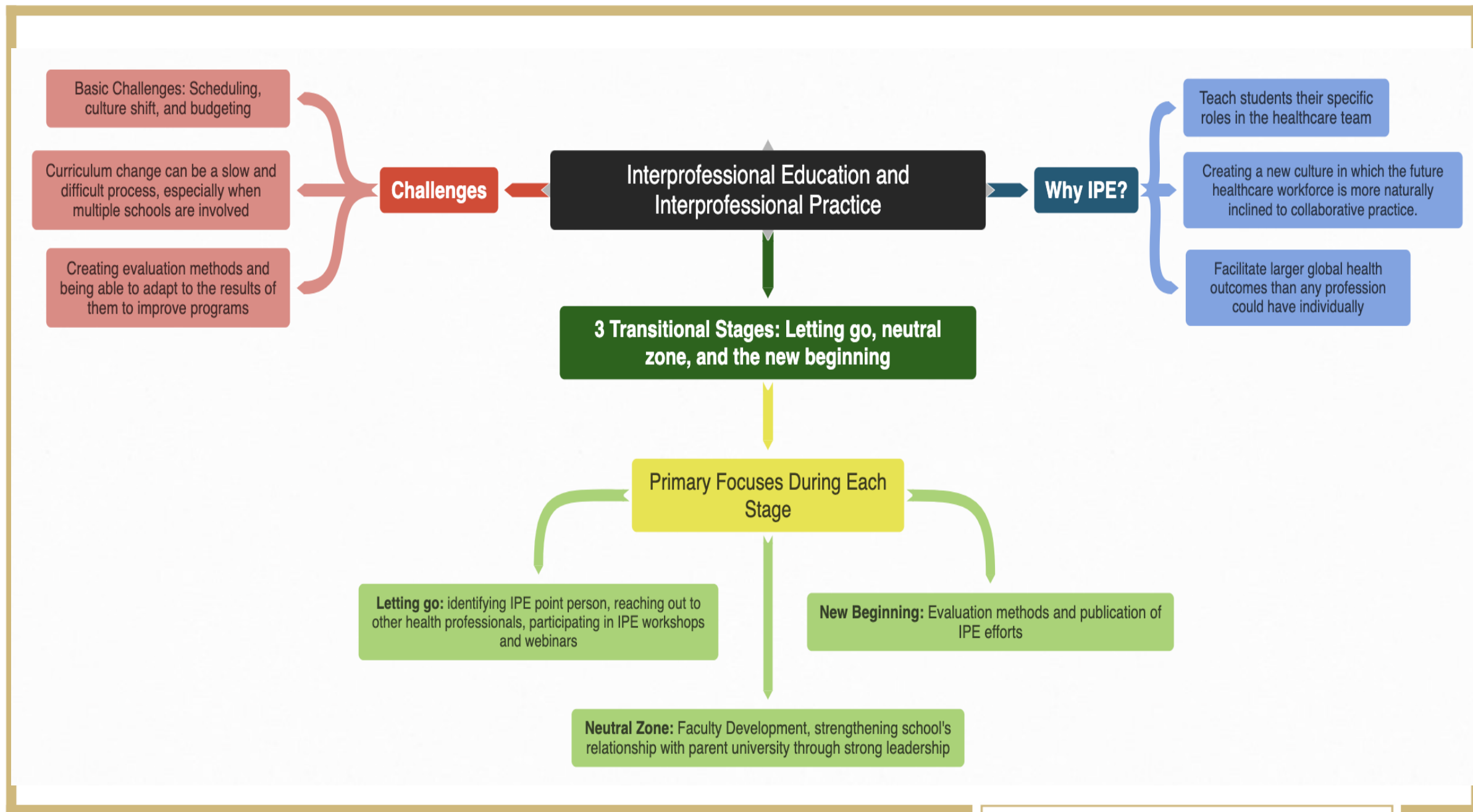
Overall and oral health effects of mental health and trauma

Patient-Centered Communication Skills









Call to Action

- Educating MDI medical, dental, and allied healthcare workforce members in MDI.
- Implementing bidirectionality of integrated medical and dental teaching and practice.
- Changing state practice acts and scope of practice for dentists.
- Increasing patient awareness to improve acceptability of MDI models.

Accelerating Whole-Person Integrated Care

Nicole Johnson, MPH

**Associate Director for Policy, Partnerships, and Strategic Communication
National Center for Chronic Disease Prevention and Health Promotion
Division of Oral Health**

**American Dental Education Association
November 1, 2023**



Challenge:

- While oral health is essential to overall health, medical and dental care in the United States are provided through **distinct systems** of workforce development, practice, and payment.

Solution:

- Develop a **roadmap to bridge the systems** to improve oral health equity and overall health outcomes.



Developing a Framework

- In 2020, CDC began funding the National Association of Chronic Disease Directors (NACDD) to develop a national action framework to accelerate whole-person integrated care in public health and health care systems.
- NACDD engaged KDH Research & Communication (KDHRC) as a partner in this work.

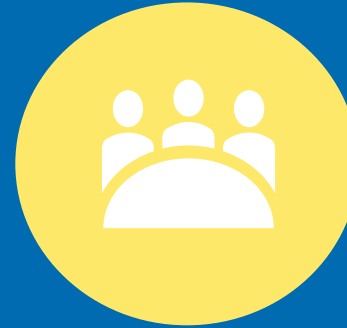




Process for Framework Development



**CONNECT WITH
PARTNERS**



**ESTABLISH STEERING
COMMITTEE**



**CONDUCT KEY
INFORMANT INTERVIEWS
AND FOCUS GROUPS**



**CONDUCT LITERATURE
REVIEW**



**HOST AND ATTEND
CONVENINGS**



Framework Development

- Engaged a Steering Committee for ongoing guidance
- Gathered information from a systematic review of published and gray literature
 - Reviewed ~4,000 and coded 428 peer-reviewed articles (325 domestic, 103 international)
- Validated research through key informant interviews
 - Conducted 44 individual and 4 group interviews
- Hosted virtual meeting in May 2022 with diverse experts
- Presented at partner meetings and topical breakout groups

MDI Steering Committee

Ms. Katy Battani, RDH, MS

- *Project Manager – Partnership for Integrating Oral Health Care into Primary Care, National Maternal and Child Oral Health Resource Center, Georgetown University*

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Dr. Hugh Silk, MD, MPH, FAAFP

- *Professor – University of Massachusetts Medical School*
- *Co-Principal Investigator – Center for Integration of Primary Care and Oral Health*
- *Medical Director – Community Healthlink*



Overview of the Framework

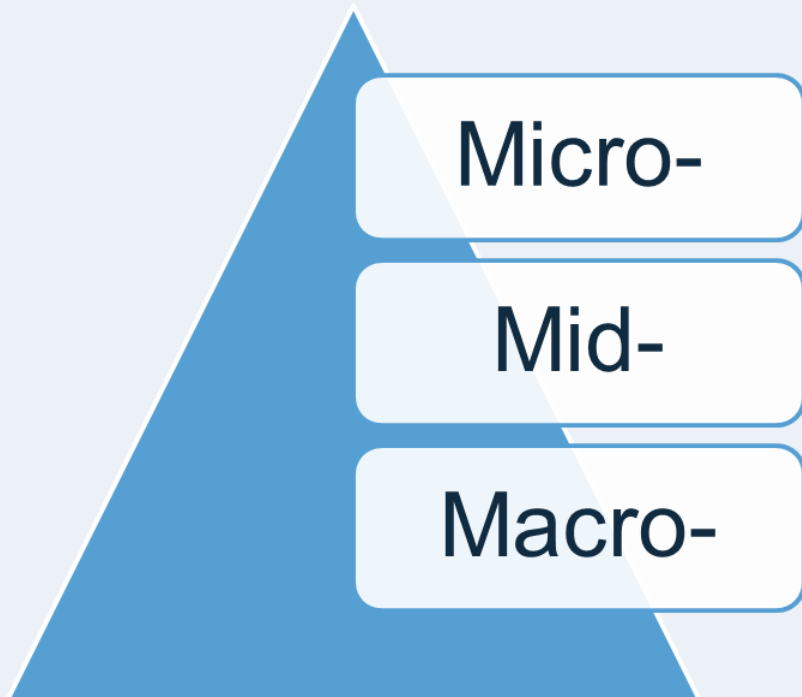


- Based on input gathered from literature review and interviews, the levers are taking shape around **four pillars**:
 - Awareness
 - Workforce Development and Operations
 - Information Exchange
 - Payment

Overview of the Framework



...and each is further broken down into **three levels of engagement**:



Micro-

(e.g., consumers, a particular clinic or school)

Mid-

(e.g., state health departments, healthcare systems)

Macro-

(e.g., payers, federal government, national professional organizations)



Partner Engagement Initiative

Mission:

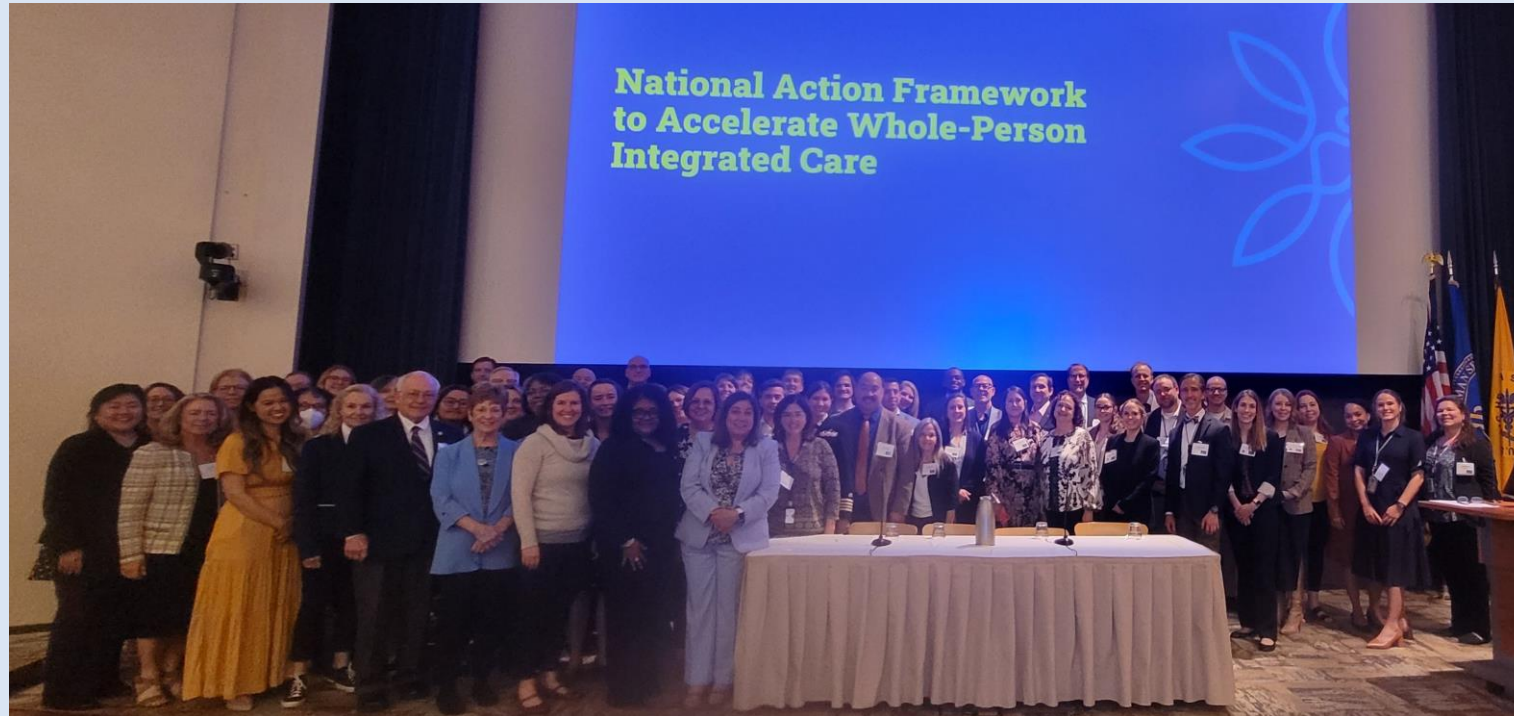
- Build awareness about the relationship between oral health and overall health.
- Convene diverse partners and facilitate collaboration among medical, dental, and public health systems and partners.
- Promote evidence-based and emerging strategies to achieve health equity principles.
- Recognize partner commitments and celebrate successes in whole-person integrated care.



Partner Input

In addition to work to inform the Framework, CDC:

- Hosted in-person meeting in May 2023 to begin priority setting



Partner Engagement Plan

- Several models are being considered to provide an "information exchange hub."
- This platform will facilitate dialogue among partners within and across the four pillar areas.
- Recruit diverse partners into action-oriented workgroups to accelerate integration over the next 3–5 years.
- Over time, progress on objectives and activities that support the Framework will be tracked and promoted more broadly.



Stay Connected



Questions

