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# NH Policy Summit: Pathways to Adult Oral Health

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## *A Socio-economic Return on Investment Analysis of Medicaid Adult Dental Benefits*

**Martha Dellapenna, RDH, MEd**  
**Medicaid|Medicare|CHIP Services Dental Association**

**Concord, NH**  
**January 12, 2017**

# Learning Objectives

Participants will gain knowledge and understanding of:

- Research that is being conducted around adult dental benefits in Medicaid
- The potential socio-economic effects of funding/not funding an adult dental benefit in a state Medicaid program
- How the research can translate into making the most informed policy decisions possible

# DentaQuest Foundation

## Oral Health 2020 Goals and Targets

### Goal 3:

Mandatory inclusion of an adult dental benefit in publicly funded health insurance: Adult Medicaid

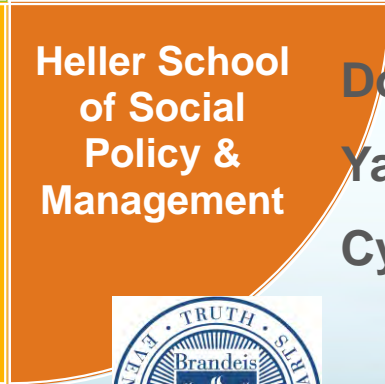


# Key Charges

1. Study *non-traditional* factors/indicators that may be impacted by by adding benefits;
2. Propose and study *non-traditional* factors that could impact overall state budgets and/or communities and programs; and
3. Develop a conceptual model for states to use in budget preparations and policy making

# Research Team

Medicaid  
Academia  
Dental Public Health



**Donald Shepard, PhD**  
**Yara Halasa, DMD, MS, PhD(c)**  
**Cynthia Tschampl, PhD**

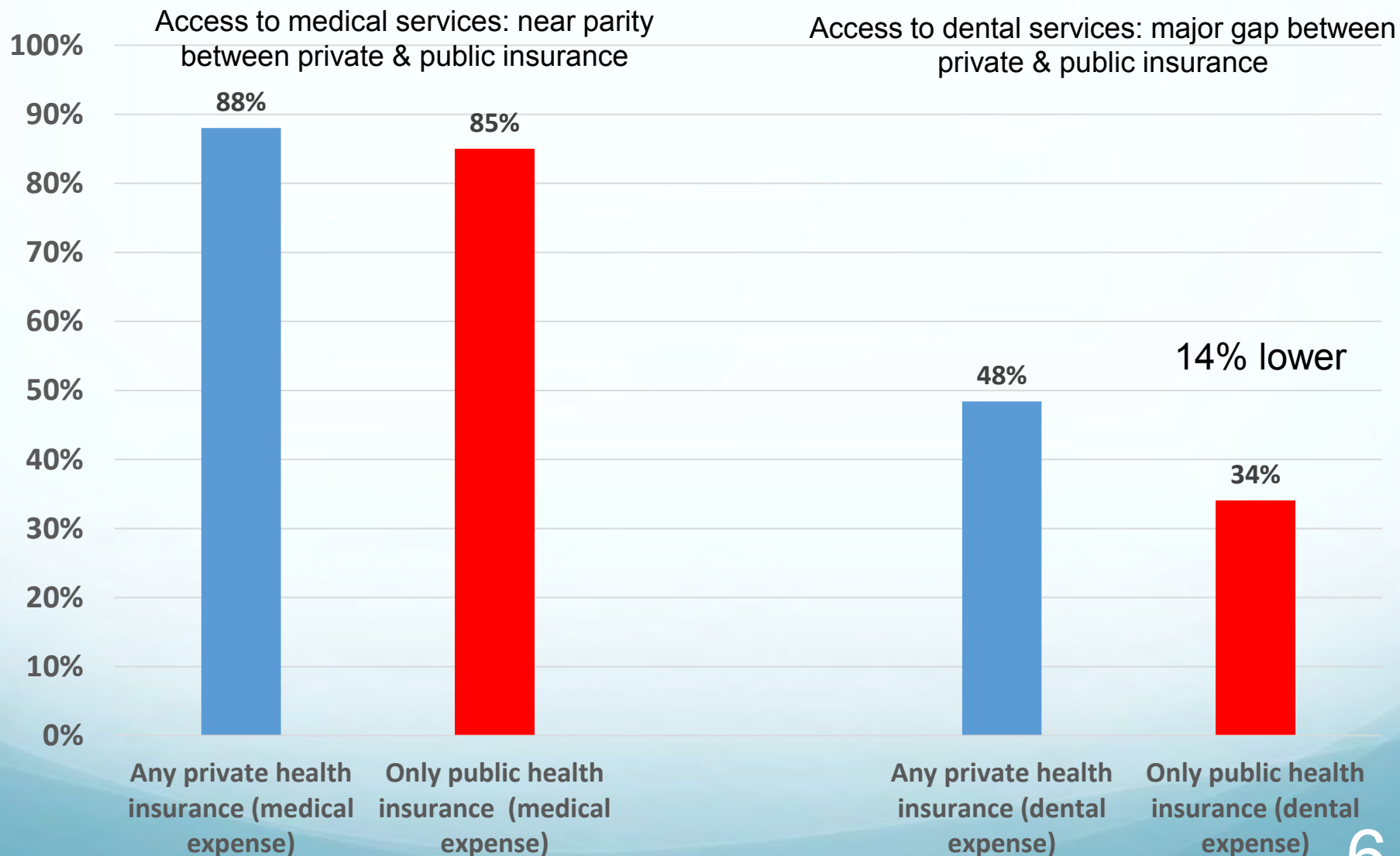
**Martha Dellapenna, RDH, MEd**

**Mary E. Foley, RDH, MPH**



# Access to Medical and Dental Services

## % of Insurance Type Incurring Expense in 2013



Source: AHRQ, Medical Expenditure Panel Survey (MEPS)

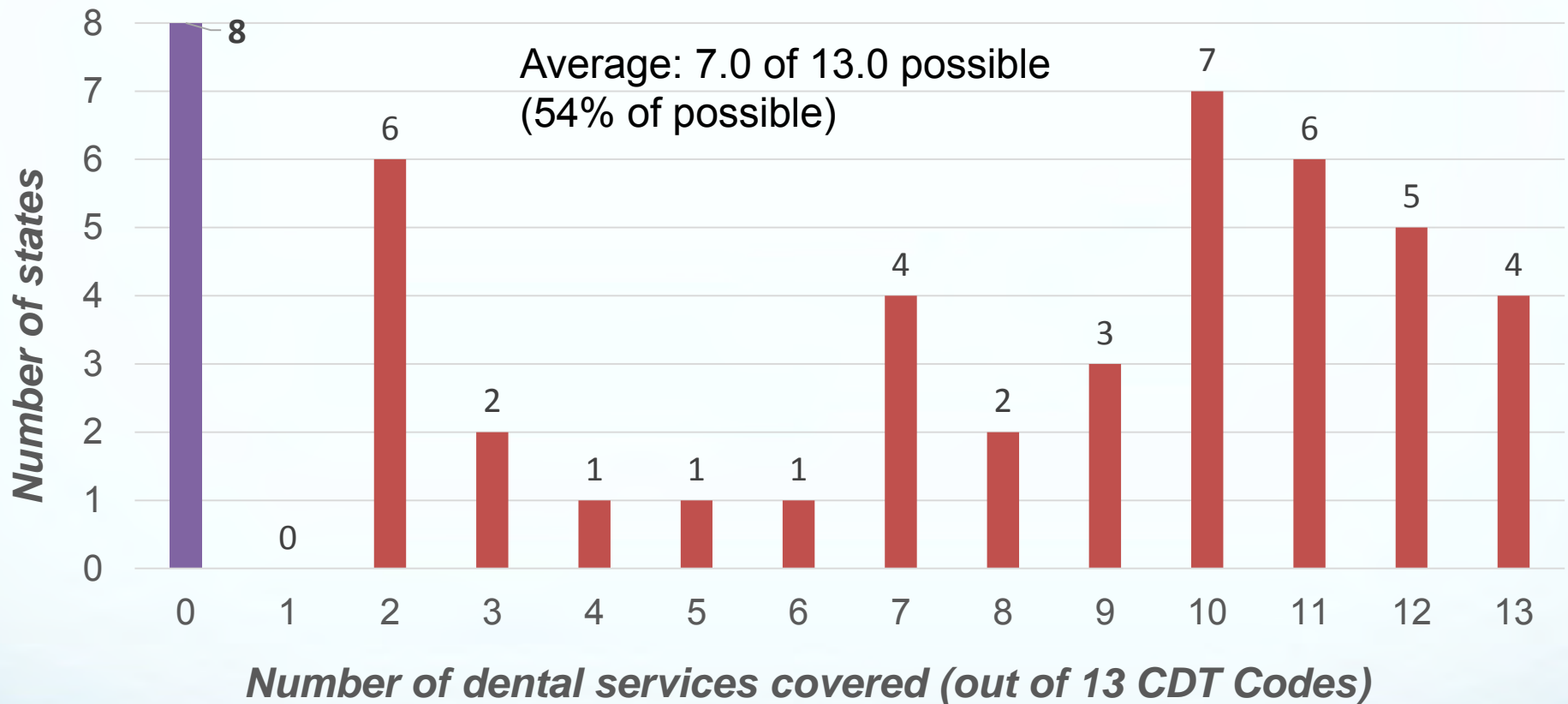
# Adult Medicaid Dental Services

## Subset of Benefits from MSDA National Profile

- Comprehensive Dental Exam
- Periodic Oral Evaluation
- Limited Oral Evaluation
- Adult Prophylaxis
- Fluoride Varnish
- Amalgam Restorations
- Composite Restorations
- Crowns
- Endodontic Treatment
- Dentures
- Tooth Extractions
- Scaling & Root Planing
- Periodontal Maintenance

[www.msdanationalprofile.com](http://www.msdanationalprofile.com)

# Covered Adult Medicaid Dental Services\*



Note the variability of dental coverage across the states for 13 specific CDT codes.

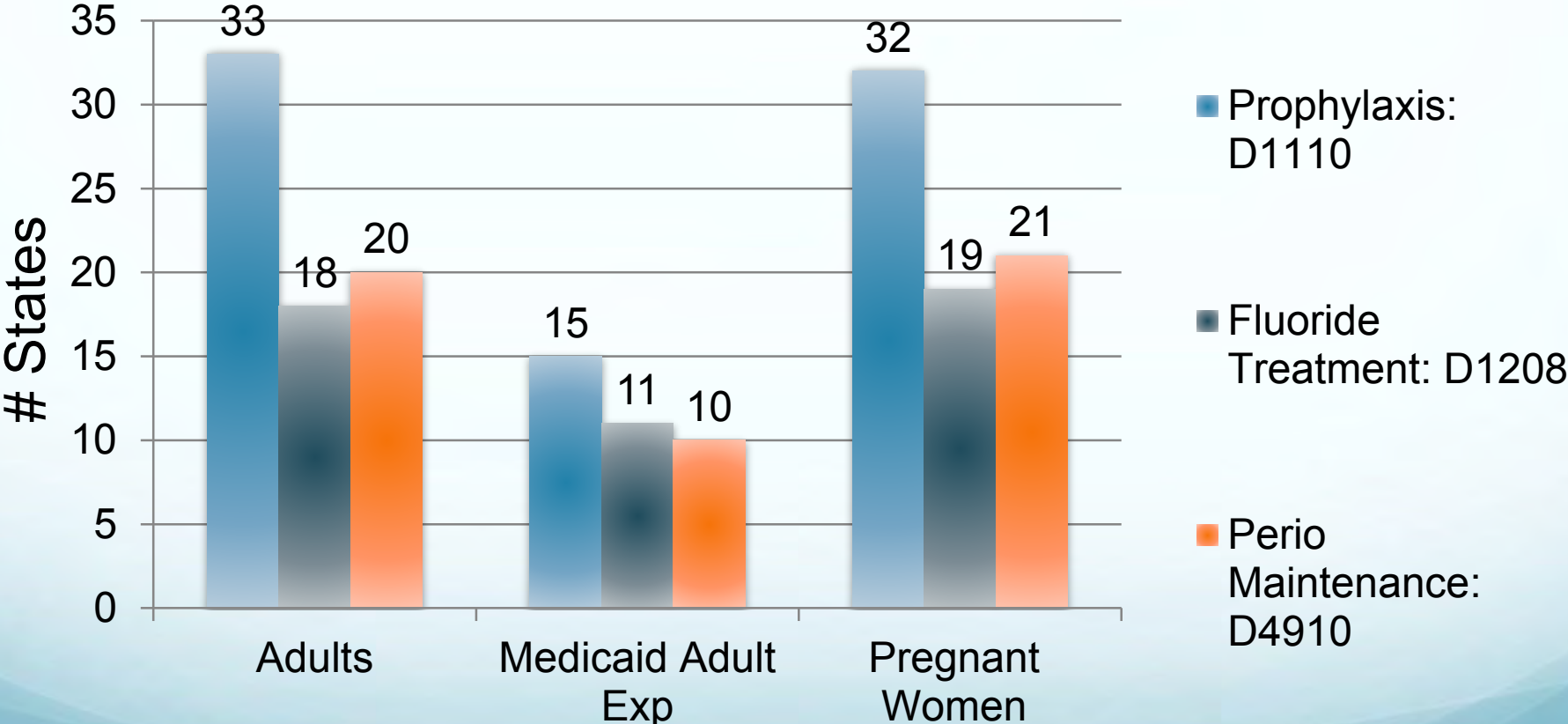
\* 2014 MSDA National Profile



# Adult Dental Benefits, By Population Group

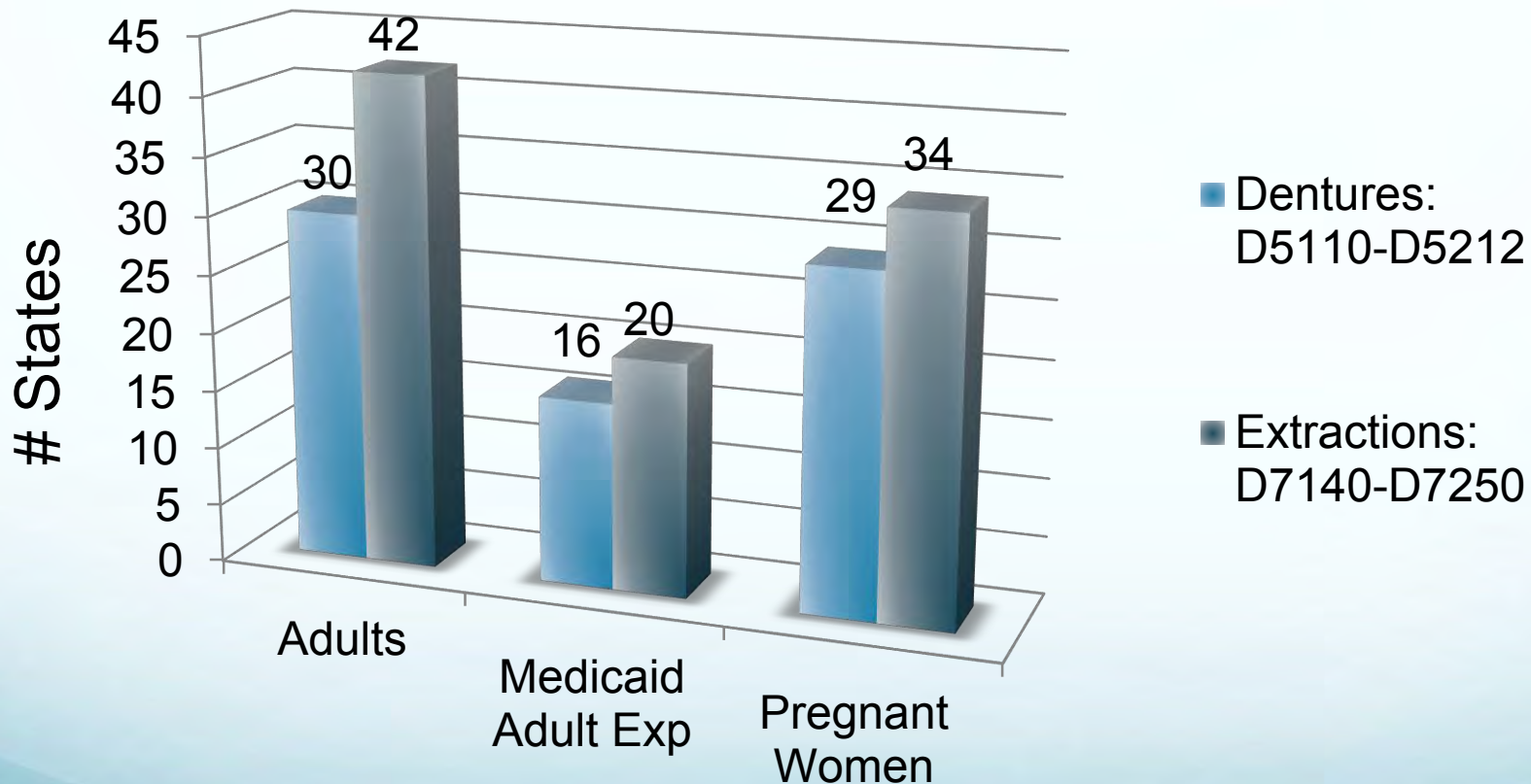
## Preventive Services

2014 MSDA National Profile



# Adult Dental Benefits

## Dentures and Extractions



# Return on Investment

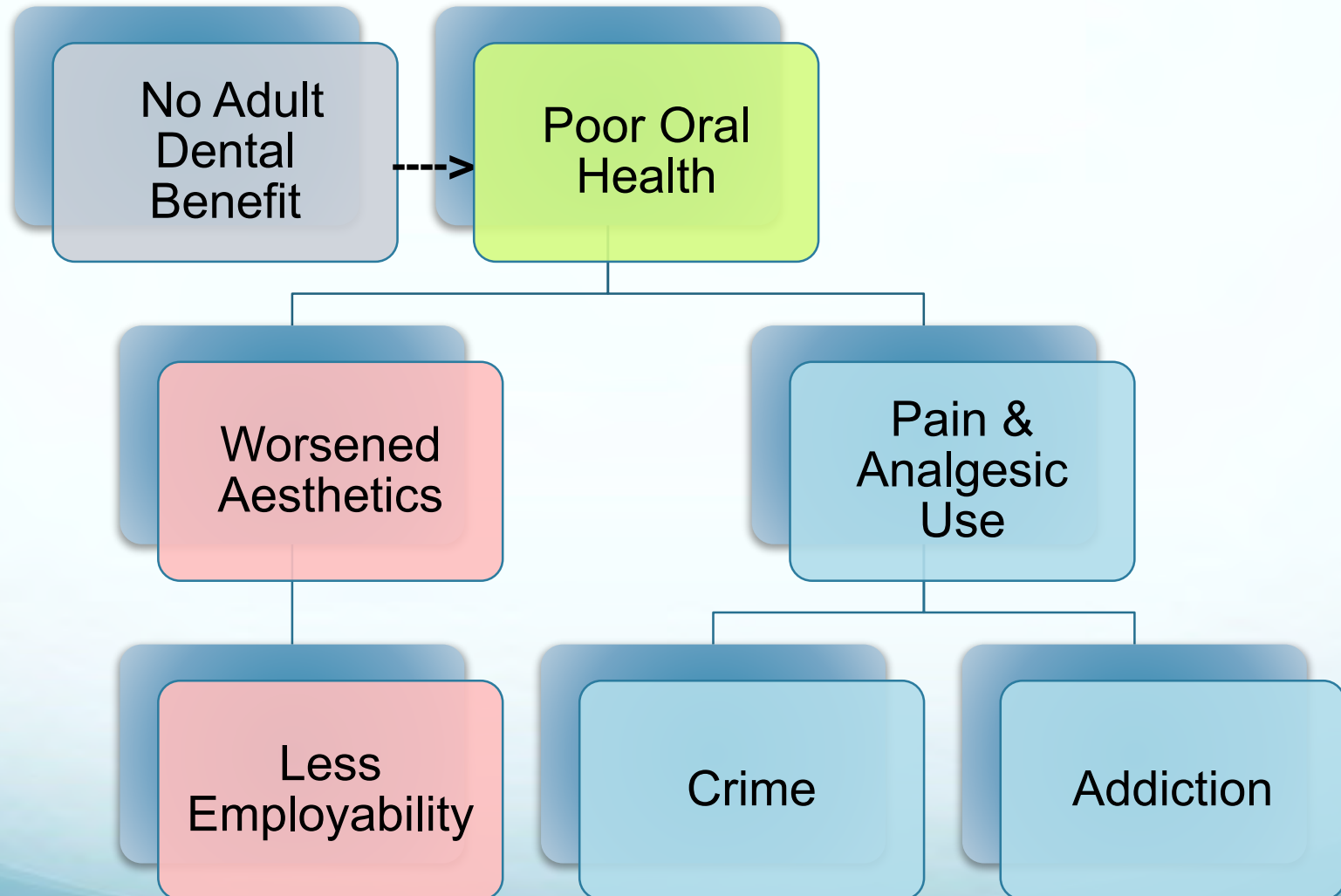
## Investments:

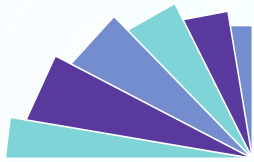
- Expanded coverage for adult dental services to improve access and depth

## New Types of Returns:

- Less crime
- Less addiction
- Increased employment probability

# Two Pathways:





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## ***Pathway #1***

***Broken Smiles: Effect of Untreated  
Oral Disease on Employment***

# Introduction

- The 2010 Patient Protection and Affordable Care Act (ACA) improved access to medical coverage, but smaller improvement for dental coverage
- Untreated dental diseases are often unsightly and may contribute to under-employment and unemployment



# Untreated Oral Diseases & Employment

- Reduce participation in labor market: poor appearance and low self-esteem
- Reduce earning: lower wages due to poor appearance
- Reduce employability: frequent absences from work due to consequences of unmet dental needs



# Selection of Job Applicants





# Objective

Assess impact of unsightly oral aesthetics due to untreated dental disease:

- Job applicants' employability
- State and federal government budgets

# Method: Index Development

- 2011-12 National Health & Nutrition Examination Survey (NHANES) data
- 3,722 observations
- Working population (ages 21-64 years)
- Developed **Oral Health Aesthetic Index (OHAi: 0-100)**
  - Untreated dental disease
  - Tooth count/tooth surface condition variables
  - 12 upper/lower permanent anterior teeth
  - Maximum score: 100 - All 12 teeth sound
  - Minimum score: 0 - All 12 teeth missing

# Oral Health Aesthetic Index (OHAI)

- NHANES 2011-12 data & revised to include 2013-14
- Each tooth given a score
  - Sound tooth: 10
  - Missing tooth replaced with fixed restoration: 9
  - Permanent root tip with restorative replacement: 8
  - Missing tooth replaced with removable restoration: 6
  - Tooth with surface condition: 5
  - Tooth with untreated caries: 3
  - Missing tooth: 0

# Methods: Model & Impact

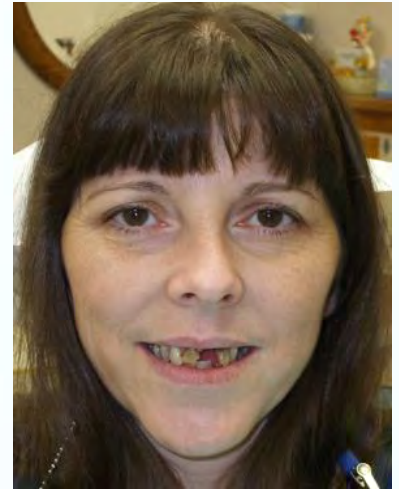
- OHAI score for opposites
  - Person with recent routine dental visit
  - Demographically-matched person without such a visit
- Calculate: Increased probability of being employed
- Estimate: Net fiscal benefit to government from
  - Additional tax revenue
  - Lower unemployment expenditures
  - Reduced Medicaid enrollment

# Results

- Average OHAI Scores
  - Adults with routine dental visit: **83**
  - Matched adults without routine dental visit: **78**
- 1 point increase in OHAI score leads to an increase in employment odds ( $p=0.01$ )
- Routine dental visit leads to 0.88% increased employment probability

# Real World Implications

- Take a white female
  - Age 42
  - 14 years of education
  - Single adult with children
- If she had OHAI score of 33...
  - ...probability of employment is 55.6%
- If she had OHAI score of 100...
  - ...probability of employment is 67.7%



# Impacts of Improved Access to Dental Care



**Mend a Smile** 😊

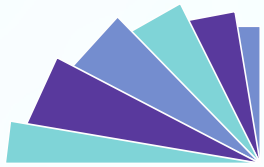


**Generate long term savings to the states and federal government \$**



**Improve the economy**





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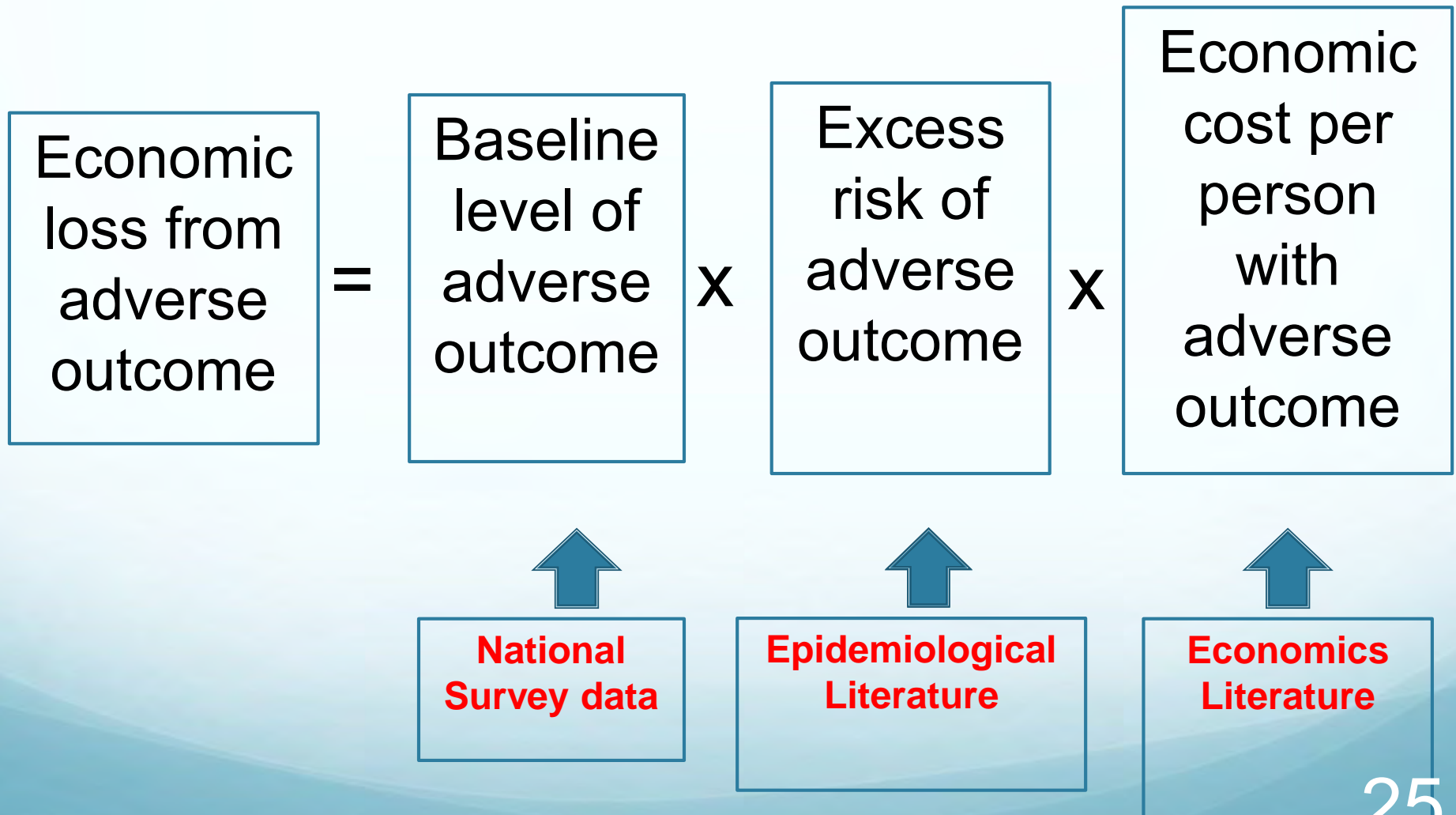


## ***Pathway # 2***

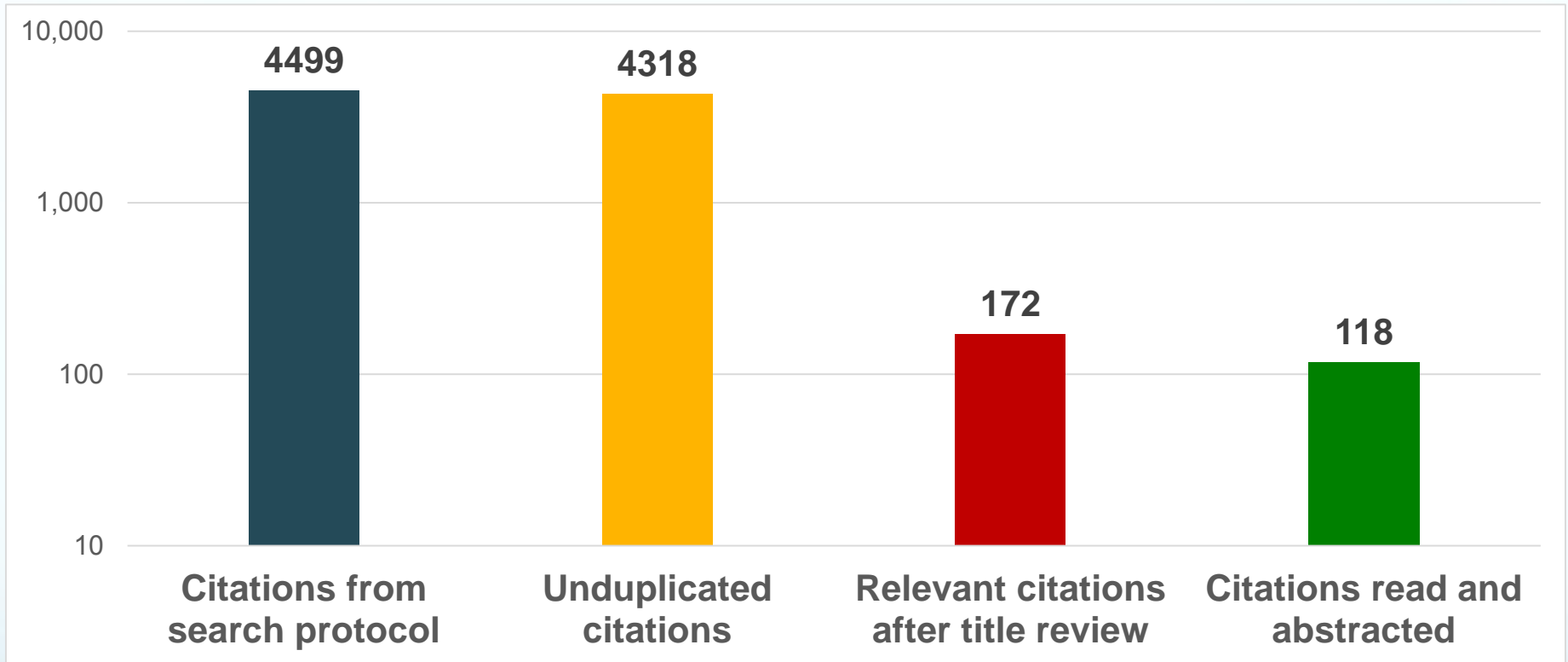
*Downstream Impacts of  
Analgesic Use and Misuse,  
Secondary to Chronic Orofacial Pain*



# Framework for Each Adverse Outcome

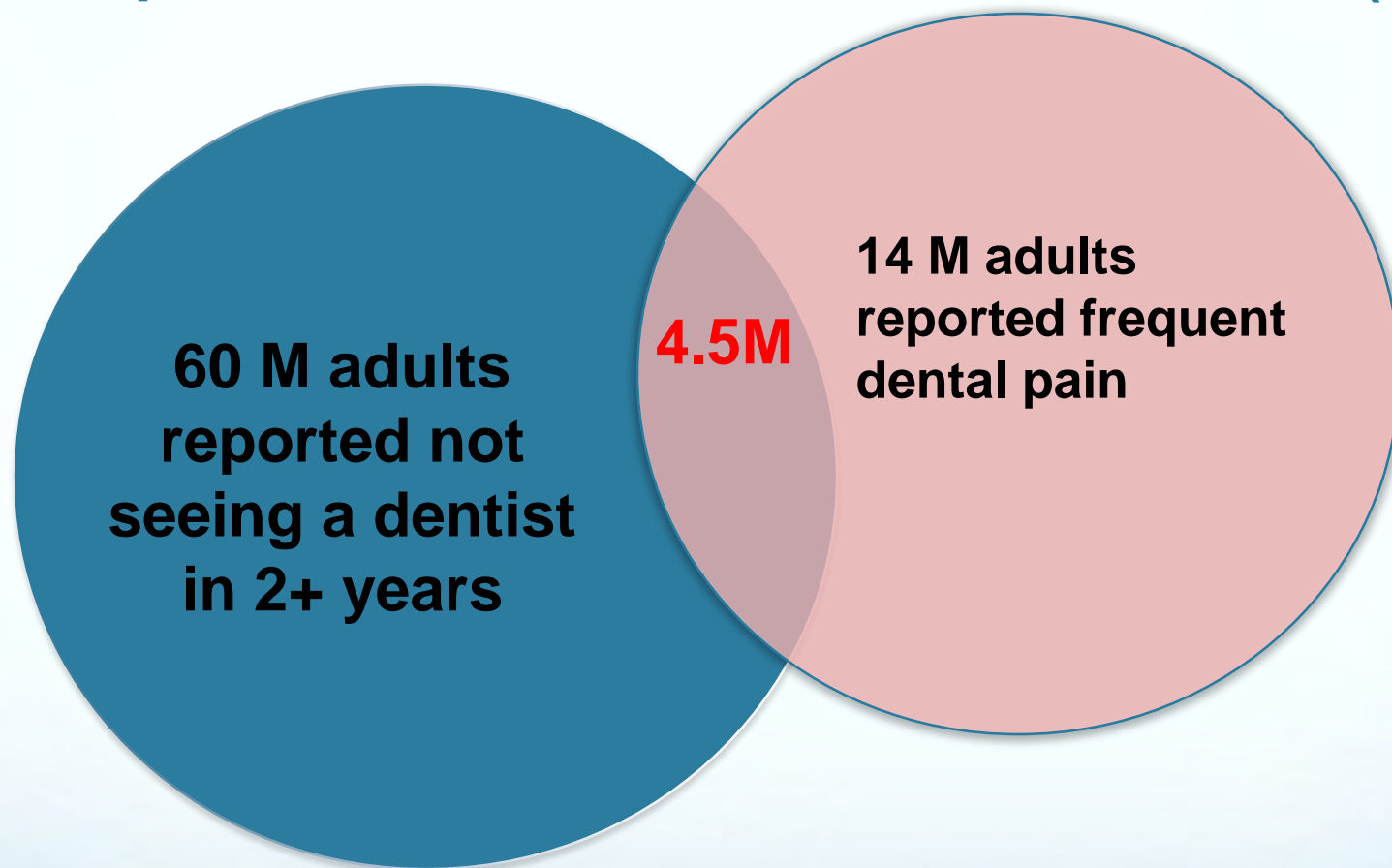


# Pinpointing Literature Reviews



- Systematic review on orofacial pain and opioids (n=118 read and abstracted; see above)
- Systematic review on NSAIDs and ESRD (n=28 read and abstracted)

# Population at Risk in Millions (M)

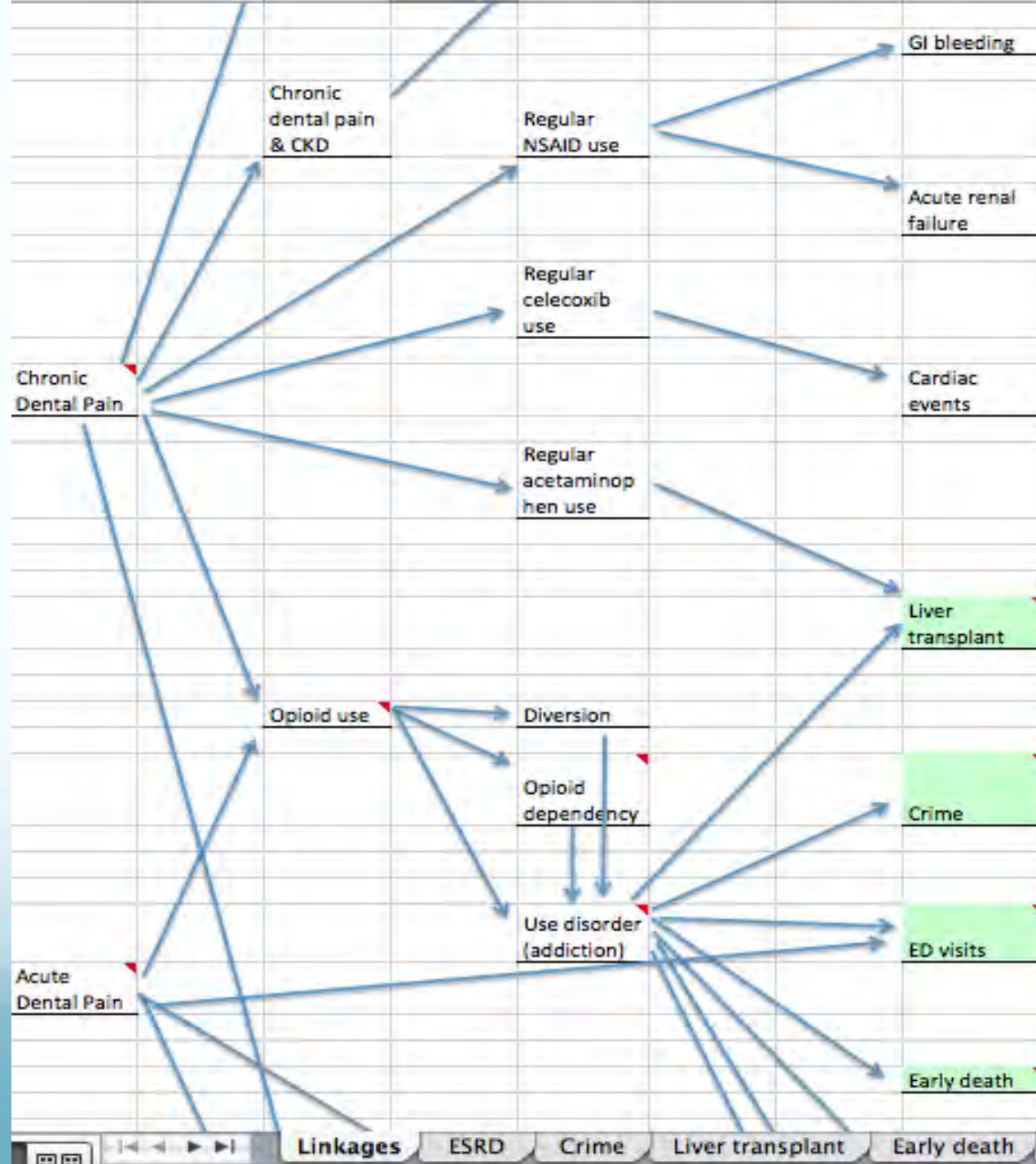


- 2011-2012 National Health and Nutrition Examination Survey (NHANES)
- Risk rates generally came from the literature reviews

# Linking Orofacial Pain to Outcomes

- Begin with assumption that chronic orofacial pain leads to analgesic use
- Linkages mapped after literature reviews
- Two stages of data extraction, then began calculations
- Population at risk estimated using NHANES
- Returned to literature to fill gaps in linkages and costs (n=27)

# Snapshot of mapped linkages

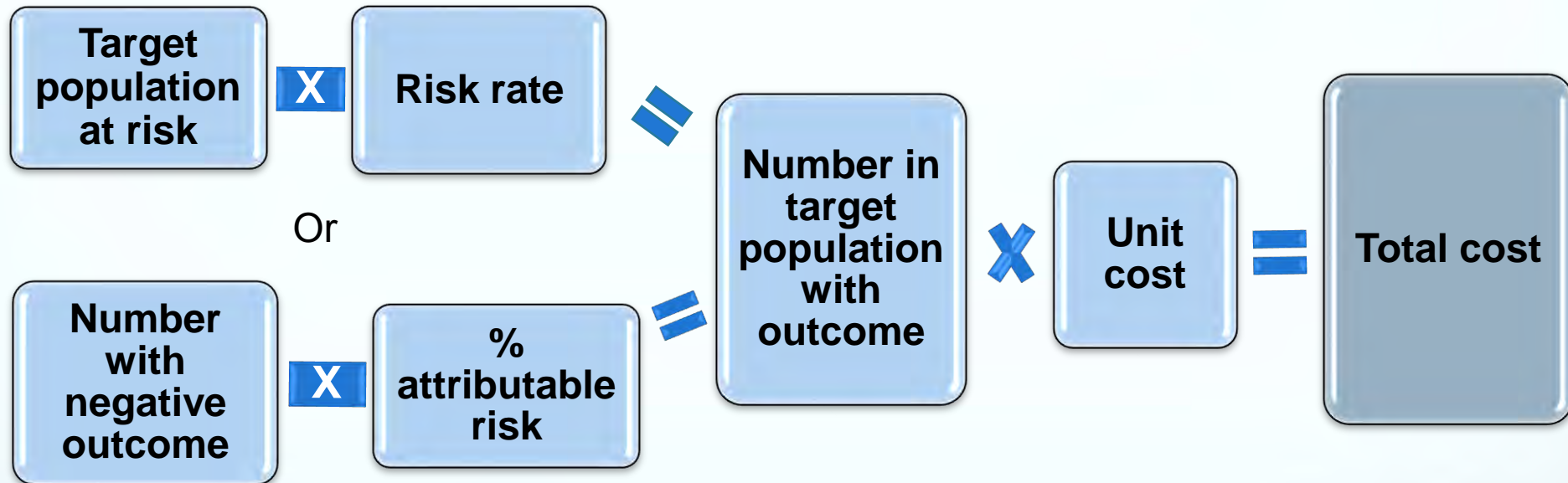


(e.g. 24% of opioid dependents commit a crime each year (NIH, 1997))

# Negative Outcomes Linked...

- Interim outcomes: alcohol and opioid use disorder
- NSAID-related downstream outcomes:
  - **End-stage renal disease (ESRD)**
  - **Liver transplant**
  - GI bleeding
  - Acute renal failure
  - Cardiac events
- Opioid-related downstream outcomes:
  - **Crime**
  - **ED visits**
  - Early death
  - HIV infection
  - Hepatitis infection
  - Lost productivity

# Attribution and Costs





# Summary: Annual Costs of Five Expensive Adverse Outcomes

ADVERSE OUTCOME	Cost
Unemployment-related	\$3.5 Million
2,418-10,670 attributable opioid-related ED visits	\$109-\$489 Million
2,355-10,394 attributable opioid-related property crimes	\$30-\$132 Million
113-3,638 attributable end-stage renal disease cases	\$120-\$523 Million
4-77 attributable liver transplants	\$7-\$121 Million



# Applying this Research

- Further analyses on socio/economic consequences of inadequate dental care
  - Other social and health problems (e.g. low self-esteem, use-disorder-related early deaths, etc.)
  - Unemployment (e.g. employers' response to improve OHAI)
- Development of a tool for states to explore cost/benefits of expanding Medicaid adult dental benefits

# Applying this Research

## Dissemination

- **Policy briefs** and **manuscripts** to increase awareness
- Professional development **Webinar** for use by states

Webinar purpose:

1. Present findings from research at Brandeis, MSDA and elsewhere on cost offsets associated with an expanded Medicaid adult dental benefit;
2. Introduce a cost offset tool for use by state budget officers, Medicaid administrators; state contractors; policy makers; and/or advocates;
3. Engage stakeholders and gain input for further development and application of the tool

# Webinar - Save the Date

*Cost Offsets for Expanded Adult Dental Benefits:  
A Dynamic Demonstration*

Tuesday, April 11, 2017

1:00 PM (ET)



# Questions



# Contact Information

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**Ms. Martha Dellapenna, RDH, MEd** is the Director for the Medicaid | Medicare | CHIP Services Dental Association's Center for Quality, Policy and Financing. Ms. Dellapenna provides oversight to projects and activities within each of five Center Divisions: Policy & Financing; Quality & Innovation; Data & Analytics; Research & Evaluation; and Professional Development. Ms. Dellapenna is responsible for the implementation of the MSDA Annual State Medicaid & CHIP Oral Health Program Survey; and leads the organization's annual effort in publishing current data from the 50+ state Medicaid and CHIP programs via the online *MSDA National Profile*. [www.msdanationalprofile.com](http://www.msdanationalprofile.com) Marty also chairs the CMS Oral Health Technical Advisory Committee.

Ms. Dellapenna received a BS in Dental Hygiene from Old Dominion University and a MEd in Health Education from Rhode Island College. Prior to joining MSDA, most recently, Marty served for almost nine years as the Oral Health Program Manager for the Rhode Island Executive Office of Health and Human Services (EOHHS).