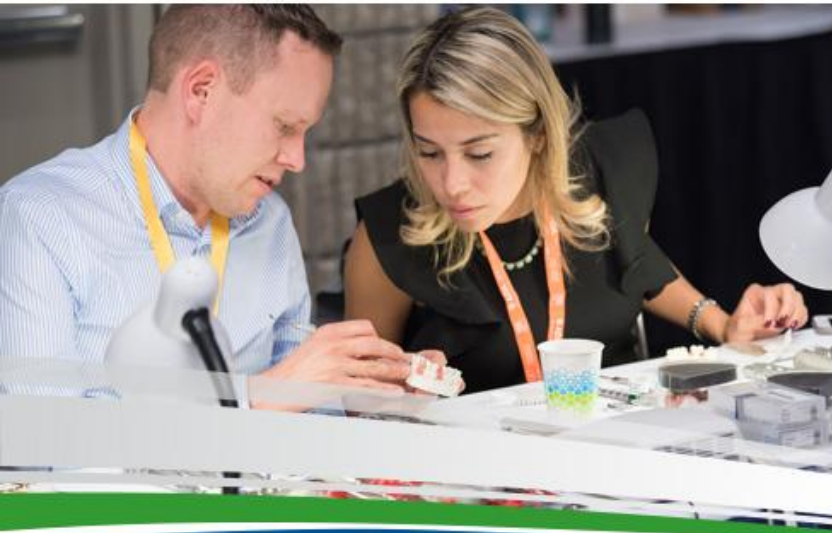


# 2020 Surgeon General's Report

Judith Albino, PhD, Bruce A. Dye, DDS, MPH, and Timothy Ricks, DMD, MPH



# Disclosure

We, Bruce Dye, Judith Albino, and Timothy Ricks do not have any financial affiliations or conflicts of interests to disclose.



# 2020 Surgeon General's Report

## *Oral Health in America: Advances and Challenges*

**Judith Albino, PhD and Bruce A. Dye, DDS, MPH and Timothy Ricks, DMD, MPH**

*September 5, 2019*  
*American Dental Association and FDI World Dental Congress*

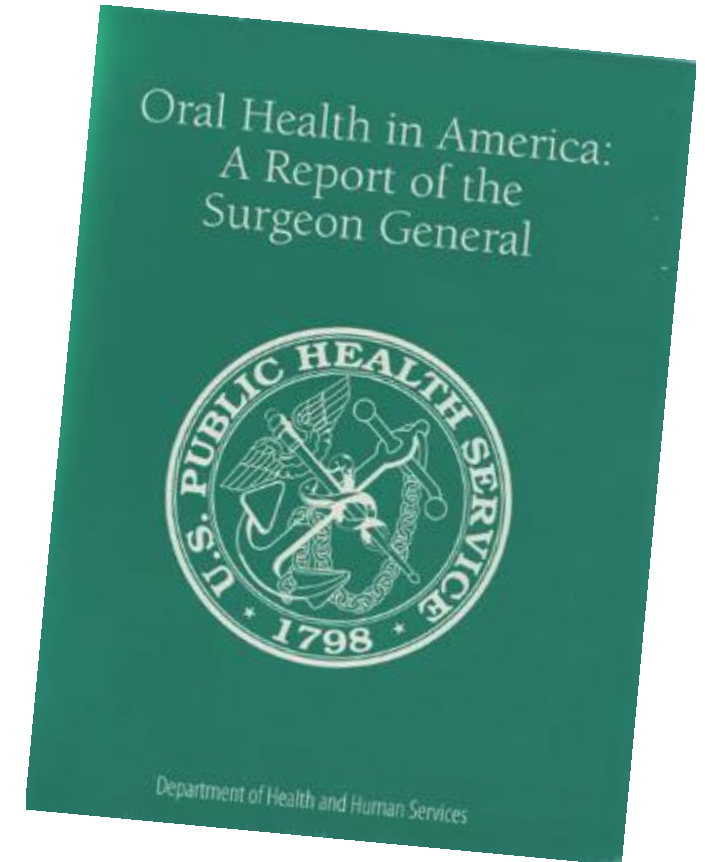


National Institute of Dental  
and Craniofacial Research

# First Surgeon General's Report on Oral Health

**Major Message of 2000: Oral Health is more than healthy teeth and is integral to the general health and well-being of all Americans.**

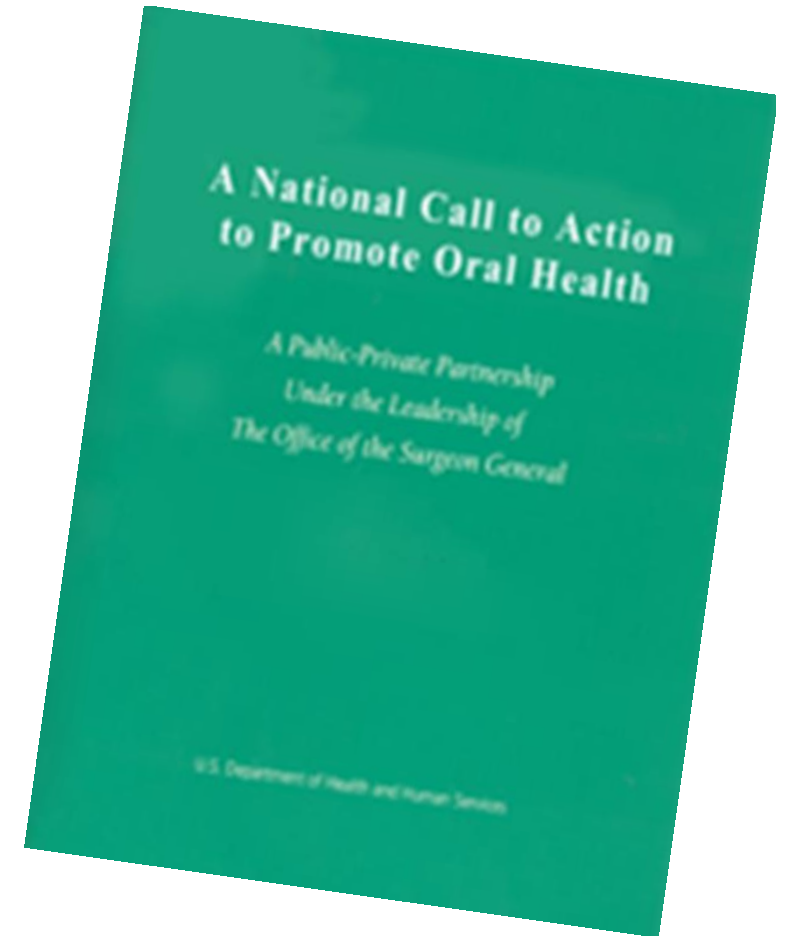
- Safe and effective measures exist to improve oral health and prevent disease.
- Health risk factors, such as tobacco use and poor dietary practices, affect oral and craniofacial health.





# The 2003 Call to Action Urged that We:

- Change perceptions of oral health
- Replicate effective programs
- Build the science base and accelerate science transfer
- Increase oral health workforce diversity, capacity, and flexibility
- Increase collaborations



# How has the U.S. Changed in the Last 20 years?



- Aging of the population
- Oral health disparities
- A changing workforce
- Mental illness and substance abuse
- Health care expenditures
- Emerging public health threats
- Advances in research and technology

Source: <http://sphweb.bumc.bu.edu/>

# U.S. Surgeon General's Priorities

## “Better Health Through Better Partnerships”

- Substance Misuse: Opioids, Tobacco, and E-cigarettes
- Community Health and Economic Prosperity
- National Security: Military Eligibility and Readiness
- Vaccinations
- **Oral Health**



**JEROME M. ADAMS, M.D., M.P.H.**  
Vice Admiral, U.S. Public Health Service  
Surgeon General

# Message from the U.S. Surgeon General

<https://youtu.be/snOxqakR2zk>



# A Changing United States in a Changing World



# How has the World Changed in 20 years?



## – Digitization of everything

- Communication
- Information/data management
- Technology

## – Delivery of services

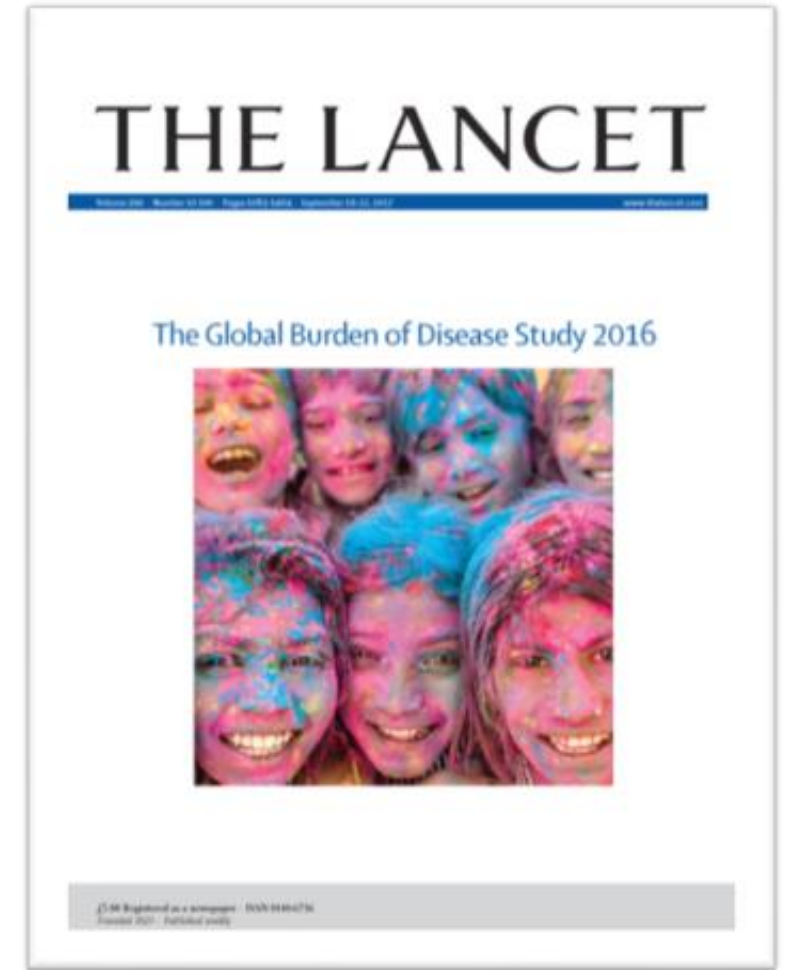
- Consolidation
- Economic efficiencies

## – Demographic changes

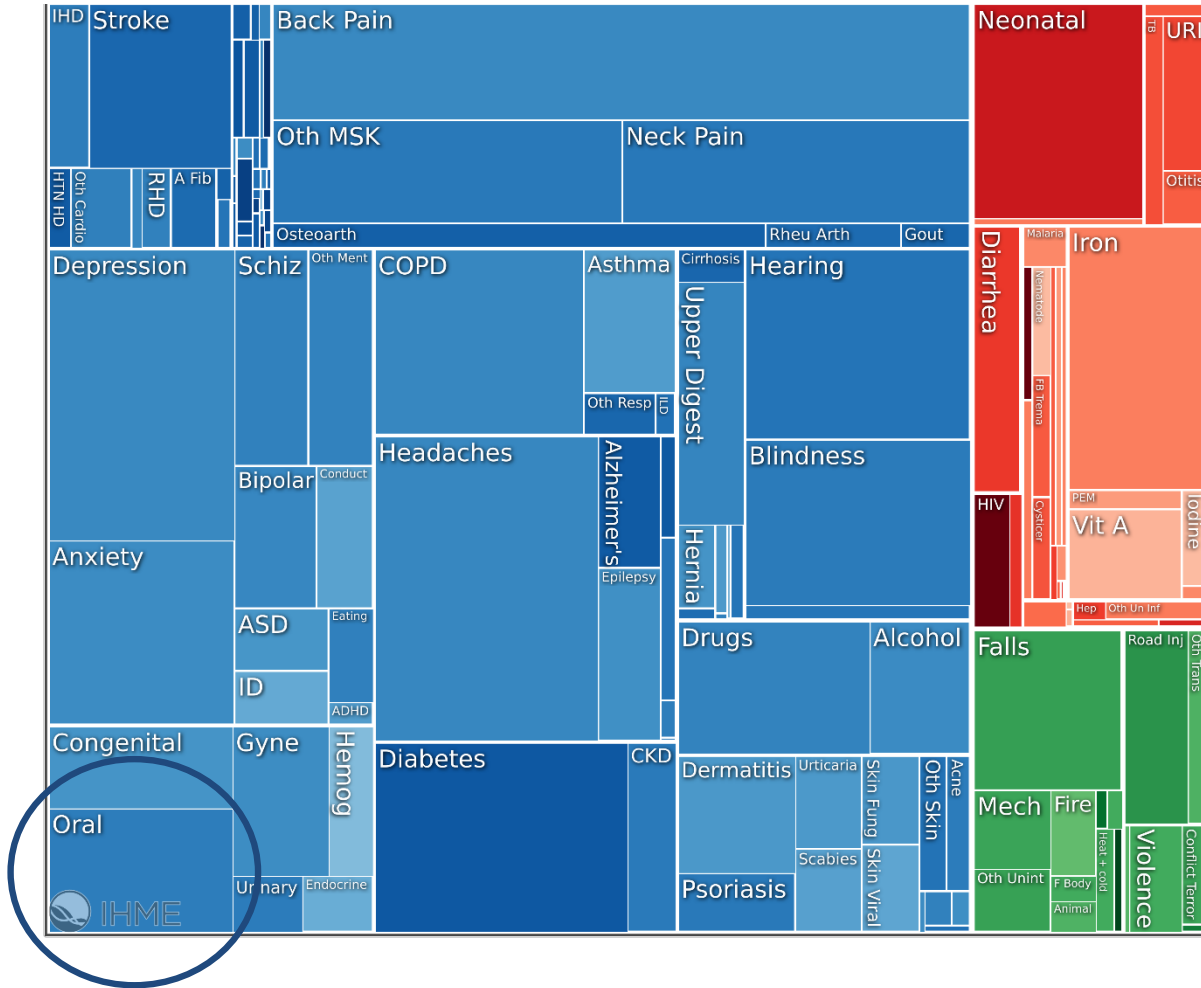
- 1.5 billion more of us
- More diverse, more urban, older

# Global Impact of Oral Disorders

- **Oral Disorders are highly prevalent worldwide**
  - Untreated Dental Caries in permanent teeth – 1st
  - Severe Periodontitis – 11th
- **3.5 billion affected**



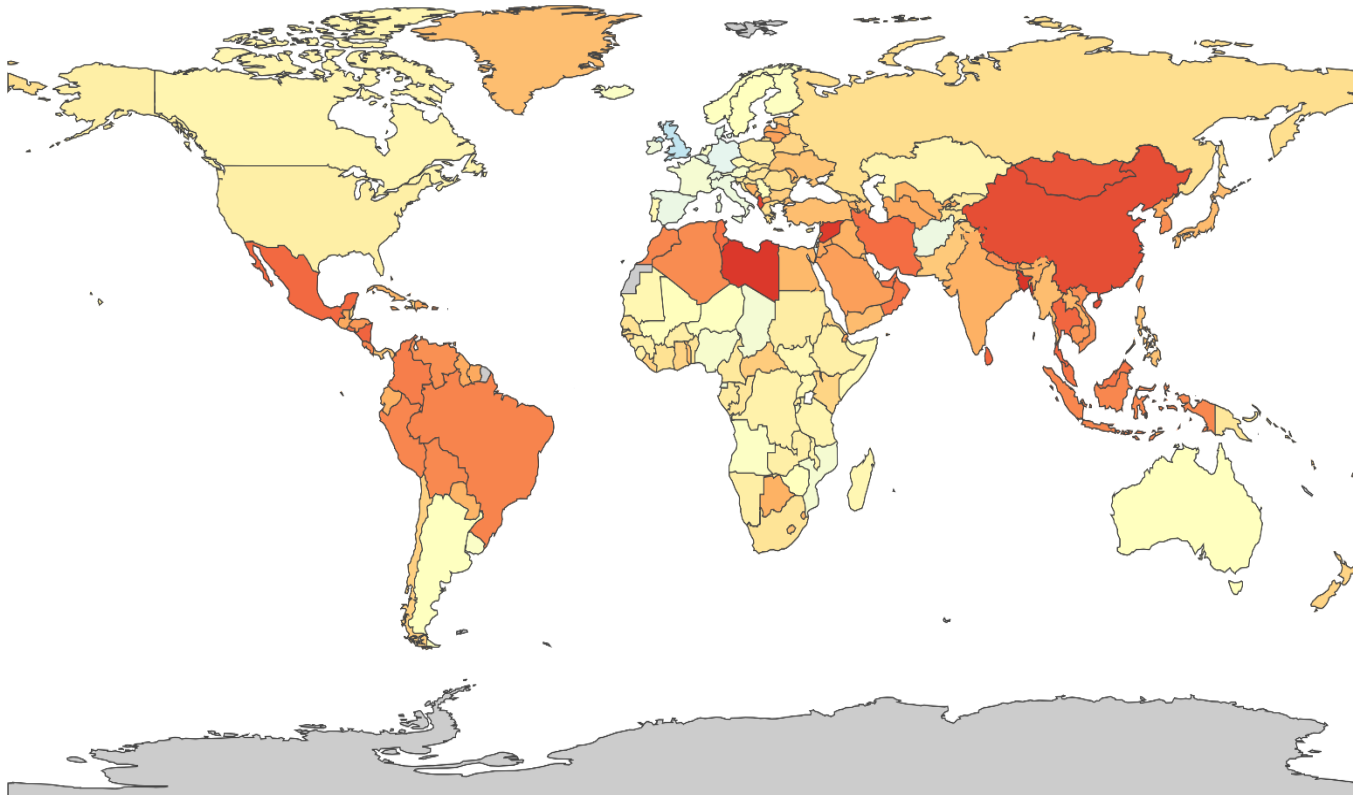
# Global Impact of Oral Disorders



## – Global Burden of Disease

- Oral Disorders were 2.14% of total YLDs for all ages in 2017
- 0.6% annual change since 1990

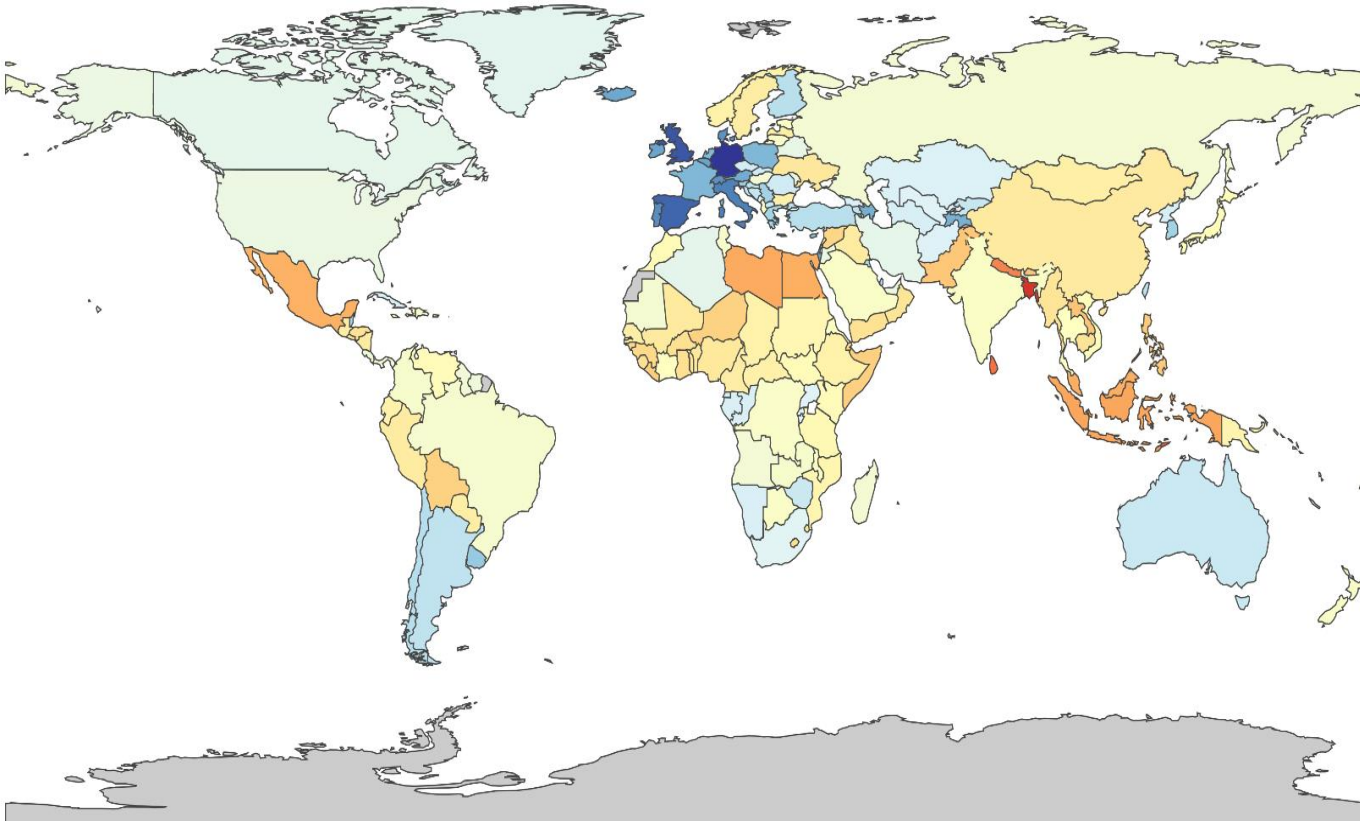
# Global Impact of Oral Disorders



- **Global Burden of Oral Disorders since 2000**
  - Little change globally in total YLDs for all ages
  - Some countries are experiencing increases in total YLDs



# Global Impact of Oral Disorders



## – Global Burden of Edentulism and Severe Tooth Loss since 2000

- Some improvement in total YLDs for adults aged 50–69 years since 2000
- Some countries are improving; some are worsening

# Sociodemographic Influences on Oral Health

## Sociodemographic factors are significant risk indicators for poor oral health

### — Sex

- Men have 3 times more oropharyngeal cancer than women

### — Race/ethnicity

- Significant untreated dental caries disparities exist by race/ethnicity among children and working-age adults

### — Poverty

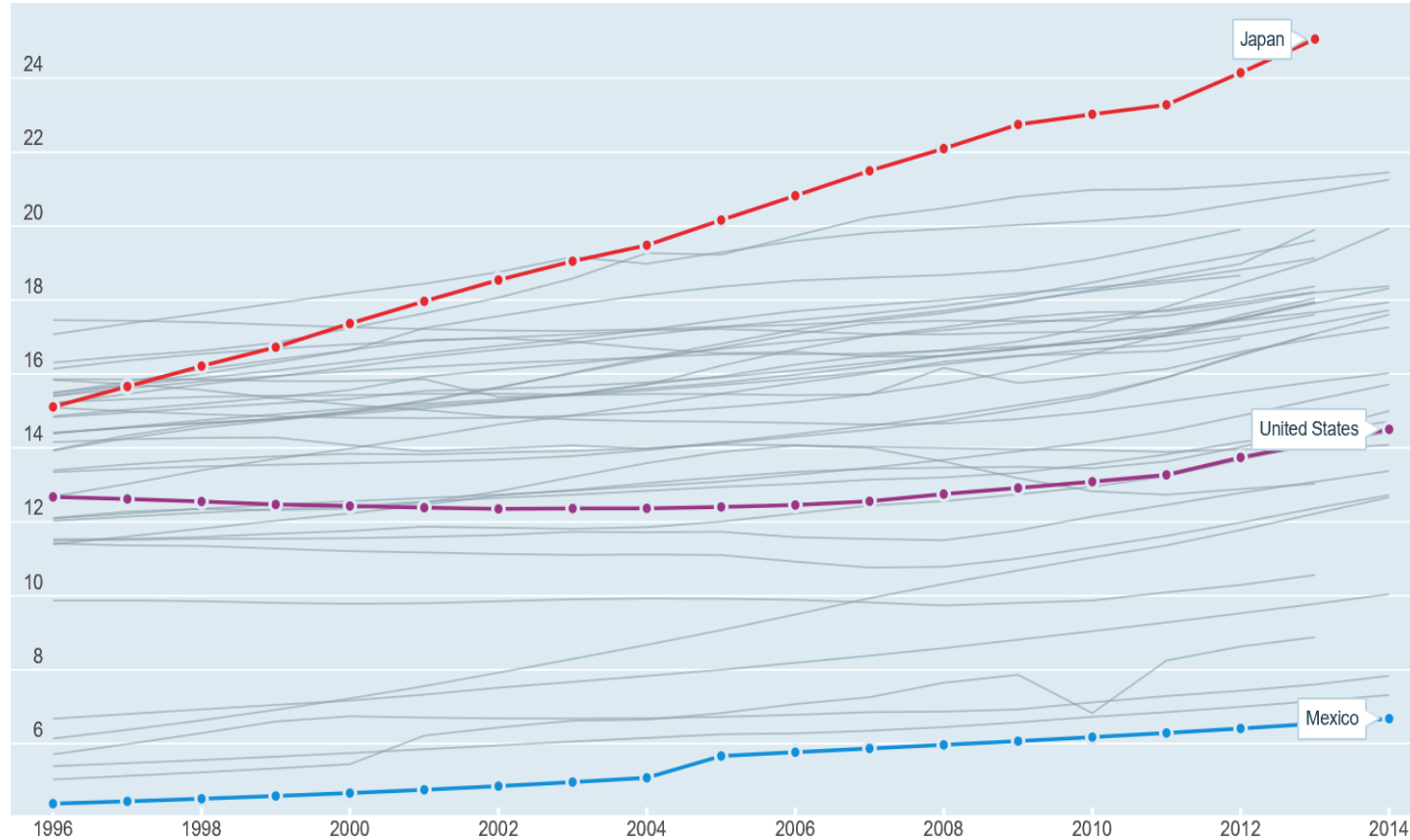
- Being poor increases the likelihood of increased tooth loss

### — Age

- Periodontitis in older adults (65+) is twice that of younger adults (30–44 years)

# The World is Aging

## Increasing elderly populations 1996–2014 among 35 OECD countries

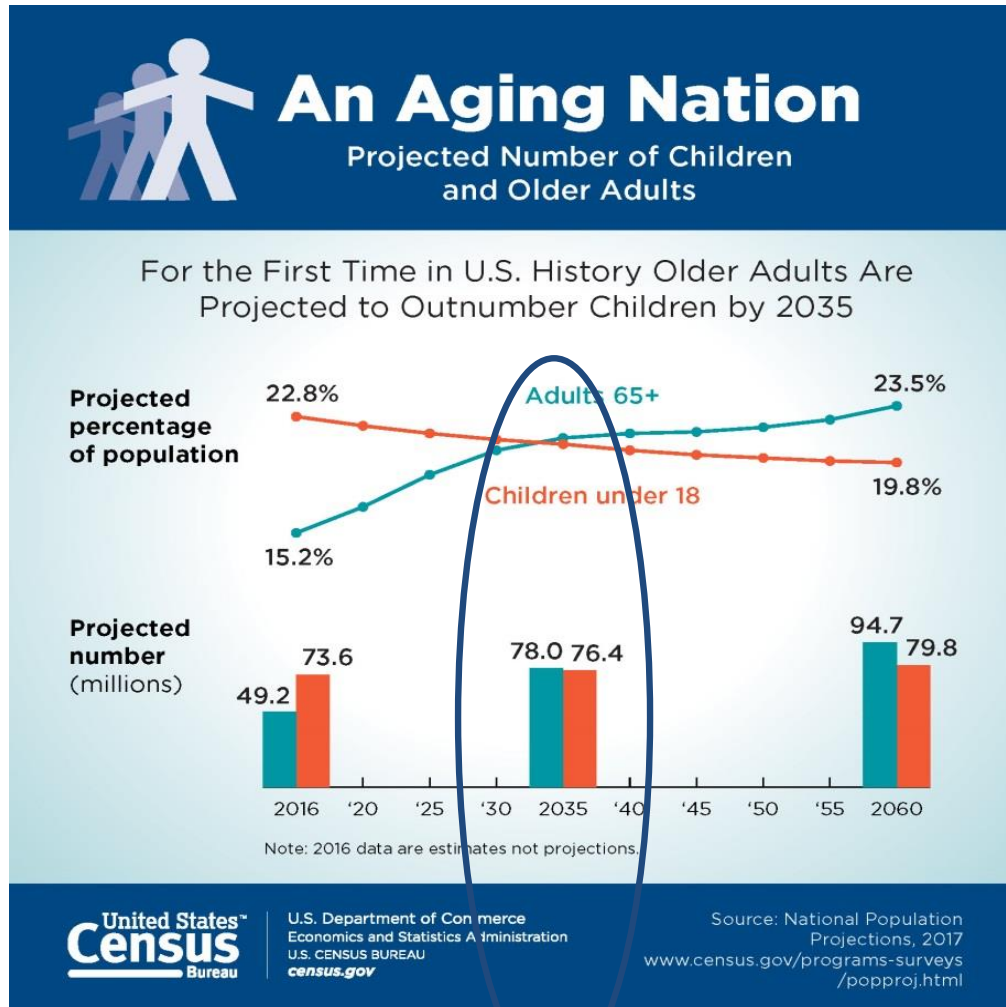


962M people aged 60+ years in the world (13% of global population in 2017)

Population aged 60+ is projected to be 1.4B in 2030

Source: Organization for Economic Cooperation and Development (OECD) (2019). Elderly population (indicator). doi: 10.1787/8d805ea1-en (Accessed on April 4, 2019.)

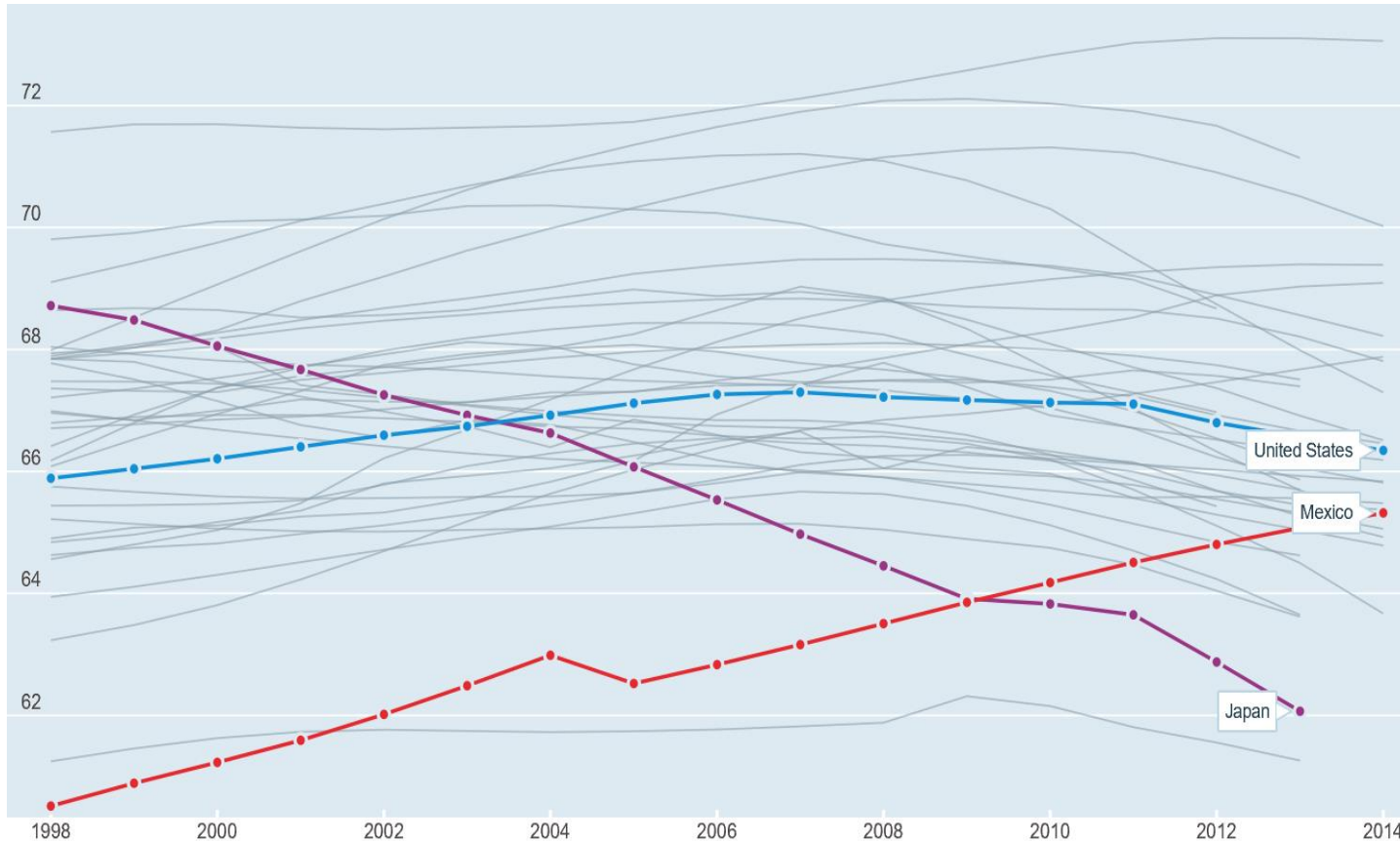
# Aging of America is Critical for Oral Health



**By 2035, there will be more older adults than youth in the U.S.**

# The Working-Age Population is Declining

## Working-age population percentages in 35 OECD countries, 1996-2014



**Dependency Ratio is a major concern**

**2000:**

20 older adults: 100  
working-age adults

**Today:**

28: 100

**2040:**

*Increase to 38:100*

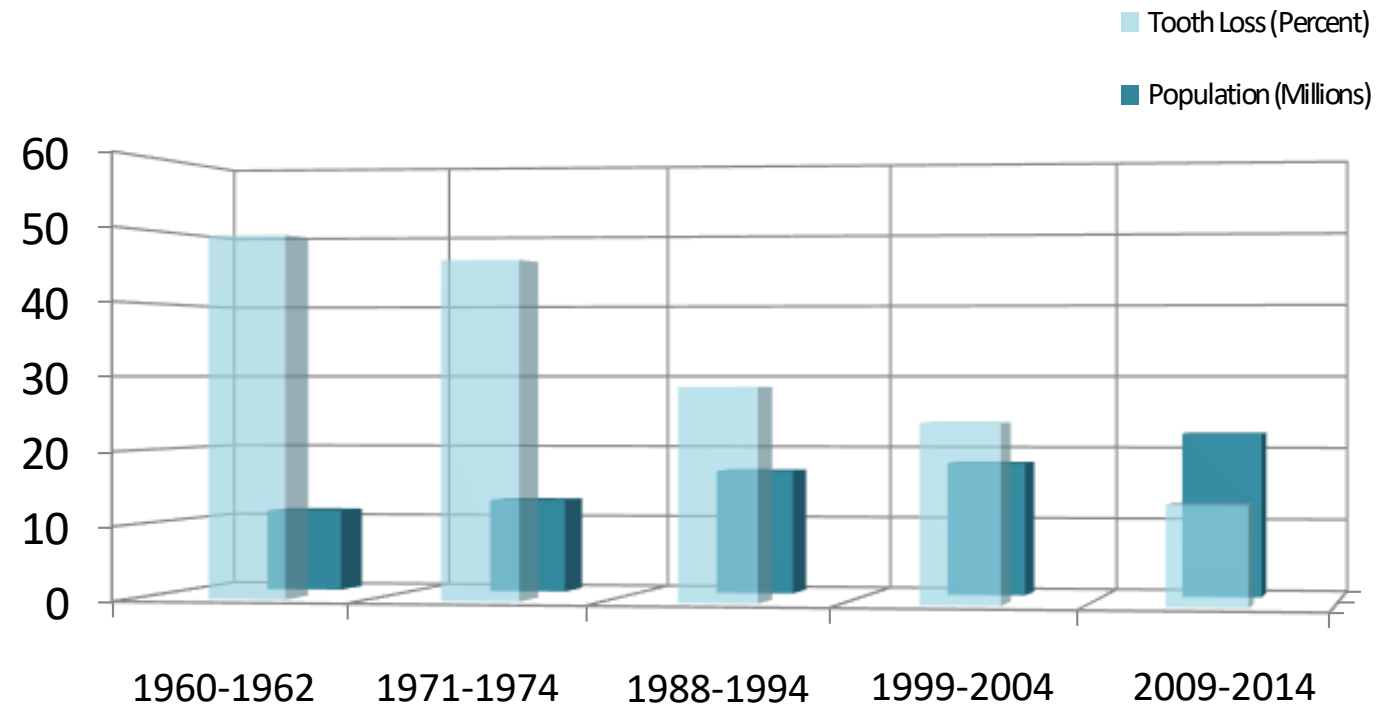
Source: OECD (2019). Working age population (indicator). doi: 10.1787/d339918b-en (Accessed on April 4, 2019.); Dependency ratio: the number of youths (<18 years) and older adults (≥65 years) for every 100 working-age adults (18-64 years). US Census Bureau, Current Population Reports, March 2018.



# Greying America is Becoming More Dentate

## Total population and prevalence of edentulism in U.S. adults, 65–74 years

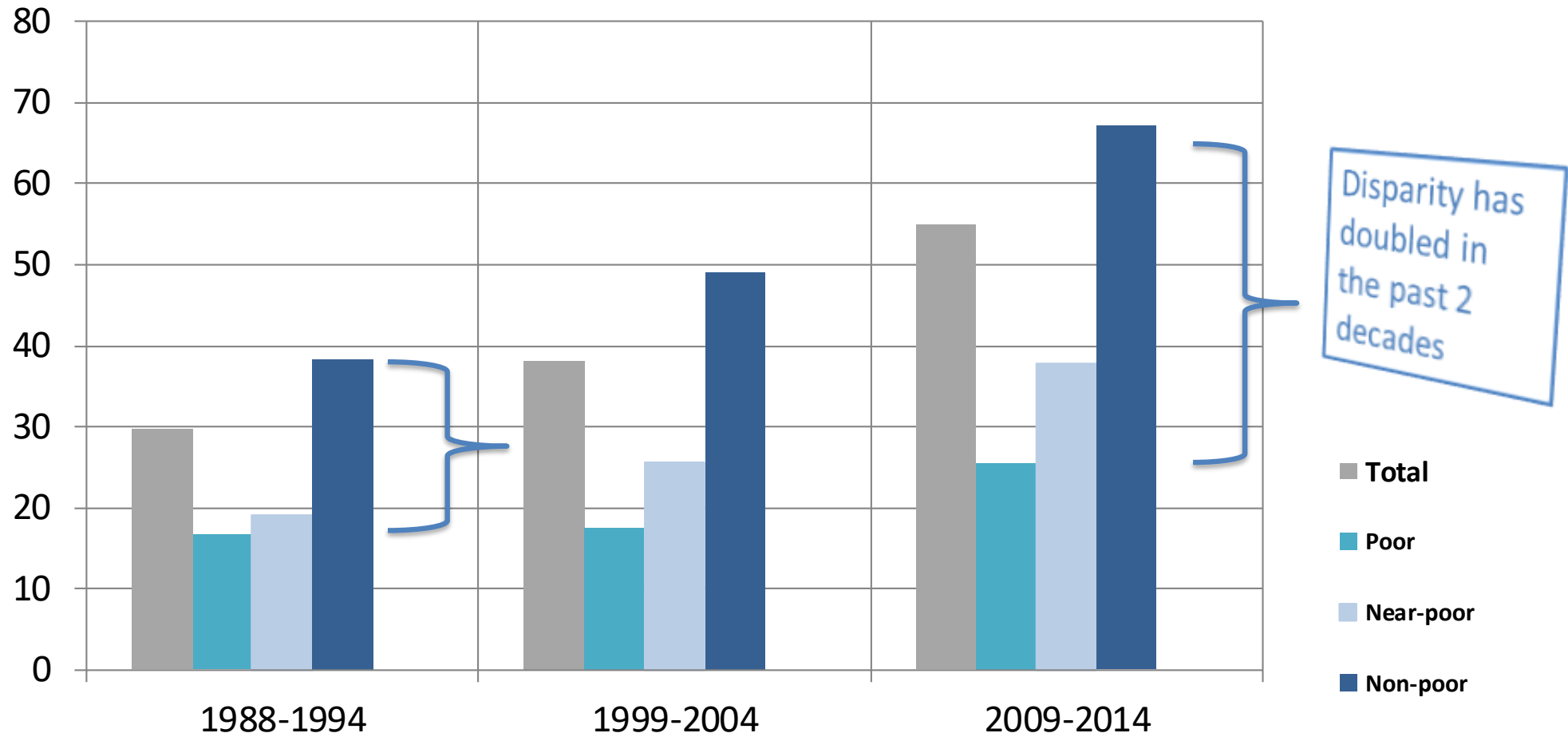
The aging population in the United States, as in many countries, is experiencing less edentulism



Source: Dye, BA, Weatherspoon DJ, Lopez Mitnik G. Tooth loss among older adults according to poverty status in the United States from 1999 through 2004 and 2009 through 2014. *J Am Dent Assoc.* 2019 Jan;150(1):9-23.

# Disparities Persist Despite some OH Improvements

## Changes in functional dentition ( $\geq 21$ teeth) of U.S. adults 65+ years

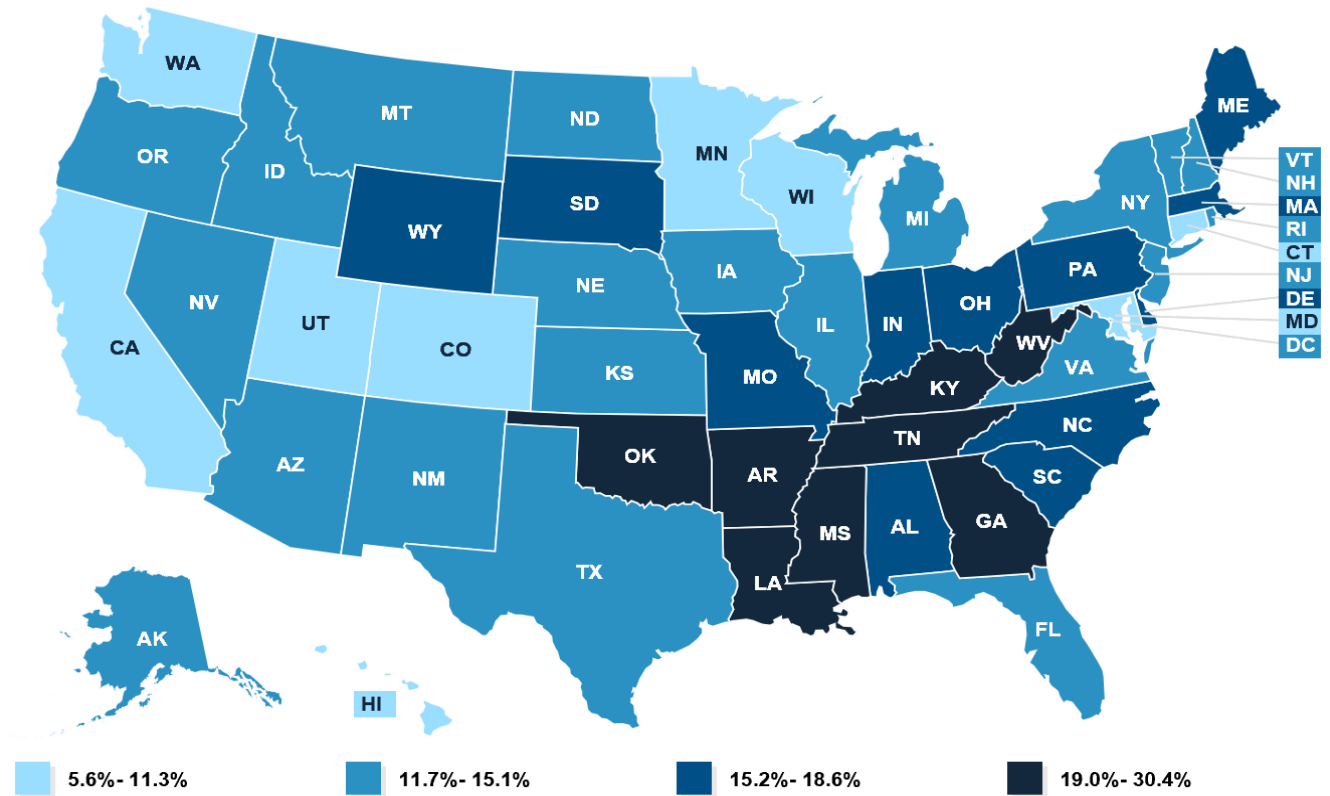


# Geography Influences Oral Health

## Percentage of adults aged 65+ years with no natural teeth (2016)

Declining Edentulism  
(**18%**), but disparities  
remain among lower  
income adults (**34%**)

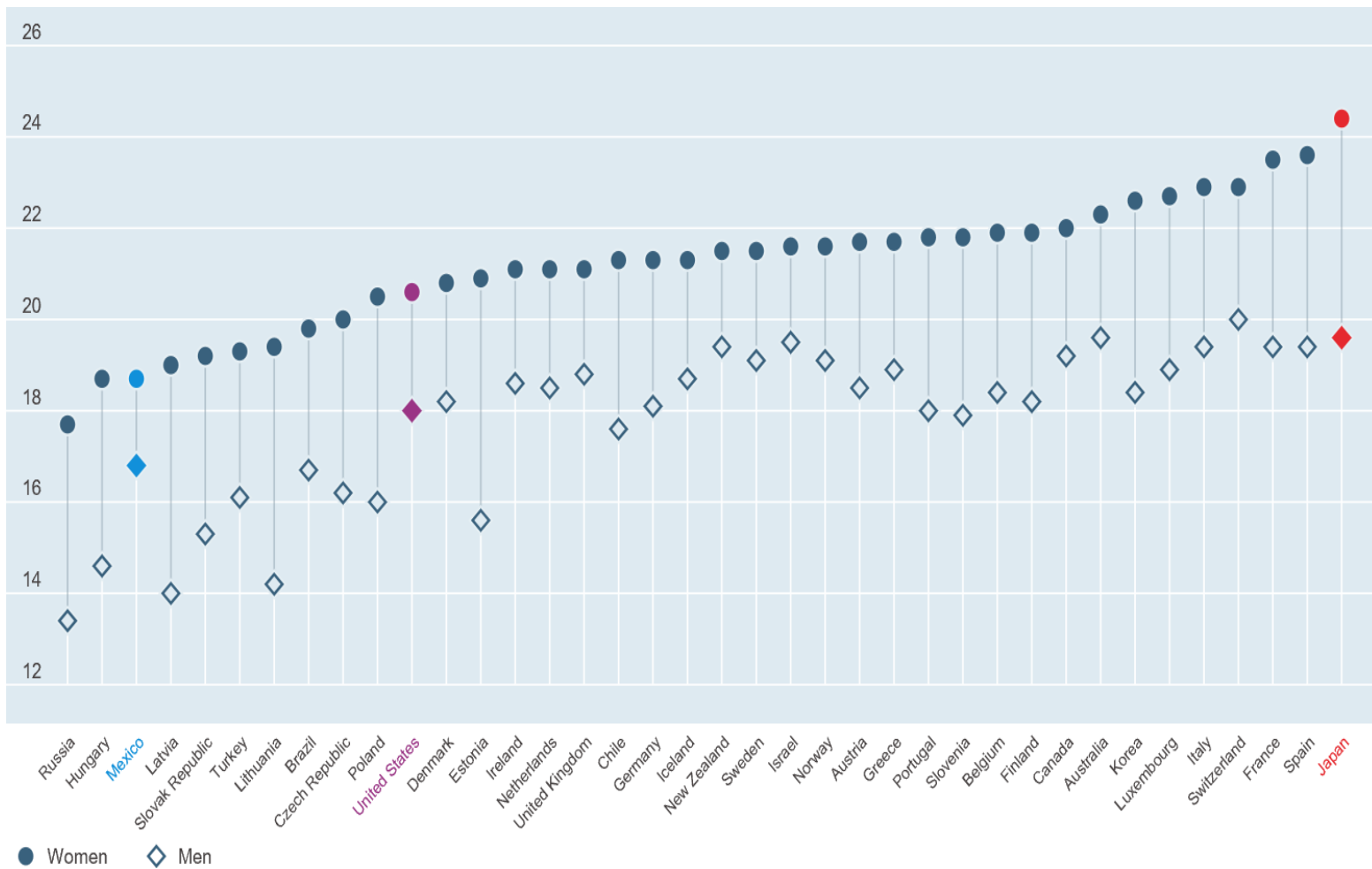
This disproportionately  
affects some adults  
based on *where* they live



Source: Kaiser Family Foundation analysis of the Centers for Disease Control and Prevention (CDC)'s Behavioral Risk Factor Surveillance System (BRFSS) 2016 Survey Results.  
Accessed April 10, 2019.

# Life Expectancy Differences by Sex

## 2017 life expectancy for men and women in 35 OECD countries



Gender differential in older age profoundly affects prevalence of some chronic diseases

# Oral Health Gender Disparities

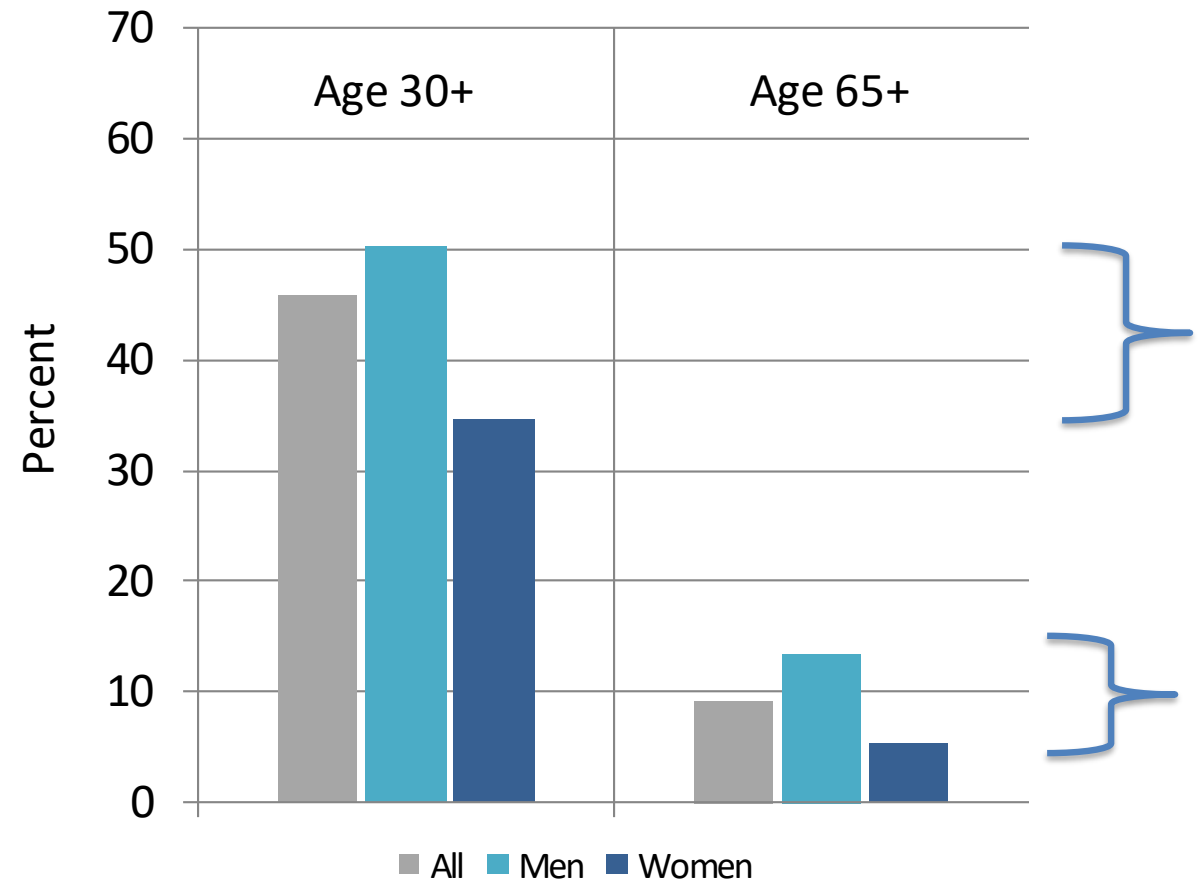
## Total and Severe Periodontitis in the U.S. by Gender, 2009–2014

Total periodontitis (42%) for adults age 30 and older:

- 50% (men)
- 35% (women)

Severe Periodontitis (9%) for adults age 65 and older:

- 13% (men)
- 5% (women)



Source: Eke PI, Thornton-Evans GO, Wei L, Borgnakke WS, Dye BA, Genco RJ. Periodontitis in US Adults: National Health and Nutrition Examination Survey 2009–2014. J Am Dent Assoc 2018; 149(7): 576–588.



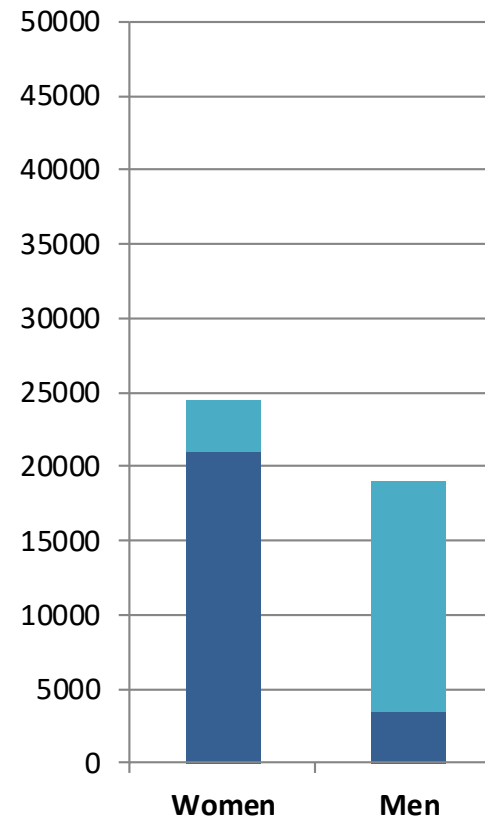
# Gender Disparities for Oropharyngeal Cancer

**Oropharyngeal cancer is now the most common HPV-associated cancer**

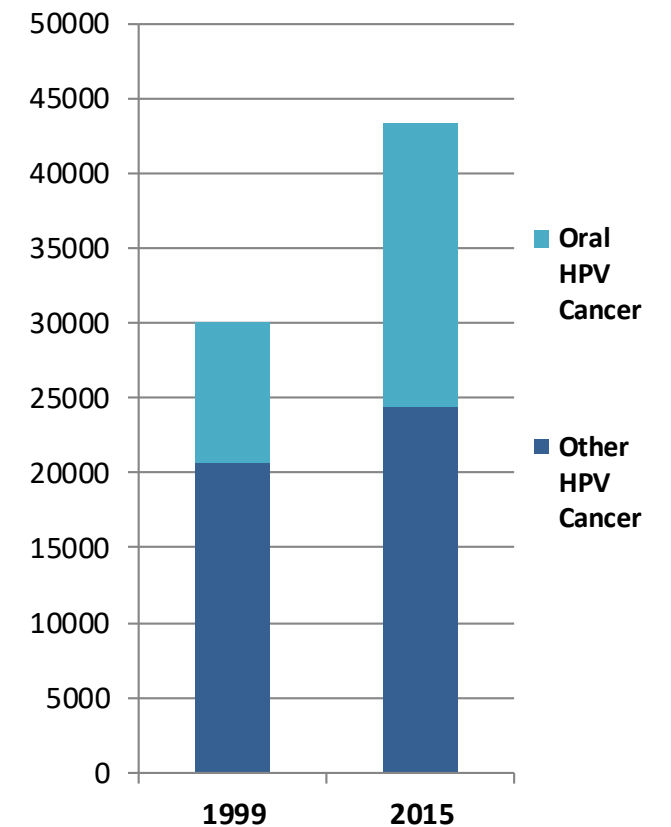
Oral oncogenic HPV prevalence is 6.6% for men and 1.5% for women

Men have 3½ times more oropharyngeal cancer than women

No. of HPV – Cancers (2015)

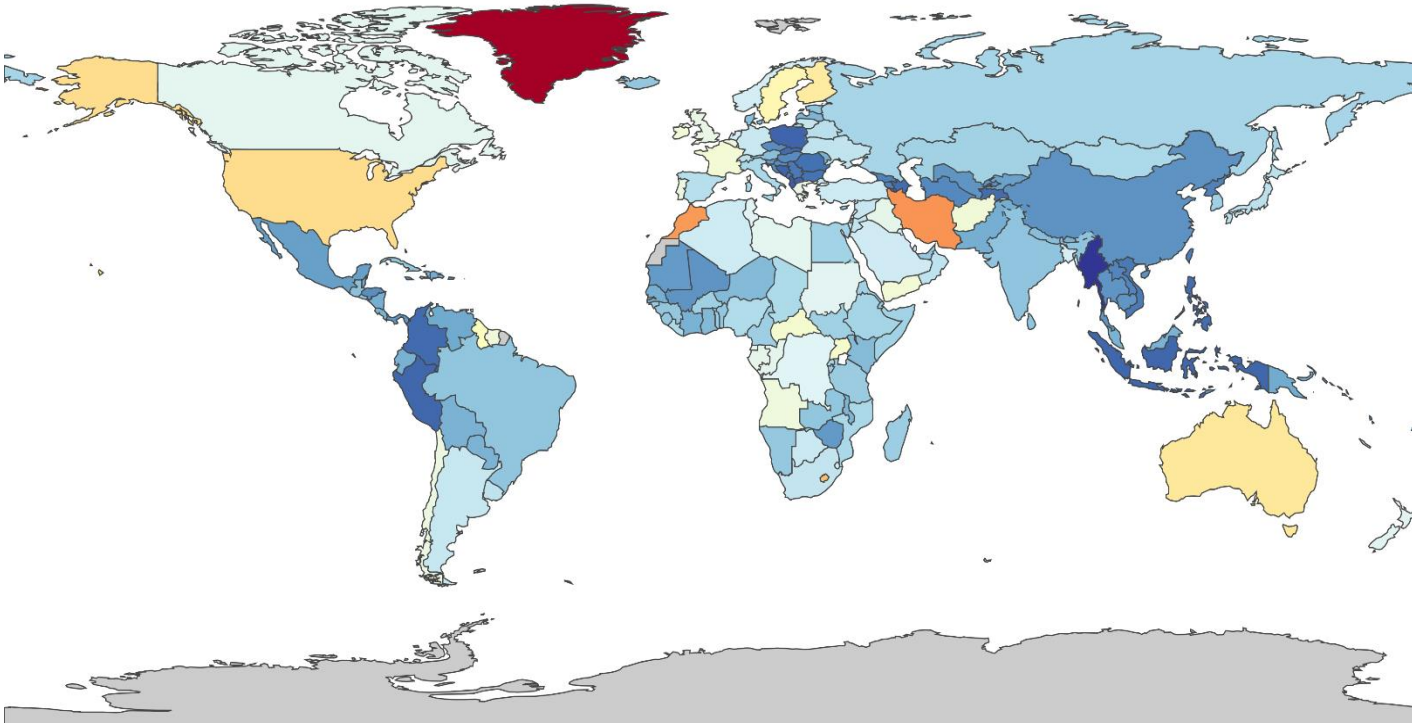


Number of HPV - Cancers



Notes: Chaturvedi et al. NHANES 2009-2012 findings: association of sexual behaviors with higher prevalence of oral oncogenic human papillomavirus infections in U.S. men. *Cancer Res* 2015; 75: 2468-2477. Van Dyne EA, Henley SJ, Saraiya M, Thomas CC, Markowitz LE, Benard VB. Trends in Human Papillomavirus–Associated Cancers — United States, 1999–2015. *MMWR Morb Mortal Wkly Rep* 2018;67:918–924.

# Impact of Depressive Disorders Globally



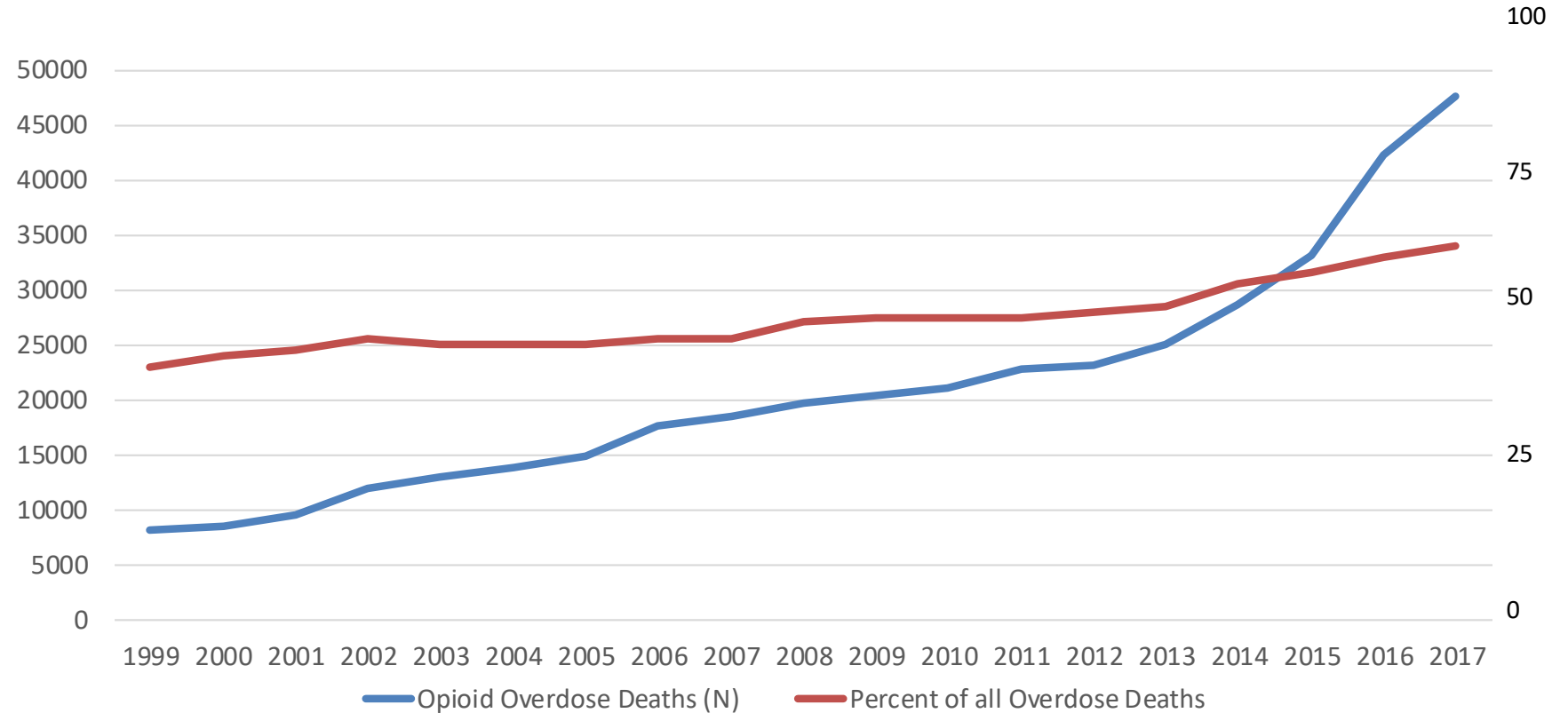
- 45.6 million adults (18.2%) reported mental illness in the US
- 1,082 DALYS per 100K people age 15–49 years in 2017
  - Canada: 842
  - Mexico: 542

# Substance Abuse: Adults

6.7 million adults  
(3%) report drug  
dependence or  
abuse

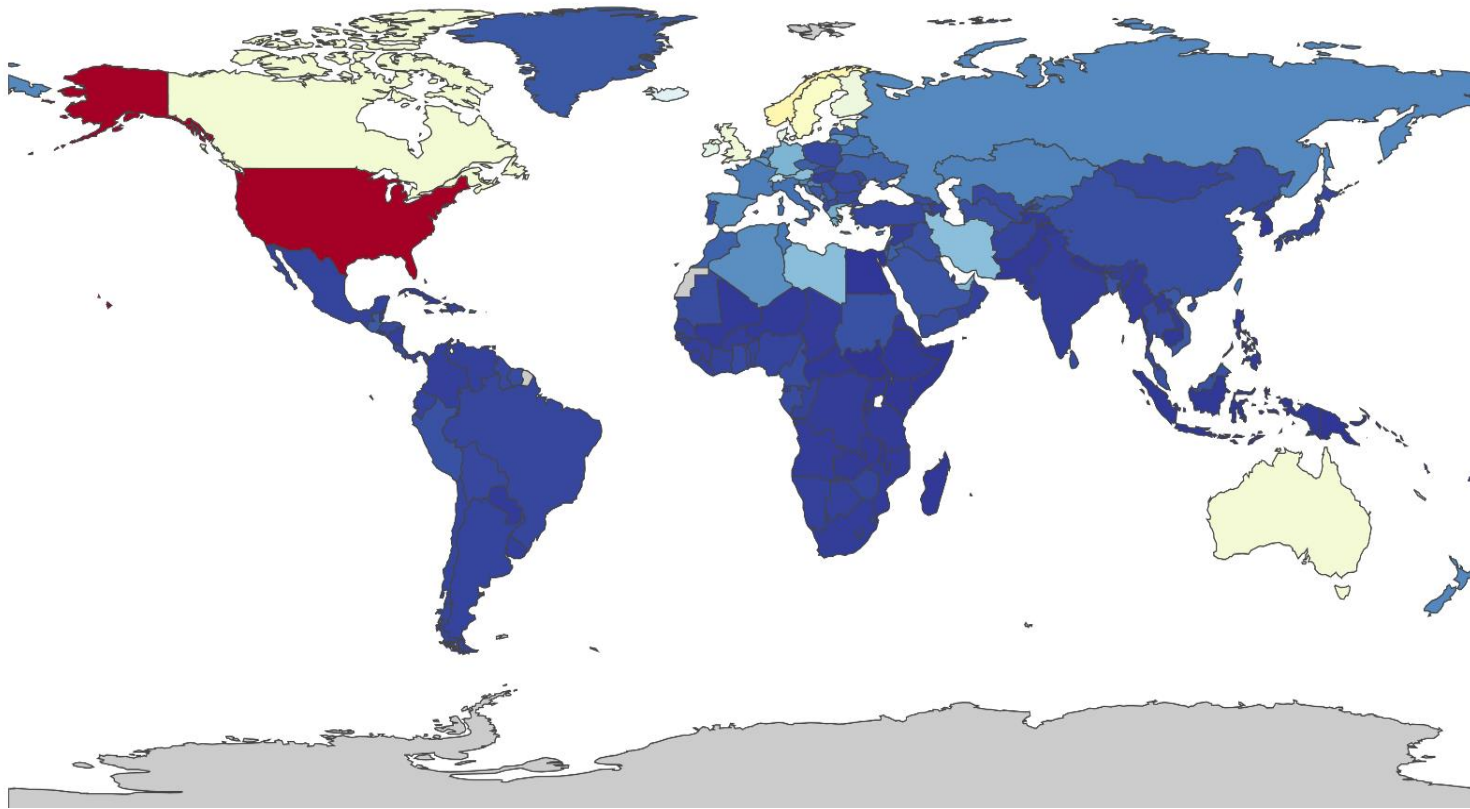
48,000 opioid  
overdose deaths in  
2017 (69% of all  
overdose deaths)

## Prescription opioid overdose deaths



Source: Kaiser Family Foundation analysis of Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Multiple Cause of Death 1999-2017 on CDC WONDER Online Database, released 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. (Accessed May 24, 2019.) Kaiser Family Foundation. Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health (NSDUH), 2016 and 2017. (Accessed on April 10, 2019.)

# Global Mortality due to Substance Use Disorders

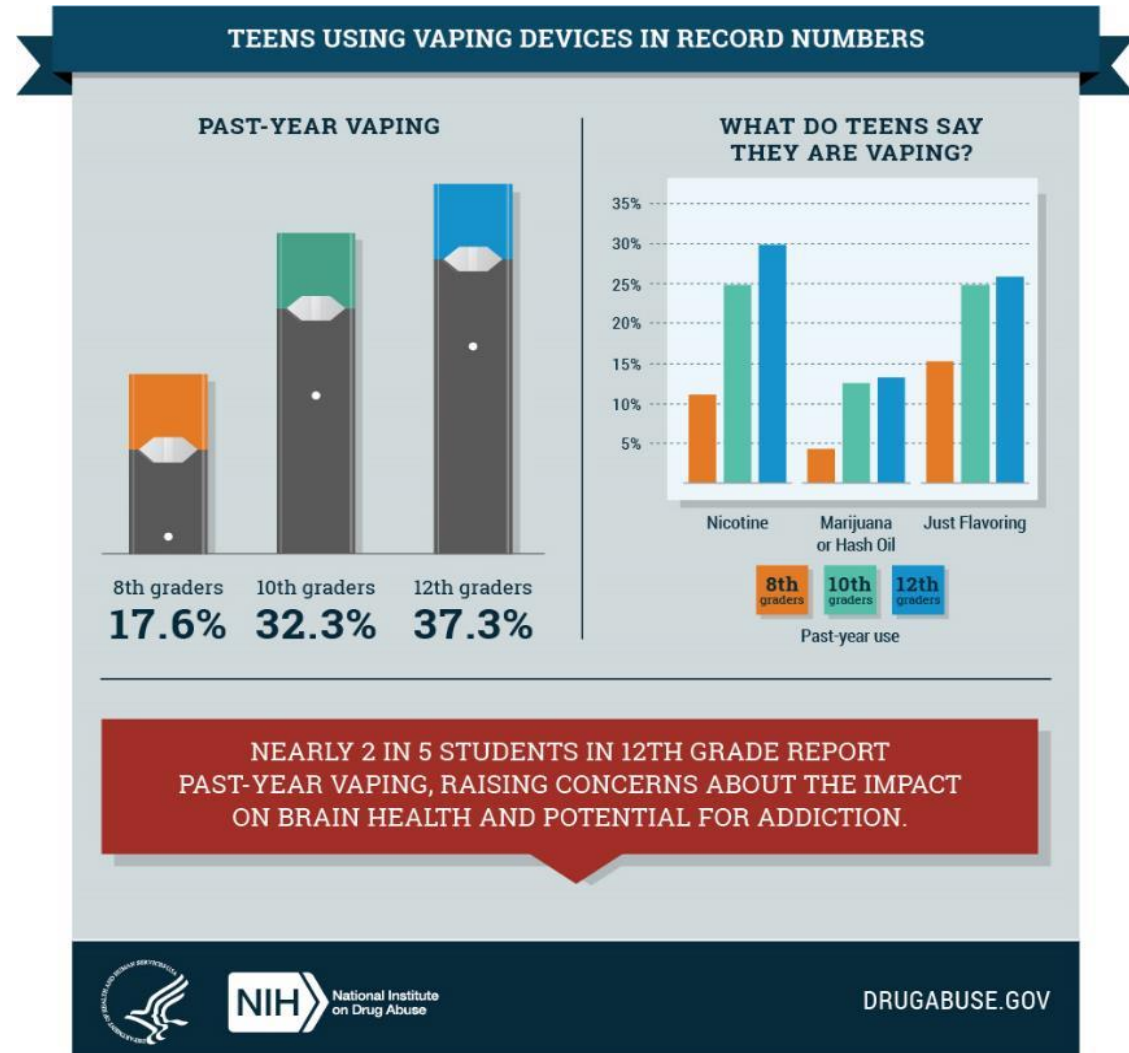


Among 15–49 year-olds in the United States, **19%** of all deaths were attributed to SUDs in 2017

- Canada: **9%**
- Mexico: **0.5%**

# Substance Abuse: Adolescents

- Record increase in vaping among teens from 2017 to 2018
- First SG Advisory on E-cigarettes among youth
- Nearly 1 in 11 students reported using cannabis in E-cigarettes in 2016



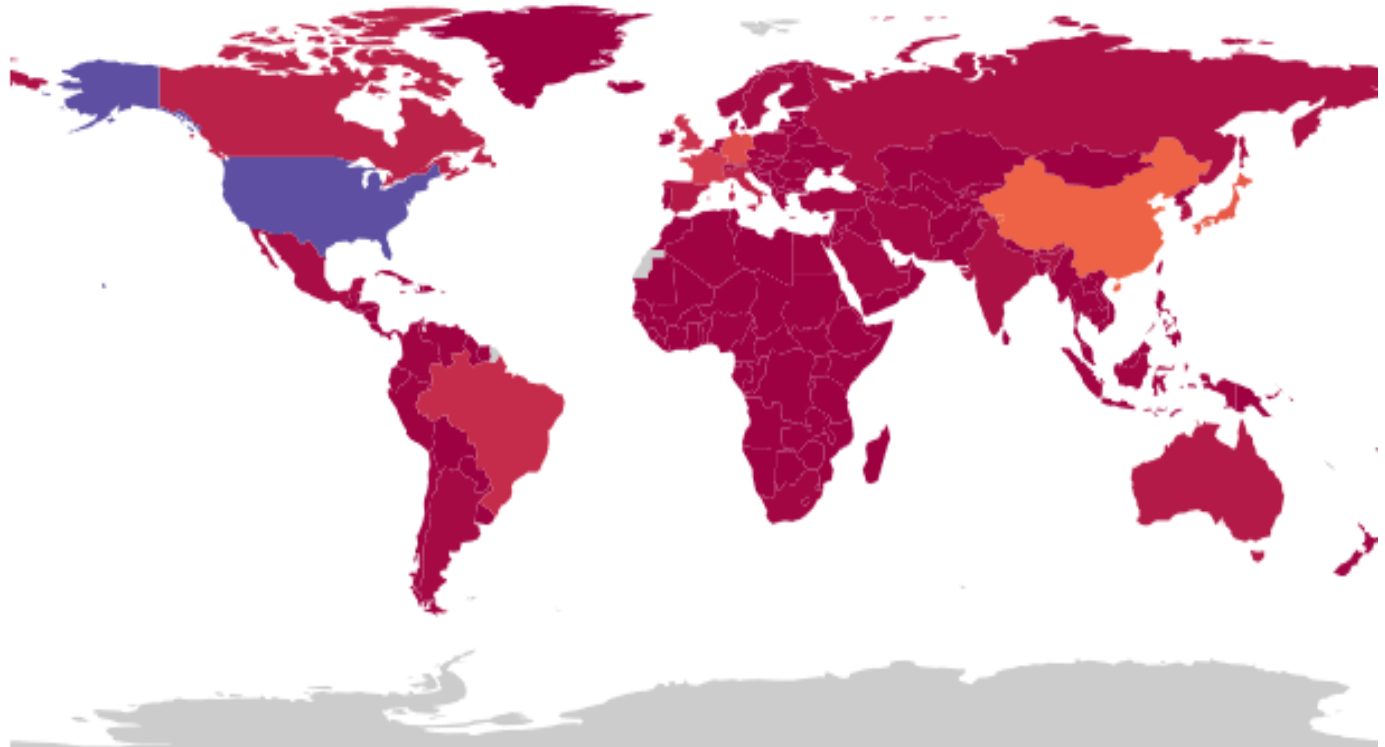


# Global All Cause Total Health Spending

## Total Health Spending by Country, 2016

In 2016, the United States spent **3.3 trillion** dollars on health care

- China: \$600 Billion
- Canada: \$177 Billion

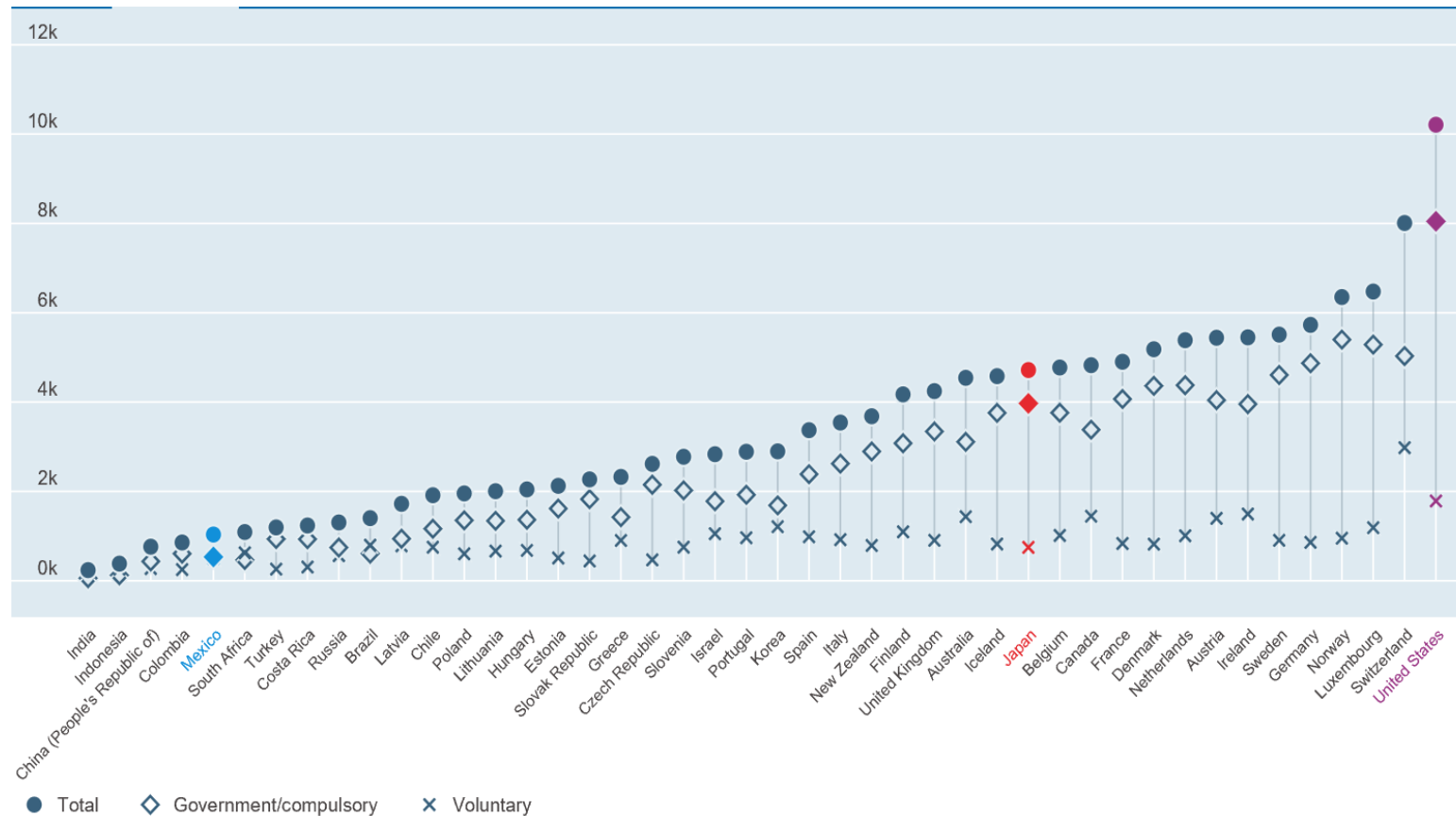


<https://vizhub.healthdata.org/gbd-compare/>

Financing Global Health, All cause total health care spending

# Health Care Expenditures are a Concern

## 2017 Health Spending in 35 OECD Countries

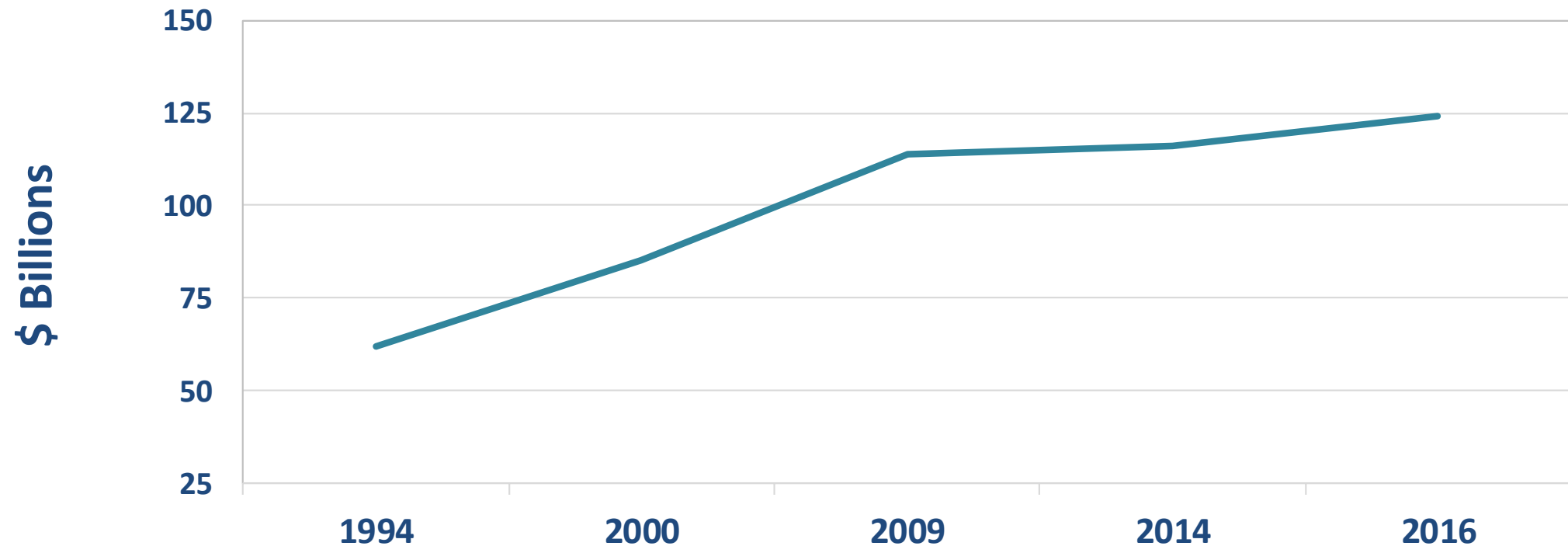


United States:  
**\$10,739/capita**

Dental services  
accounts for  
4% of total US  
health  
expenditures

# Dental Care Expenditures: United States

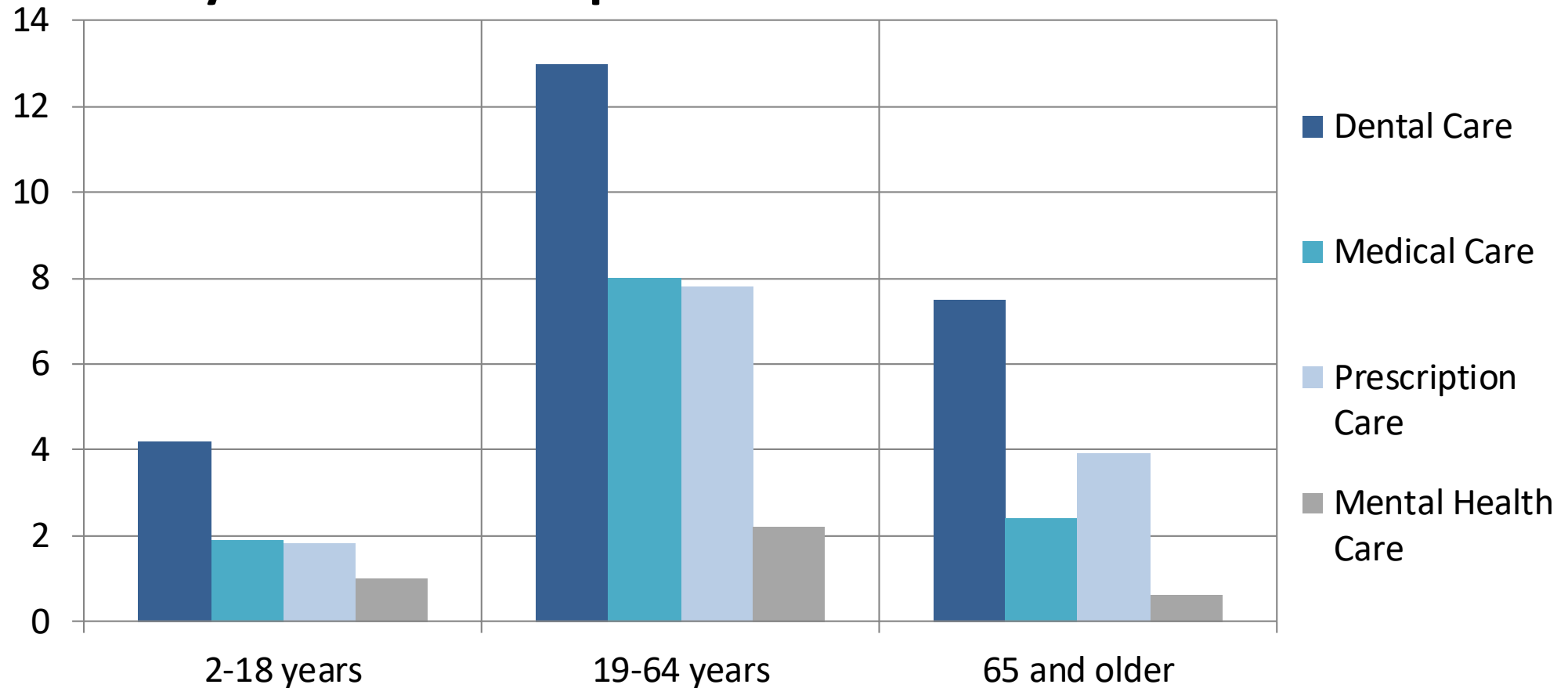
## Total inflation-adjusted dental expenditures in the United States



Source: HPI: <https://www.ada.org/en/publications/ada-news/2017-archive/december/hpi-report-shows-dental-spending-increased-again-in-2016>

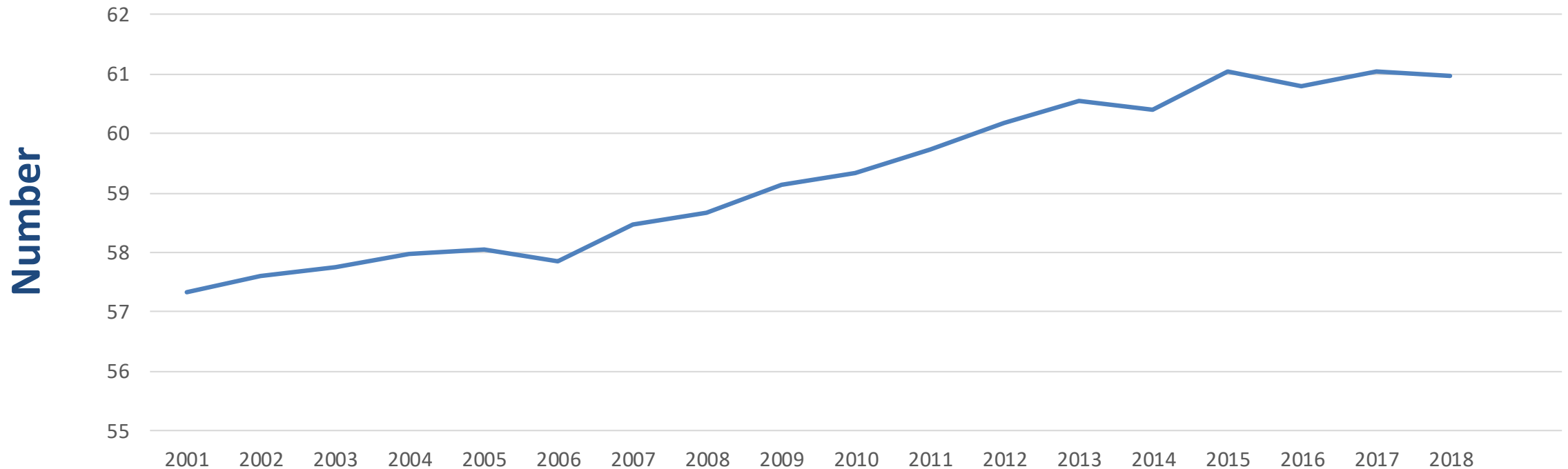
# Cost: A Major Obstacle to Health Care

**Percent of people who did not get selected health care services they needed in the past 12 months because of cost**



# Workforce: United States

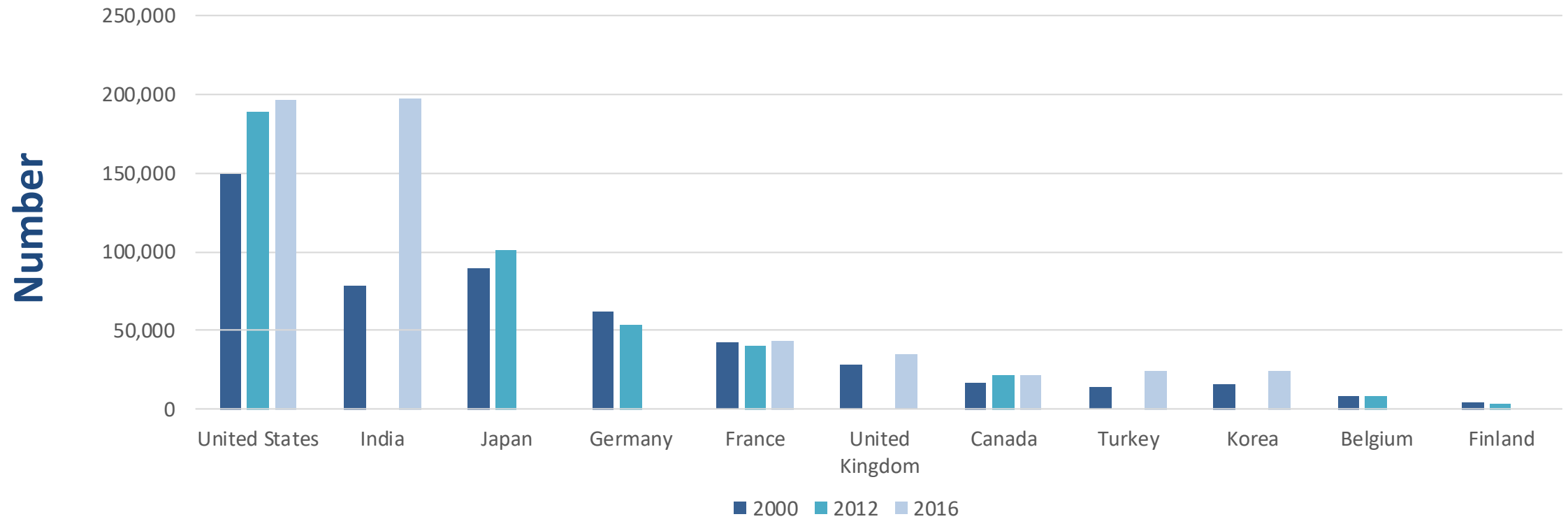
## Total Number of Dentists working per 100,000 people in the United States



<https://www.ada.org/en/science-research/health-policy-institute/dental-statistics/workforce>

# Workforce: Global

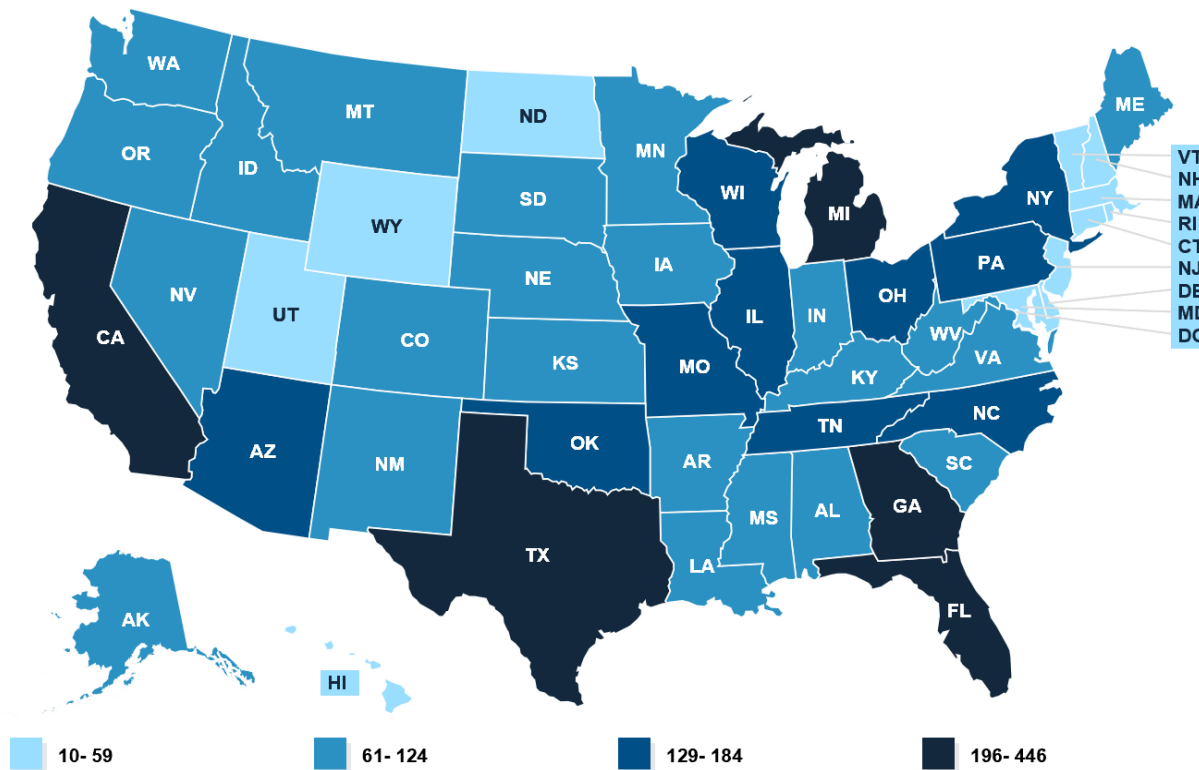
## Total number of Dentists working in select countries





# Access to Professional Dental Care Affects OH

# 5,862 Dental Health Professional Shortage Areas (HPSAs) affect 58 million\*



## Emerging Models of Care

## New Providers

## Dental Therapists

## Community OH Coordinators

## Physicians/Nurses

## New Settings

## Primary Care

## Schools

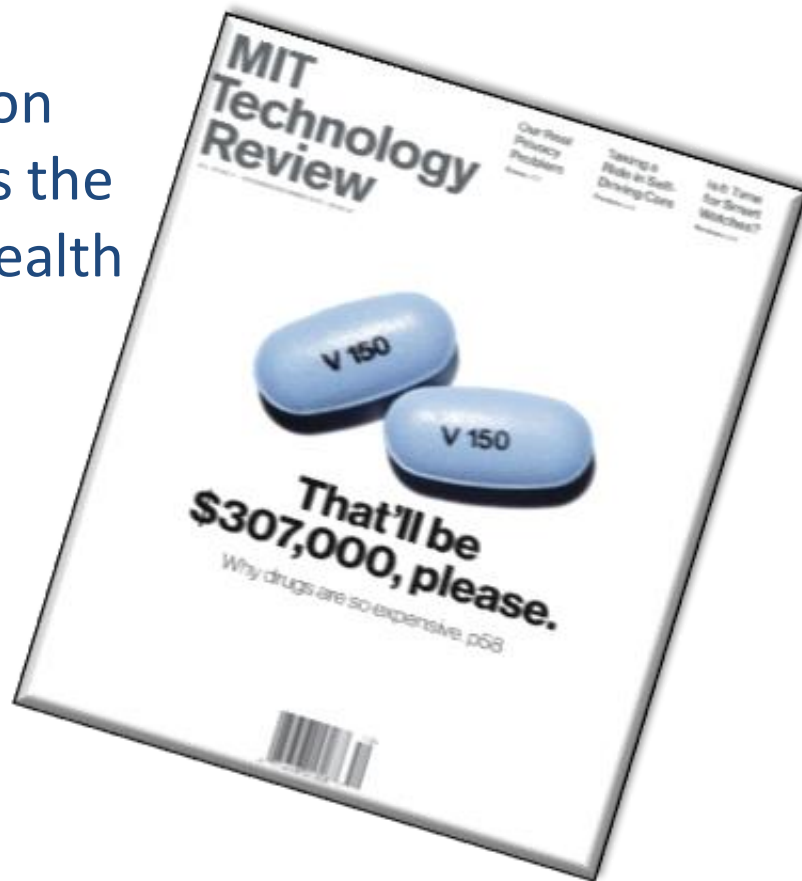
# Teledentistry

Source: Kaiser Family Foundation. Bureau of Health Workforce, Health Resources and Services Administration (HRSA), U.S. Department of Health & Human Services, Designated Health Professional Shortage Areas Statistics: Designated HPSA Quarterly Summary, as of December 31, 2018.

# Challenge: Advances in Health Technology

## The costly paradox of health care technology

Innovation increases the cost of health care



## The paradox of too much data and not enough information

Barriers remain for *precision* medicine/ public health interventions to effect change that benefits individuals and population groups



# Developing the 2020 SG's Report on Oral Health



# The Charge from the Surgeon General

## Guiding the 2020 Report

The report will describe and evaluate **oral health** and the interaction between **oral health** and general health throughout the lifespan, considering advances in science, health care integration, and social influences to articulate promising new directions for improving **oral health** and oral health equity across communities.

# Focus: The 2020 Report

## **“Big” questions to answer**

- Where we are now,
- Where we have made advances since 2000,
- What challenges persist since the last report,
- What new threats are emerging, and
- What are some promising new directions for research and improvement in oral health?

# Development and Progress

## How are We Gathering Input?

### **SG Listening Session (November 2018)**

- Elicited input from more than 150 health professionals, researchers, educators, and other experts

### **Overview Webinar Inviting Public Comment (January 2019)**

- More than 1700 Views
- 180 Comments, including 40 descriptions of programs

### **Association of State and Territorial Dental Directors (March 2019)**

- Asked ASTDD members to share exemplary private-public partnerships for improving oral health – 19 responses to date



# Using the Input to Shape Content

- Six Section Editors and 20 Associates outline and expand topics and content
- About 300 researchers and health professionals review science and practice and write text
- More than 50 experts critically read and revise
- Federal clearance procedures ensure that standards of the Surgeon General and the US Department of Health and Human Services are met

# Structure of the Report: Six Sections

1. Effect of Oral Health on the Community, Overall Well-Being and the Economy
2. Oral Health in Children and Adolescents
3. Oral Health in Working-Age and Older Adults
4. Oral Health Integration, Workforce, and Practice
5. Substance Use Disorders, the Opioid Epidemic, High-Risk Behaviors, and Mental Health
6. Emerging Technologies and Promising Science to Transform Oral Health

# Section 1 of the 2020 Report

## Effect of Oral Health on the Community, Overall Well-Being, and the Economy

- **Section Editor:** Robert Weyant
- **Associate Editors:** Carlos Quinonez, Scott Tomar, and Marko Vujicic



# Section 2 of the 2020 Report

## Oral Health in Children and Adolescents

- **Section Editor:** Paul Casamassimo
- **Associate Editors:** Belinda Borrelli, Margherita Fontana, Jessica Lee, and Norman Tinanoff



# Section 3 of the 2020 Report

## Oral Health in Working-Age Adults and Older Adults

- **Section Editor:** Jocelyne Feine
- **Associate Editors:** Eliza Chavez, Judith Jones, Linda Niessen, and Susan Reisine



# Section 4 of the 2020 Report

## Oral Health Integration, Workforce, and Practice

- **Section Editor:** Kathy Atchison
- **Associate Editors:** Jeff Chaffin, Jeff Fellows, and Nadeem Karimbux

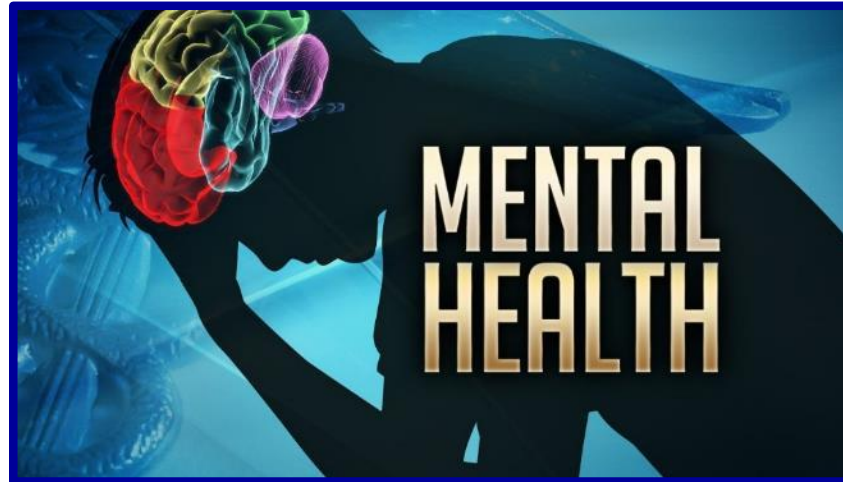




# Section 5 of the 2020 Report

## Substance Use Disorders, the Opioid Epidemic, High-Risk Behaviors, and Mental Health

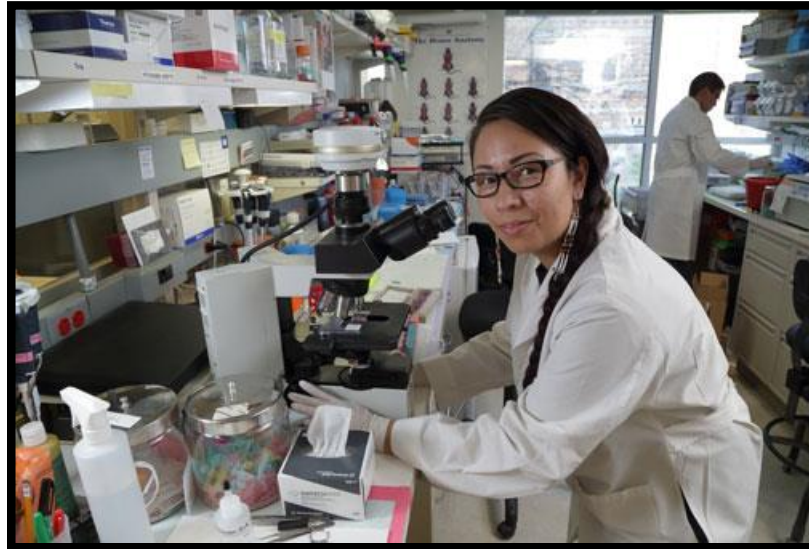
- **Section Editor:** Christian Stohler
- **Associate Editors:** Israel Agaku, Linda Fried, and Jon-Kar Zubieta



# Section 6 of the 2020 Report

## Emerging Technologies and Promising Science to Transform Oral Health

- **Section Editor:** Laurie McCauley
- **Associate Editors:** William Giannobile, Michelle Robinson, and Wenyan Shi



# Expectations for the 2020 Report

**It is anticipated that the 2020 Report will:**

- Emphasize the importance of poor ***oral health*** as a public health issue
- Reinforce the importance of ***oral health*** throughout life
- Describe important contemporary issues affecting ***oral health***
- Outline a vision for future research and policy directions, and
- Educate, encourage, and call upon all Americans to take action

# Influence of the 2020 Report

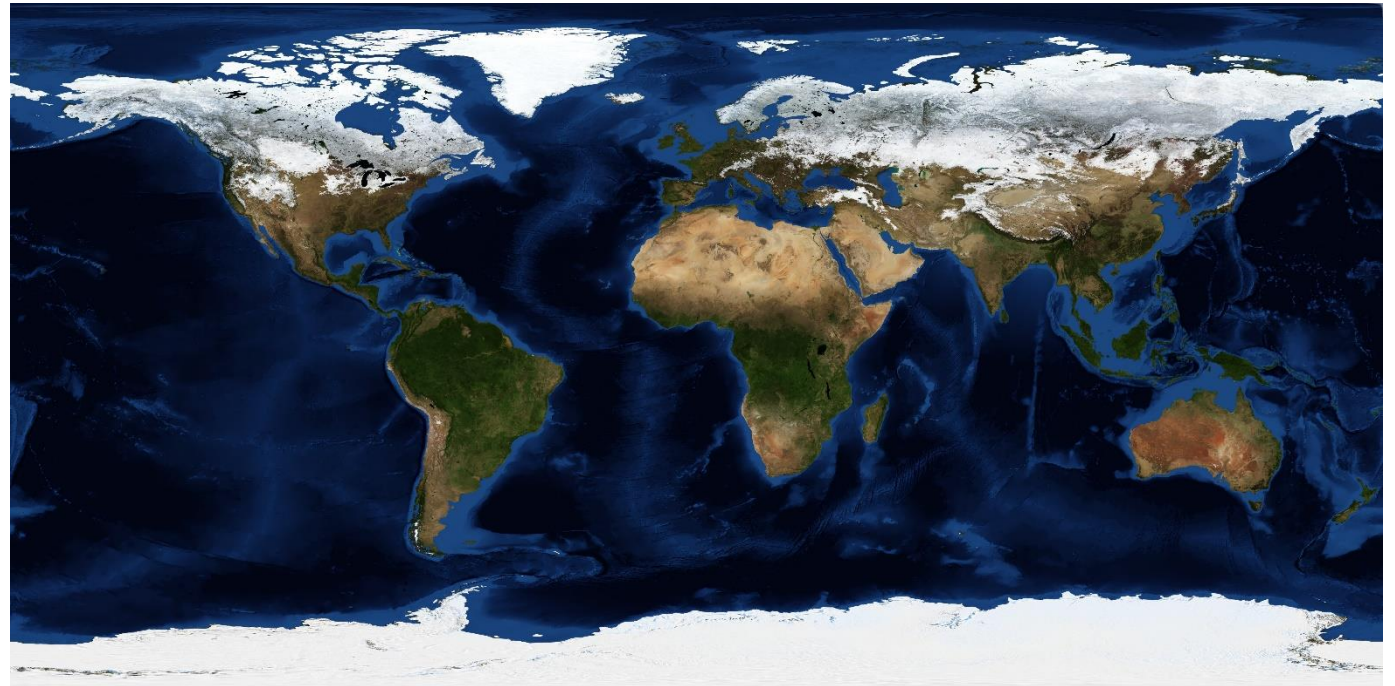
**Available in Fall 2020, the Surgeon General's Report will provide:**

- Information that will impact population health, the economy, national security, health professions education, and public policy
- Information providing guidance for research, education, and practice related to oral health
- Promising approaches to achieving oral health equity for our country's diverse communities
- A road map to optimal oral health for all

# Global Oral Health and the 2020 Report

## How can the 2020 SGR Influence Global Oral Health?

- Learning
- Workforce Issues
- OH Inequities
- Shared Disease Burden and Shared Cost



*Image from NASA*



# Dental Practice and the 2020 Report

## How can the 2020 SGR Influence Dental Practice?

- Identify changes in disease patterns
- Identify trends and changes that impact the Oral Health workforce
- Highlight new directions in science and technology that can improve practice
- Clarify how patient populations are changing
- Raise awareness of practices that impact oral health inequities

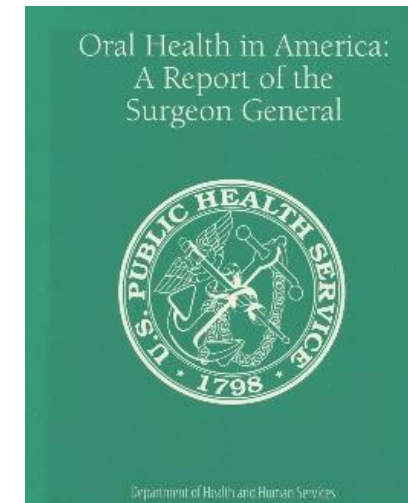


*Image from WSJ*



# Questions

E-mail to: [NIDCR-SGROH@nidcr.nih.gov](mailto:NIDCR-SGROH@nidcr.nih.gov)



*Copies of the 2000 Surgeon General's Report are available*

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