

SESSION 5: 2023 Jenny Pomeroy Award for Excellence in Vision and Public Health



Moderator:
Jim McGann
Board Chair
Prevent Blindness



Dean A. VanNasdale, OD, PhD, FAAO
Associate Professor
The Ohio State University
College of Optometry

12th ANNUAL



**Prevent
Blindness**

Focus on Eye Health Summit

**WHY
THE EYE**



JULY 12-13, 2023

A Virtual Interactive Event



Using Population Health Data to Promote Eye Health



Dean A. VanNasdale, OD, PhD, FAAO

Associate Professor

Ohio State University College of Optometry

vannasdale.1@osu.edu



THE OHIO STATE UNIVERSITY

COLLEGE OF OPTOMETRY



**Prevent
Blindness**

Focus on Eye Health Summit

A Team Approach to Addressing Vision Health

- Ohio State University
 - Erica Shelton, OD, MS, FAAO
 - Megan Hurley, OD, MS
 - Lisa Jones-Jordan, PhD, FAAO
 - Matt Robich, MPH
 - Andrew Wapner, DO, MPH
 - Keith Ramsey
 - Kerri McTigue
 - Karla Zadnik, OD, PhD, FAAO
 - John Crews DPA
- Prevent Blindness Ohio
 - Sherry Williams
 - David Monder
- Ohio Department of Aging
 - Marc Molea (retired)
- Indiana University
 - Chris Clark, OD, PhD, FAAO
- National Association of Chronic Disease Directors
 - Carol McPhillips Tangum
- Centers for Disease Control and Prevention
 - Jinan Saaddine, MD, MPH

Outline

- Background
- Where the Data Reside
- What the Data Are Telling Us
- Identifying Upstream Influences
- Future Work

Outline

- **Background**
- Where the Data Reside
- What the Data Are Telling Us
- Identifying Upstream Influences
- Future Work

John E Crews, DPA



AMERICAN PUBLIC HEALTH ASSOCIATION

For science. For action. For health.

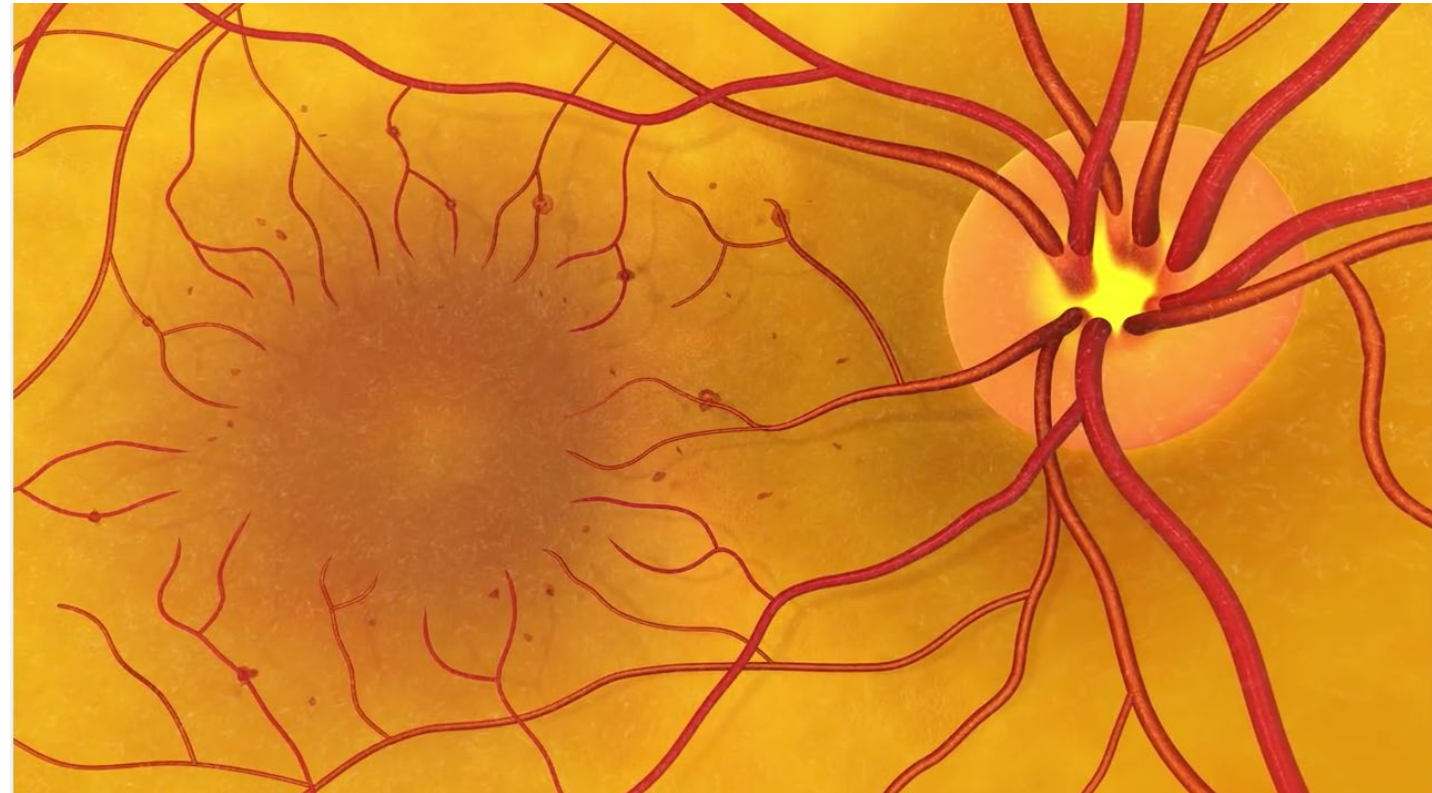




My First Clinical Experiences With Public Health and Vision



Mark Swan, OD, MEd, FAAO



<https://www.youtube.com/watch?v=sQ-0RkPu35o>



Vision Health's Representation in Public Health Priorities

- Healthy People 2030
 - Healthy People provides science-based, 10-year national objectives for improving the health of all Americans
- Vision Workgroup Objectives
 - Reduce vision loss from diabetic retinopathy in adults age 18 years and over with diabetes (V-04)
 - Baseline: 33.0 per 1,000
 - Target: 16.5 per 1,000





Our Current Trajectory

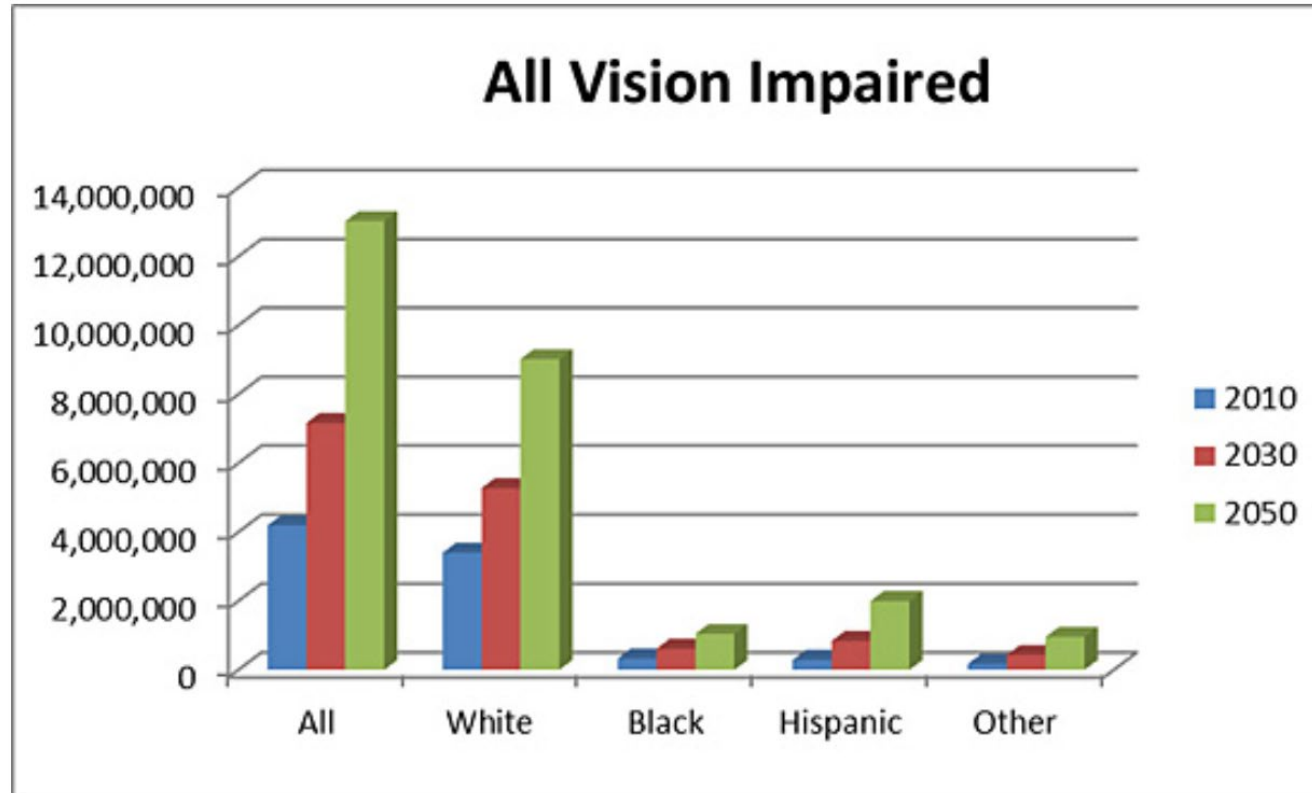
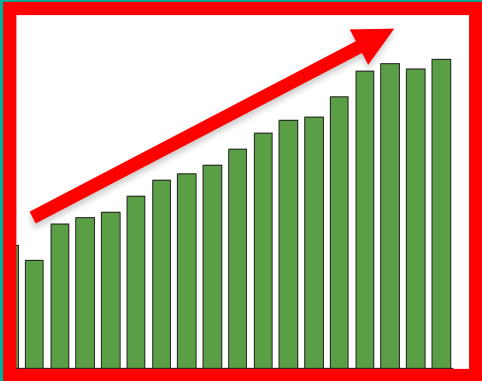
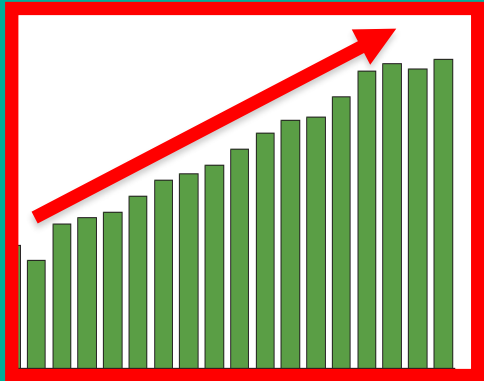


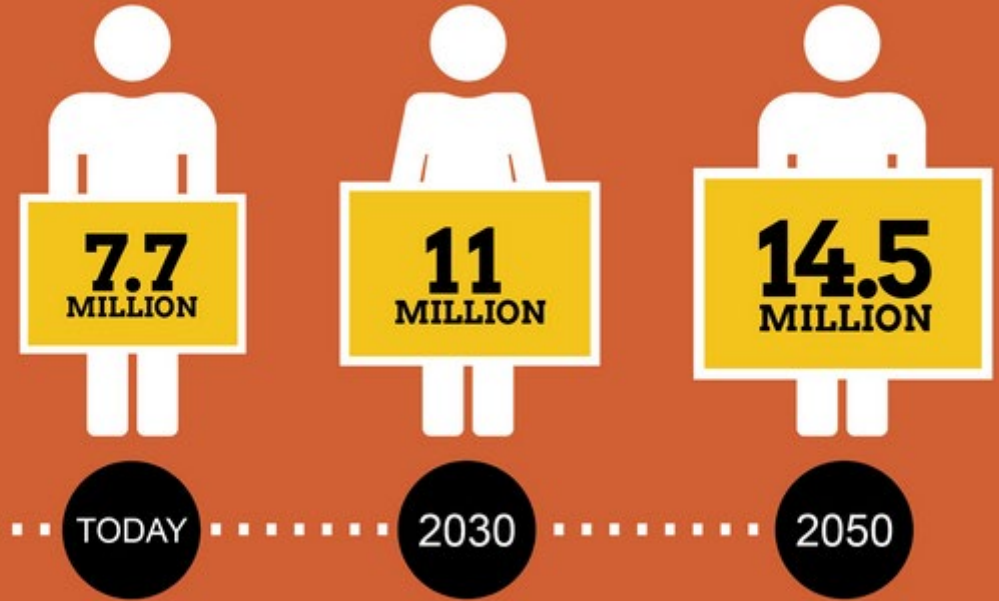
Table for Projections for Vision Impairment (2010-2030-2050)





A GROWING ISSUE

Diabetic retinopathy is the leading cause of blindness in working-age adults ages 20–74.



95%

REDUCED RISK OF VISION LOSS

Early detection, timely treatment, and appropriate follow-up care can reduce the risk of severe vision loss by 95 percent.



Our Path to Achieve Our Vision Objectives is Not Entirely Clear

“Sound decisions about public policy and the prioritization of resources depend on having relevant and timely surveillance data. Surveillance of vision impairment and eye health is limited, however, and the lack of adequate surveillance has a substantial impact on public health efforts to address vision problems.”

-National Academies of Sciences, Engineering and Medicine



Outline

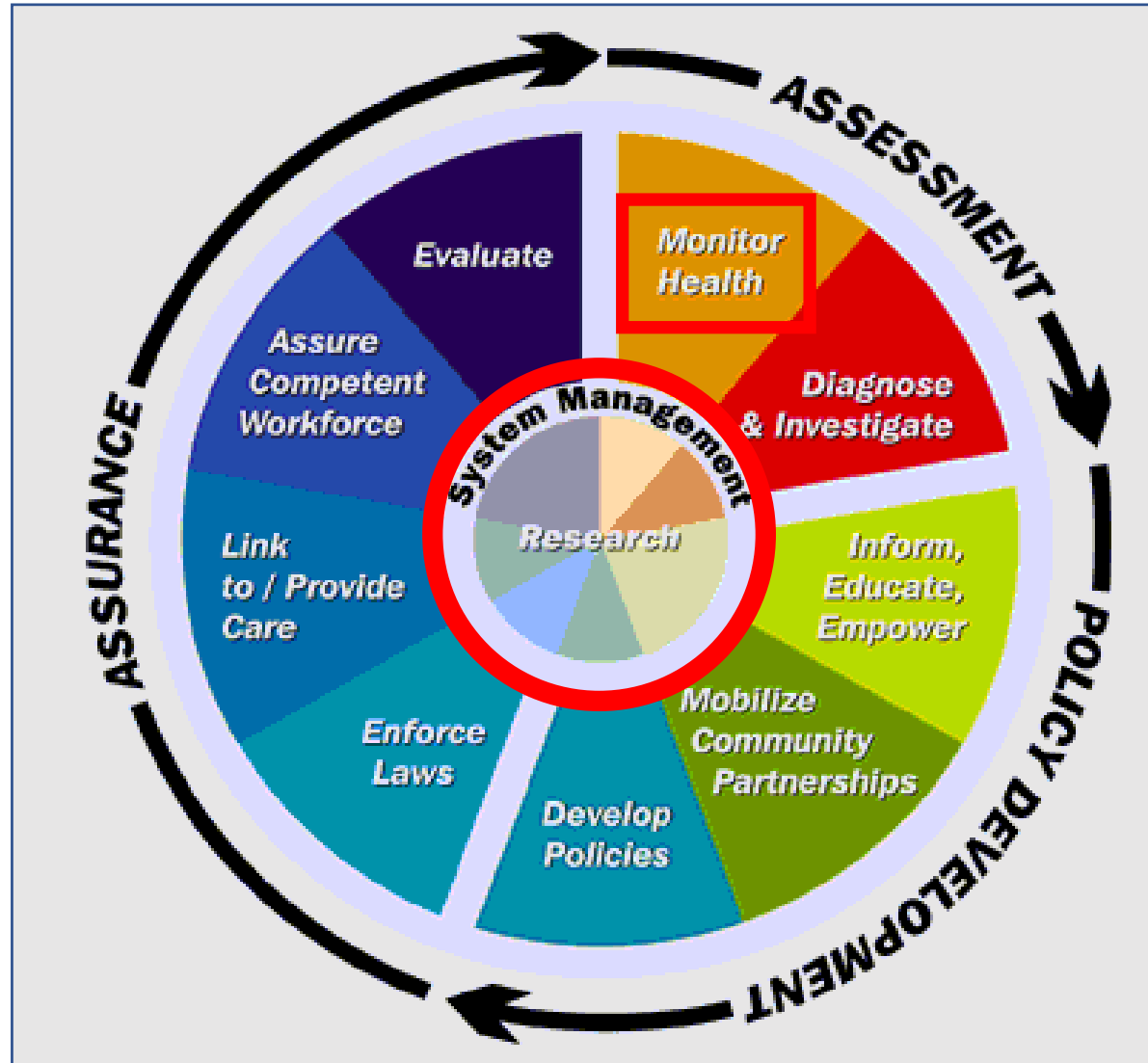
- Background
- **Where the Data Reside**
- What the Data Are Telling Us
- Identifying Upstream Influences
- Future Work



The three core functions and ten essential public health services



The Public Health Framework



Ann Elsner, PhD

You need to consider the tools you have and decide which of them can most effectively solve your problem.



Monitoring Health

- **Sources of population-based vision impairment data**
 - **American Community Survey (ACS)**
 - Administered by the U.S. Census
 - Responses by mail, in person interview, internet, or telephone
 - **Behavioral Risk Factor Surveillance System (BRFSS)**
 - Administered by the U.S. Centers for Disease Control and Prevention
 - Telephone survey

“Are you blind or do you have serious difficulty seeing, even when wearing glasses?”

Case definition frequently used to measure vision impairment in vision research (Crews, 2012)

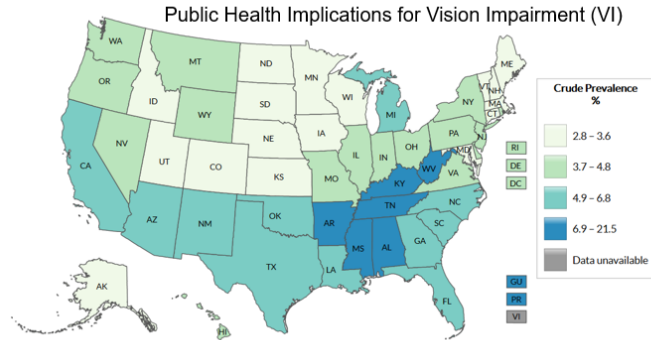
Monitoring Health

- **Components of the BRFSS**
 - **Core Module**
 - Standard set of questions asked to all respondents without modification
 - **Optional Modules**
 - Standardized set of questions that states can elect to include
 - **State-added Questions**
 - Questions that can be introduced by a state to address unique issues



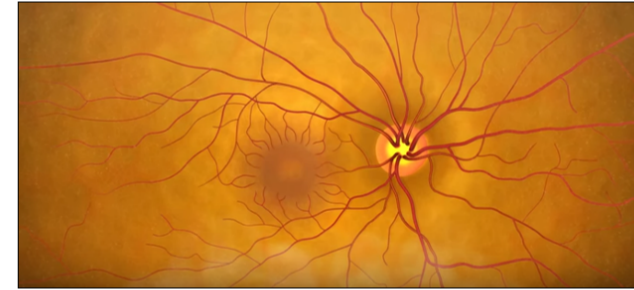
THE OHIO STATE UNIVERSITY
COLLEGE OF OPTOMETRY

Dean VanNasdale, OD, PhD
vannasdale.1@osu.edu

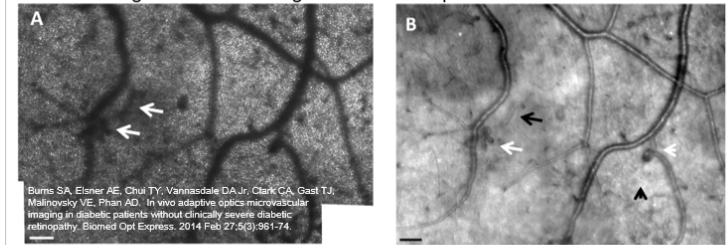


<https://www.cdc.gov/visionhealth/visionhealthdata/index.html>

Diagram of the Retina, Optic Nerve, and Blood Vessels

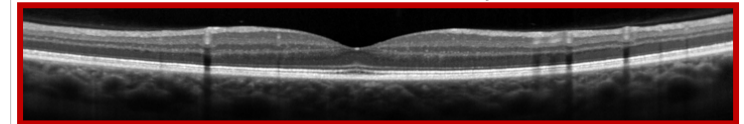


High Resolution Images of Photoreceptors and Blood Vessels

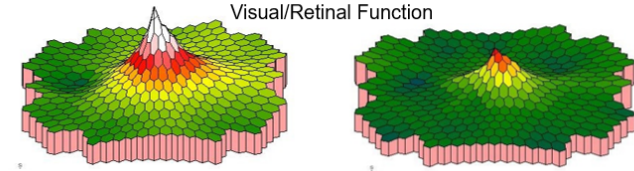


Burns SA, Eteran AE, Chui TY, VanNasdale DA, Jr, Clark CA, Gast TJ, Malinovsky VE, Phan AD. In vivo adaptive optics microvascular imaging in diabetic patients without clinically severe diabetic retinopathy. *Biomed Opt Express*. 2014 Feb; 27:5(3):961-74.




Cross Section of Retinal Layers



Visual/Retinal Function



National Institutes of Health
National Eye Institute

	Total	VI	No VI
	Arthritis, lupus, fibromyalgia 29.85 (28.72-31.00)	39.20 (33.10-45.66)	30.08 (28.82-31.37)
	Diabetes 10.36 (9.65-11.11)	24.06 (19.34-29.52)	9.68 (8.98-10.42)
	Difficulty walking/stairs 15.10 (14.22-16.02)	48.78 (42.52-55.07)	13.34 (12.49-14.23)
	Arthritis, lupus, fibromyalgia 32.19 (30.73-33.70)	55.08 (48.95-61.07)	30.49 (28.98-32.04)
	Diabetes 13.83 (12.79-14.93)	28.14 (23.31-33.53)	12.56 (11.52-13.67)
	Difficulty walking/stairs 22.18 (20.87-23.55)	57.93 (51.74-63.88)	19.12 (17.83-20.47)
	Arthritis, lupus, fibromyalgia 24.73 (23.78-25.71)	49.97 (43.77-56.18)	23.92 (22.96-24.92)
	Diabetes 9.17 (8.53-9.86)	24.63 (19.84-30.15)	8.65 (8.00-9.34)
	Difficulty walking/stairs 11.70 (10.98-12.45)	47.10 (40.97-53.32)	10.42 (9.73-11.15)



The Centers for Disease Control and Prevention
Vision Health Initiative

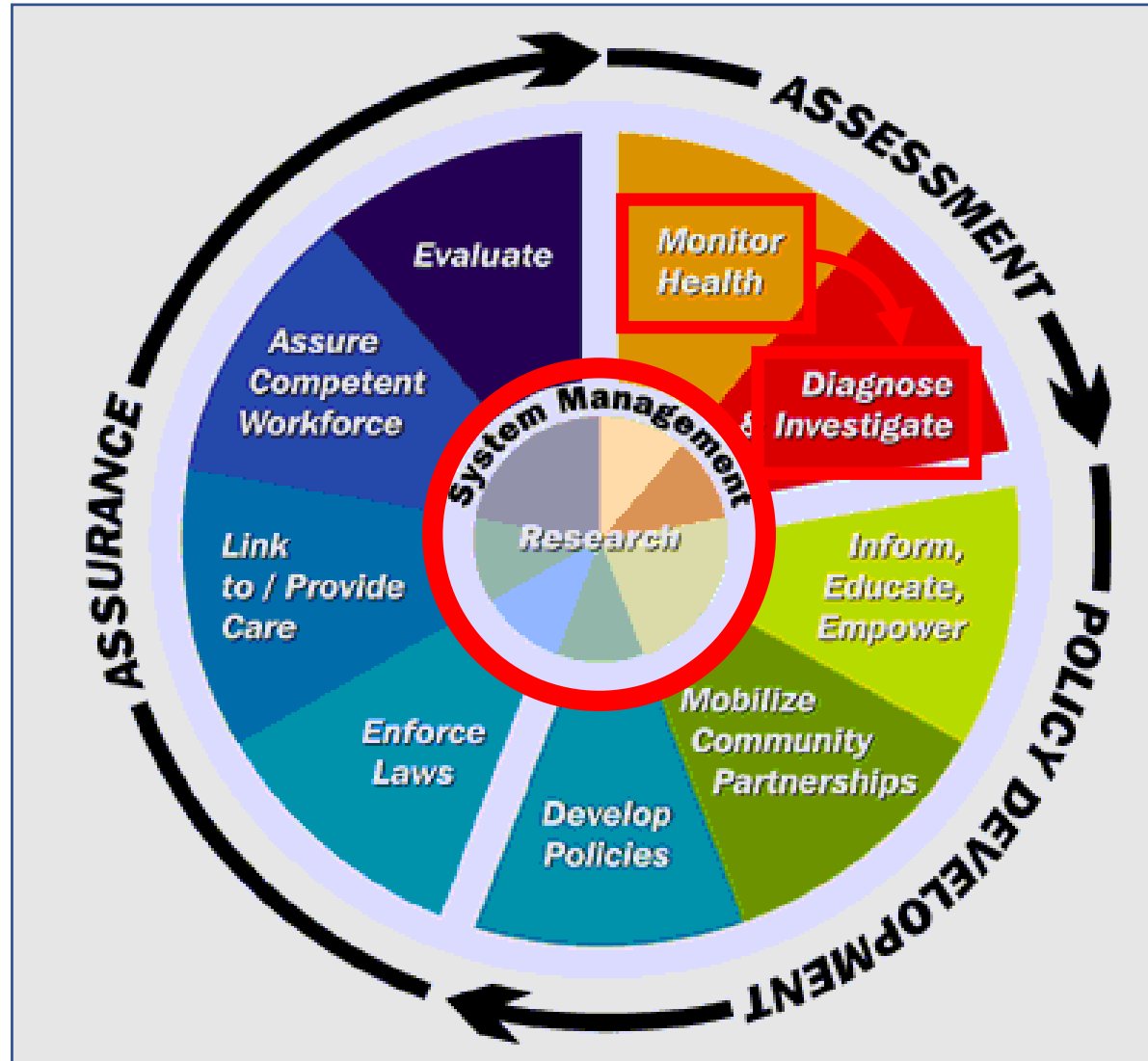




The three core functions and ten essential public health services



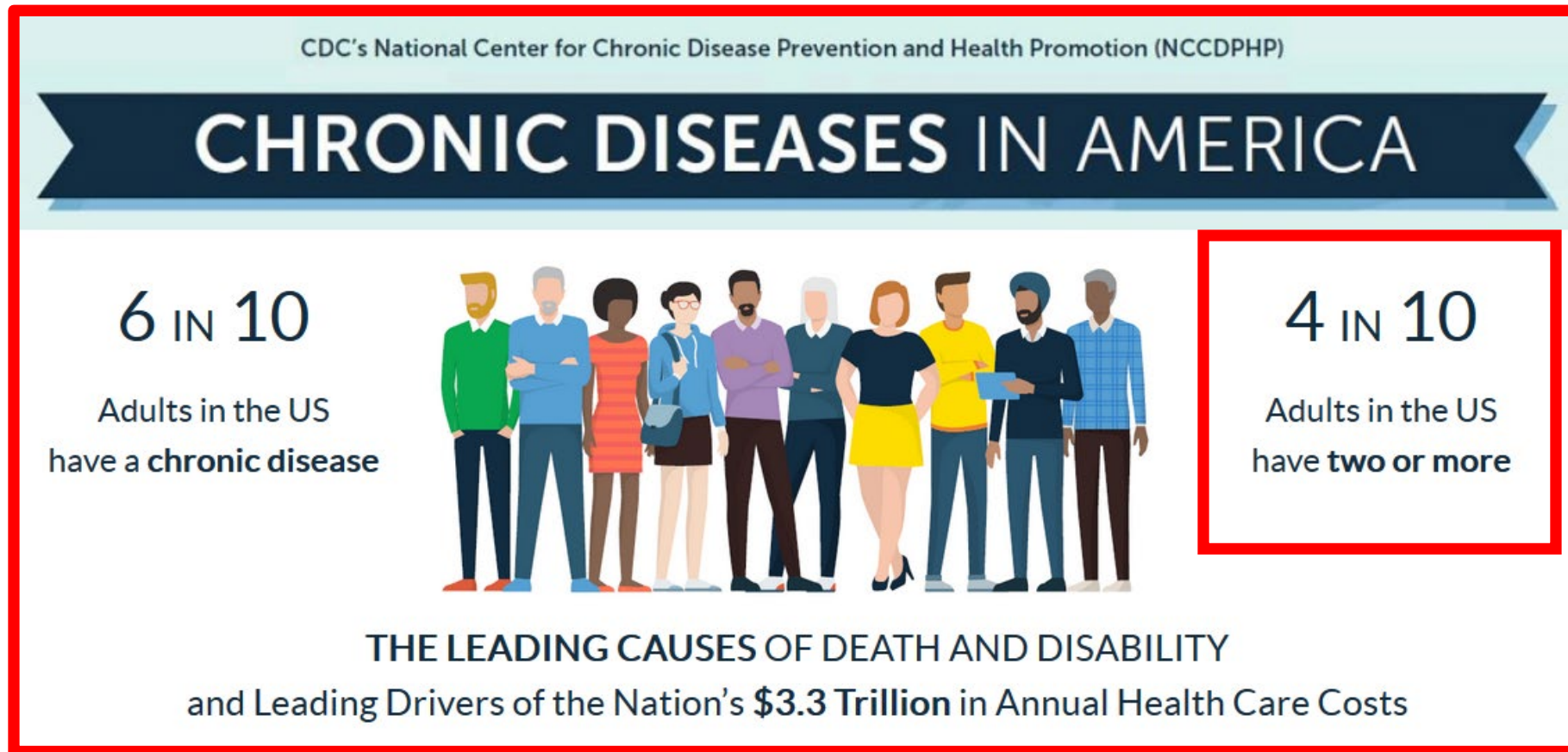
The Public Health Framework



Outline

- Background
- Where the Data Reside
- **What the Data Are Telling Us**
- Identifying Upstream Influences
- Future Work

Chronic Conditions and Comorbidities





Vision Impairment and Physical Health

“Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good”



Healthy Days = days in the past 30 days when both physical and mental health were good



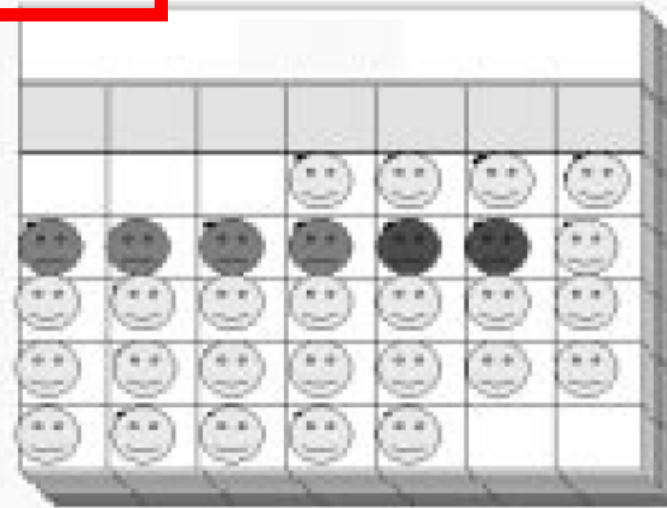
- Unhealthy day-physical



- Unhealthy day-mental



- Healthy day





Non-visually impaired number of physically unhealthy days

- 2.89 (North Dakota and Nebraska)
- 4.97 (West Virginia)

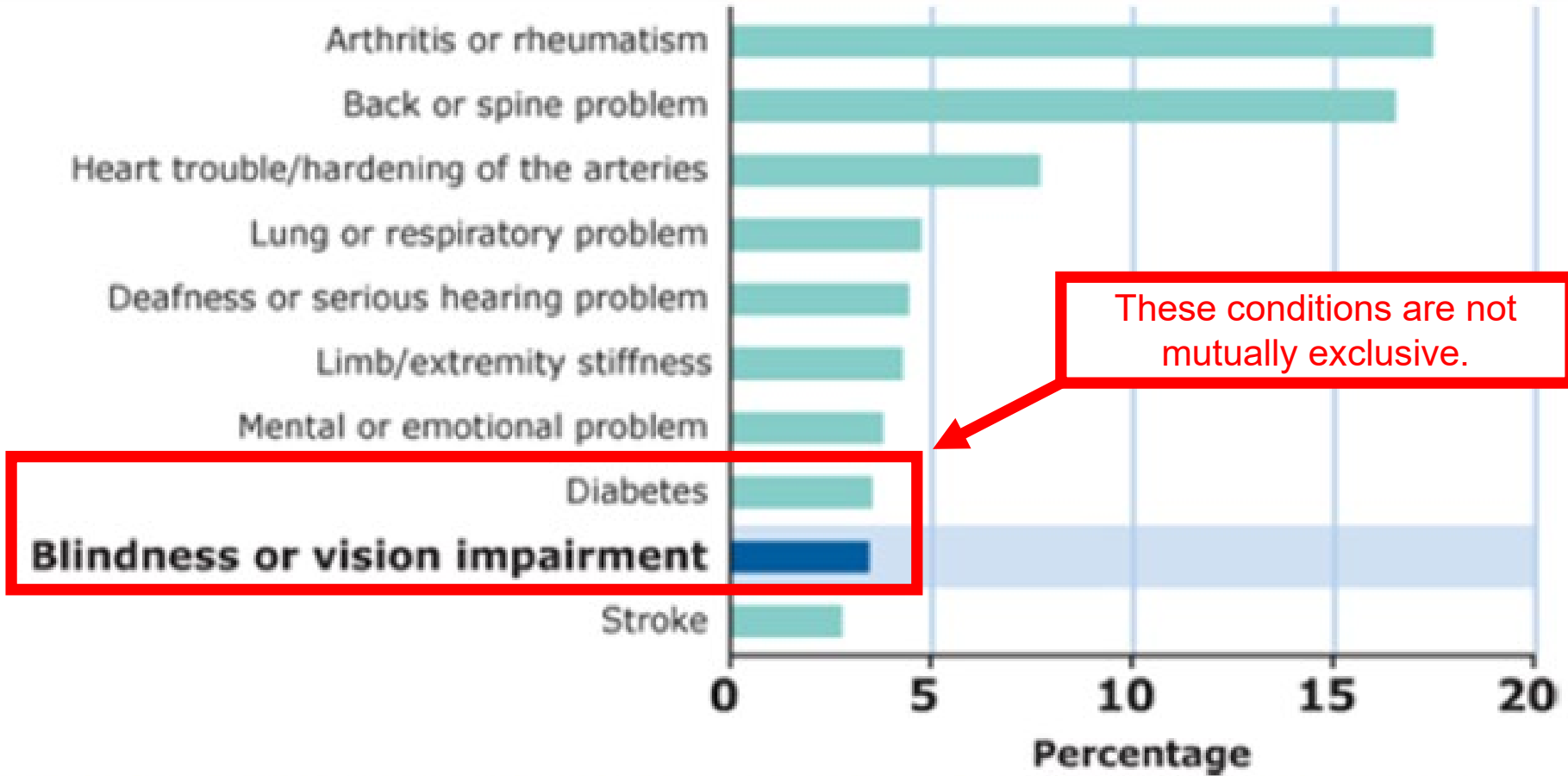


Visually impaired number of physically unhealthy days

- 8.34 days (Utah)
- 13.41 days (Tennessee)

Vision Impairment and Physical Health

- We can quantify how individuals with visual impairment have poorer physical health than those who are not visually impaired.
 - The next logical questions are...
 - What are some of the conditions that are contributing to poor physical health in the visually impaired population?
 - What is the magnitude of the problem?

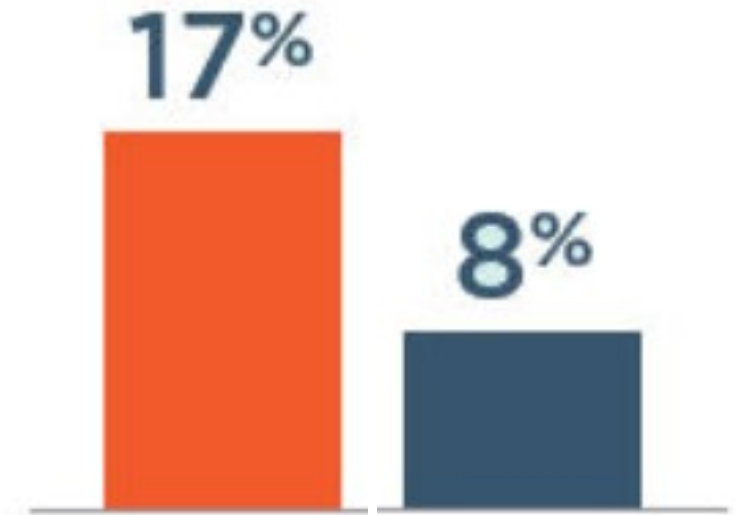


Source: Centers for Disease Control and Prevention. Prevalence of disabilities and associated health conditions among adults—United States, 1999. *MMWR* 2001; 50(7):120-125.



What the Data Are Telling Us

Diabetes



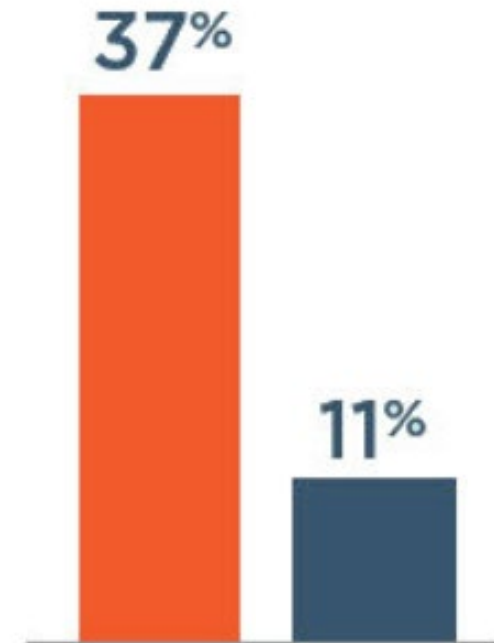
-  With Severe Vision Impairment
-  Without Severe Vision Impairment





What the Data Are Telling Us

Mobility Issues



 With Severe Vision Impairment

 Without Severe Vision Impairment



Prevent Blindness
Focus on Eye Health Summit

Why Do These Combinations Matter?

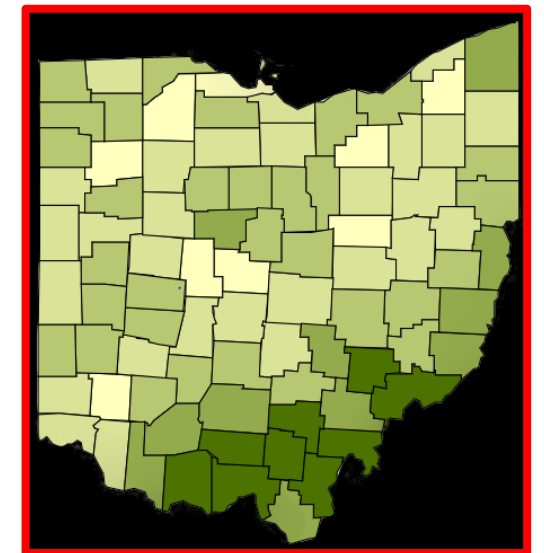
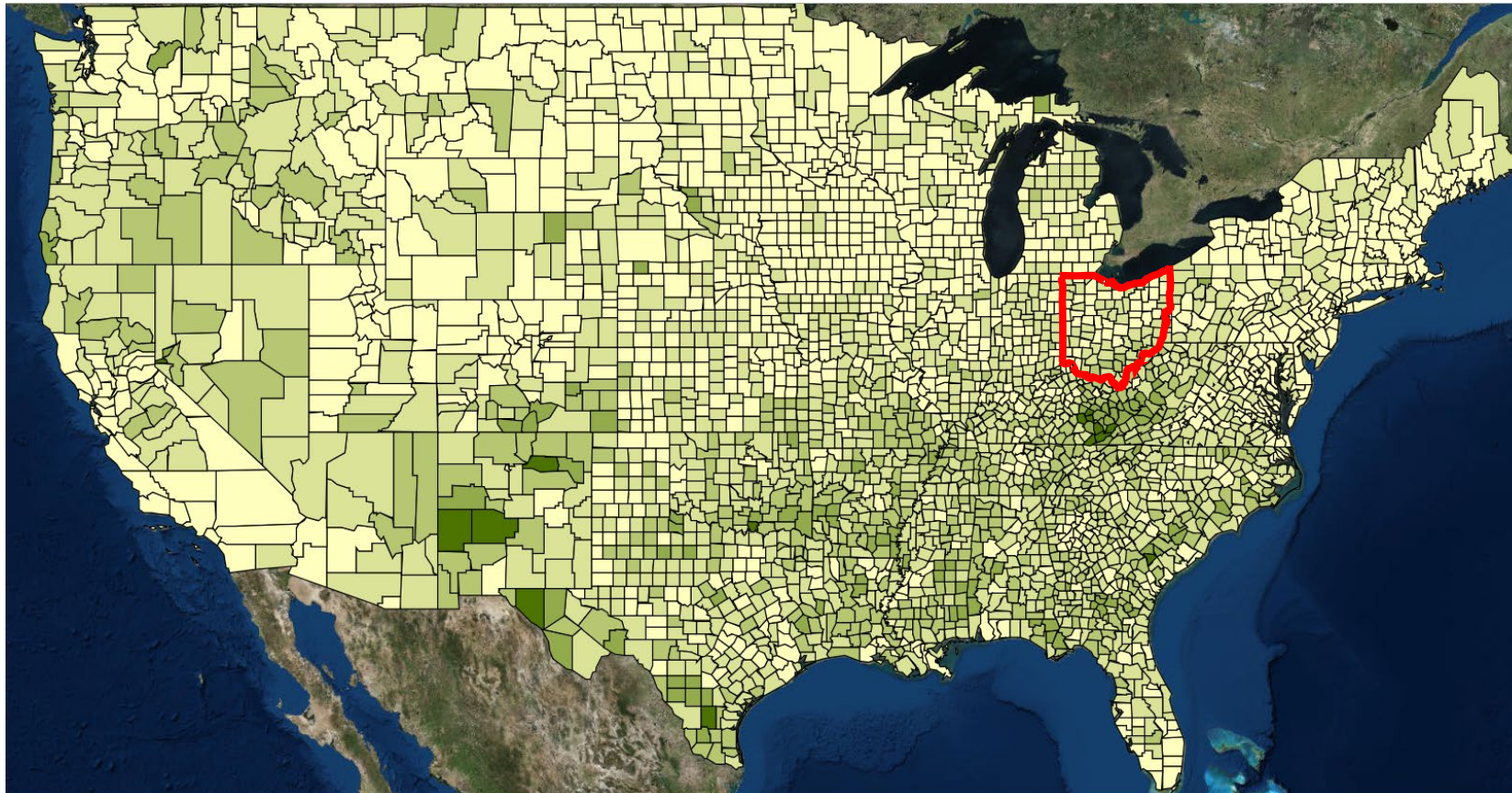


52%

of individuals 65 years and older with severe vision impairment reported having a fall in the previous year³

Crews JE; Chou CF, Stevens JA, Saaddine JB. Falls Among Persons Aged ≥ 65 Years With and Without Severe Vision Impairment – United States, 2014. MMWR Morb Mortal Wkly Rep. 2016 May 6;65(17):433-7.

What the Data Are Telling Us

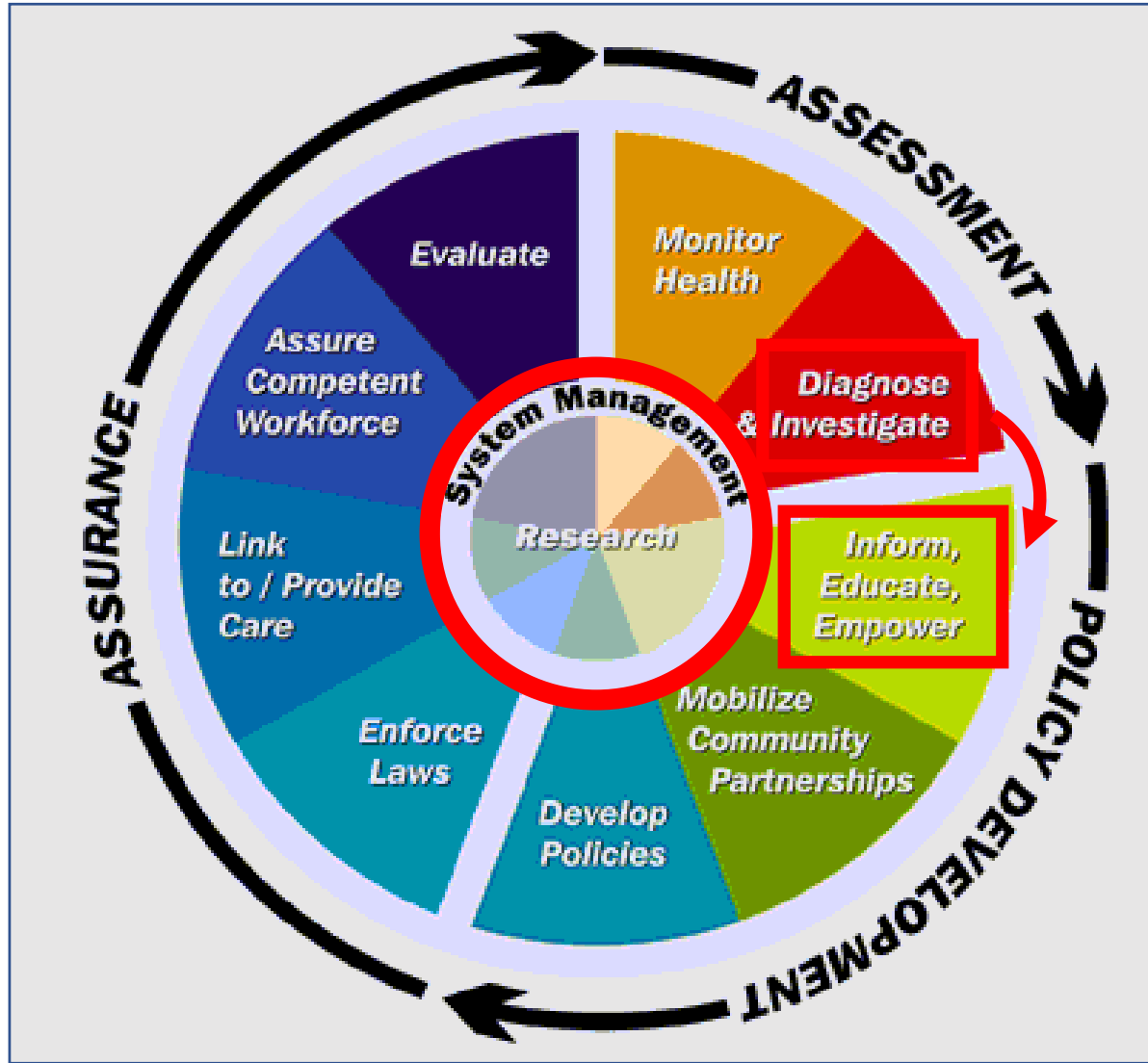




The three core functions and ten essential public health services



The Public Health Framework





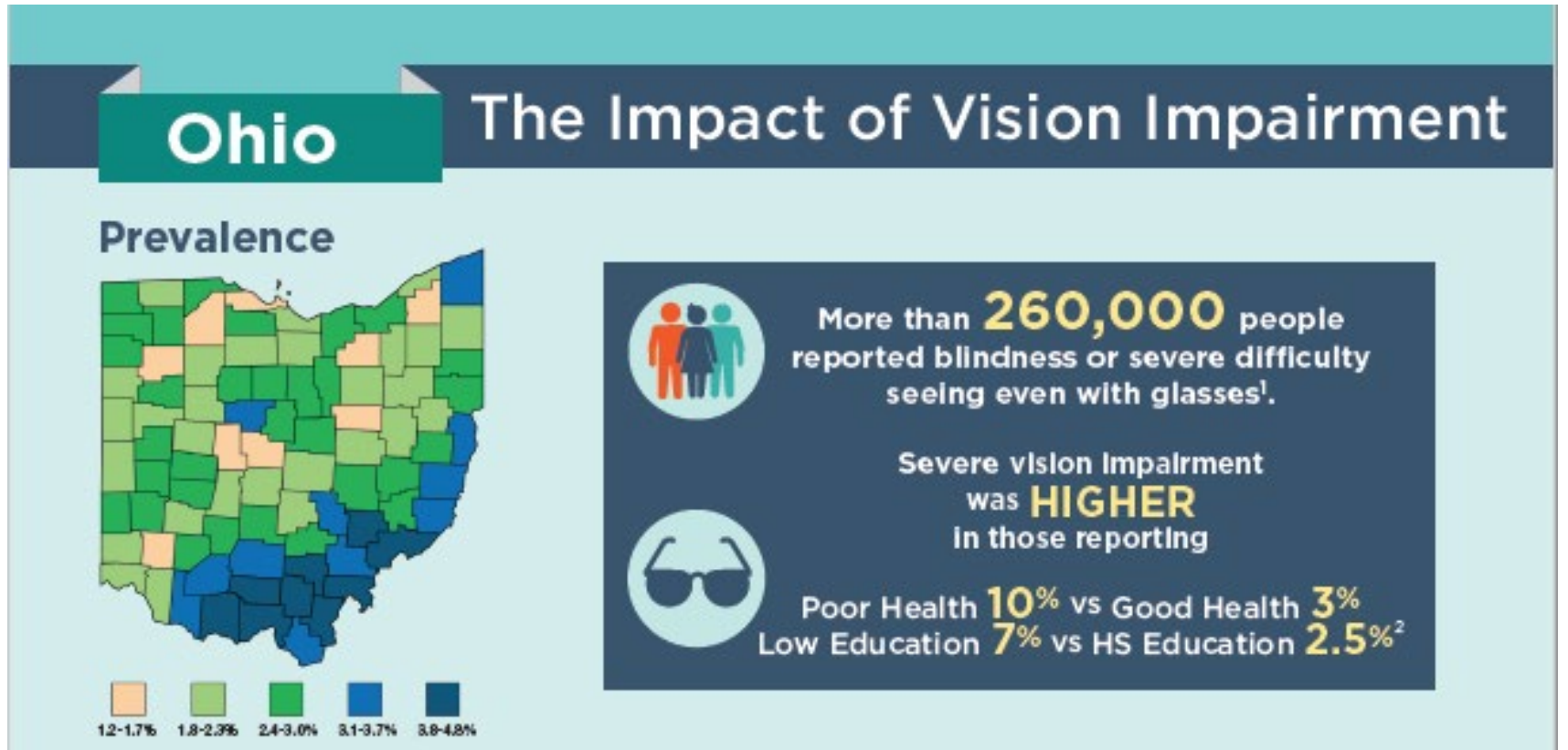
Combining Data to Promote Population Health



STATE PROFILES
on **VISION** and
EYE HEALTH



Prevent Blindness
Focus on Eye Health Summit



Stephen Burns, PhD

Interesting picture.
Now you have to figure
out what it means and
whether we can do
anything about it.

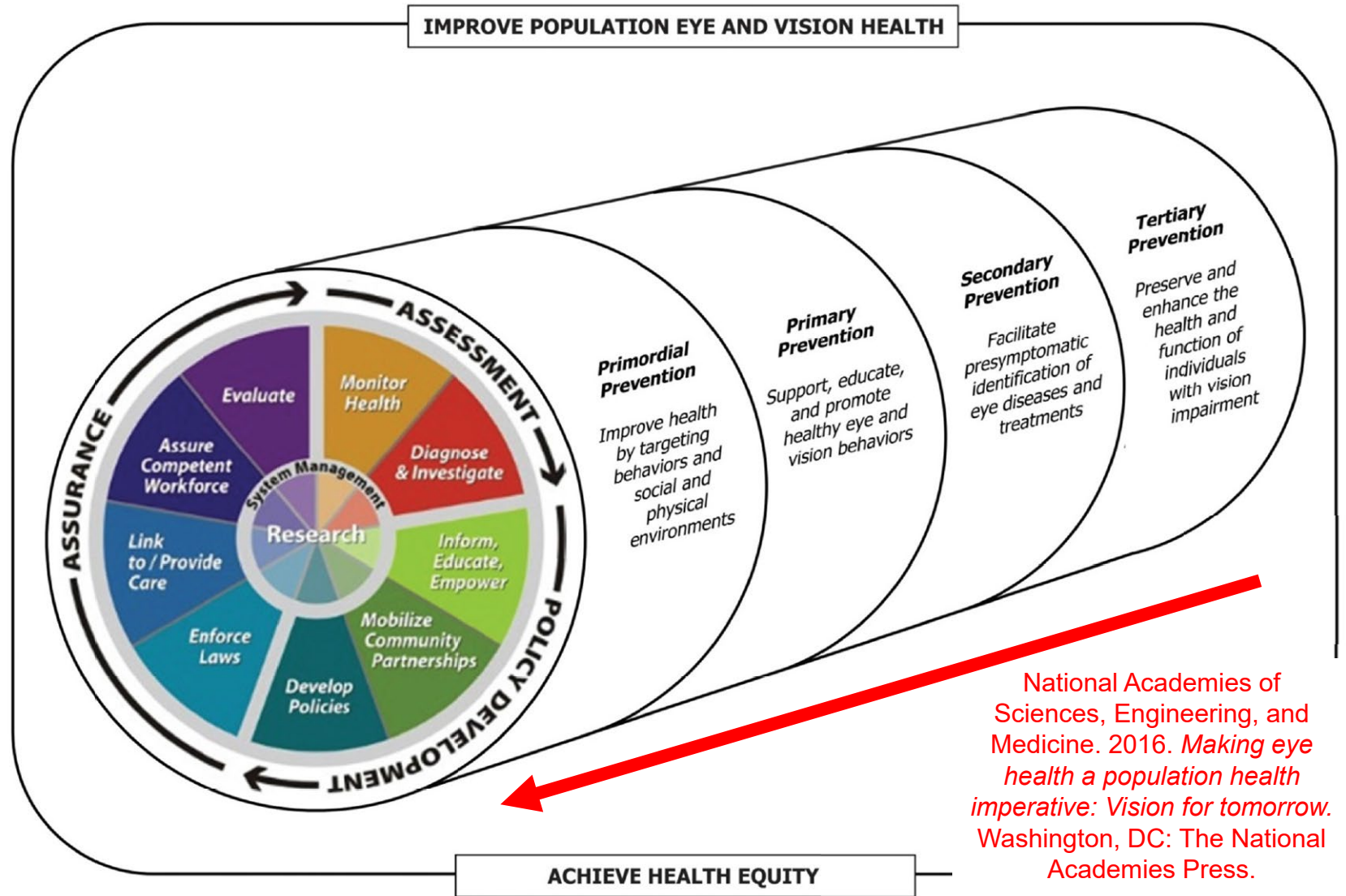


Outline

- Background
- Where the Data Reside
- What the Data Are Telling Us
- **Identifying Upstream Influences**
- Future Work



The Multidimensional Complexity of the Challenge



National Academies of Sciences, Engineering, and Medicine. 2016. *Making eye health a population health imperative: Vision for tomorrow*. Washington, DC: The National Academies Press.



Social Determinants of Health (SDoH)

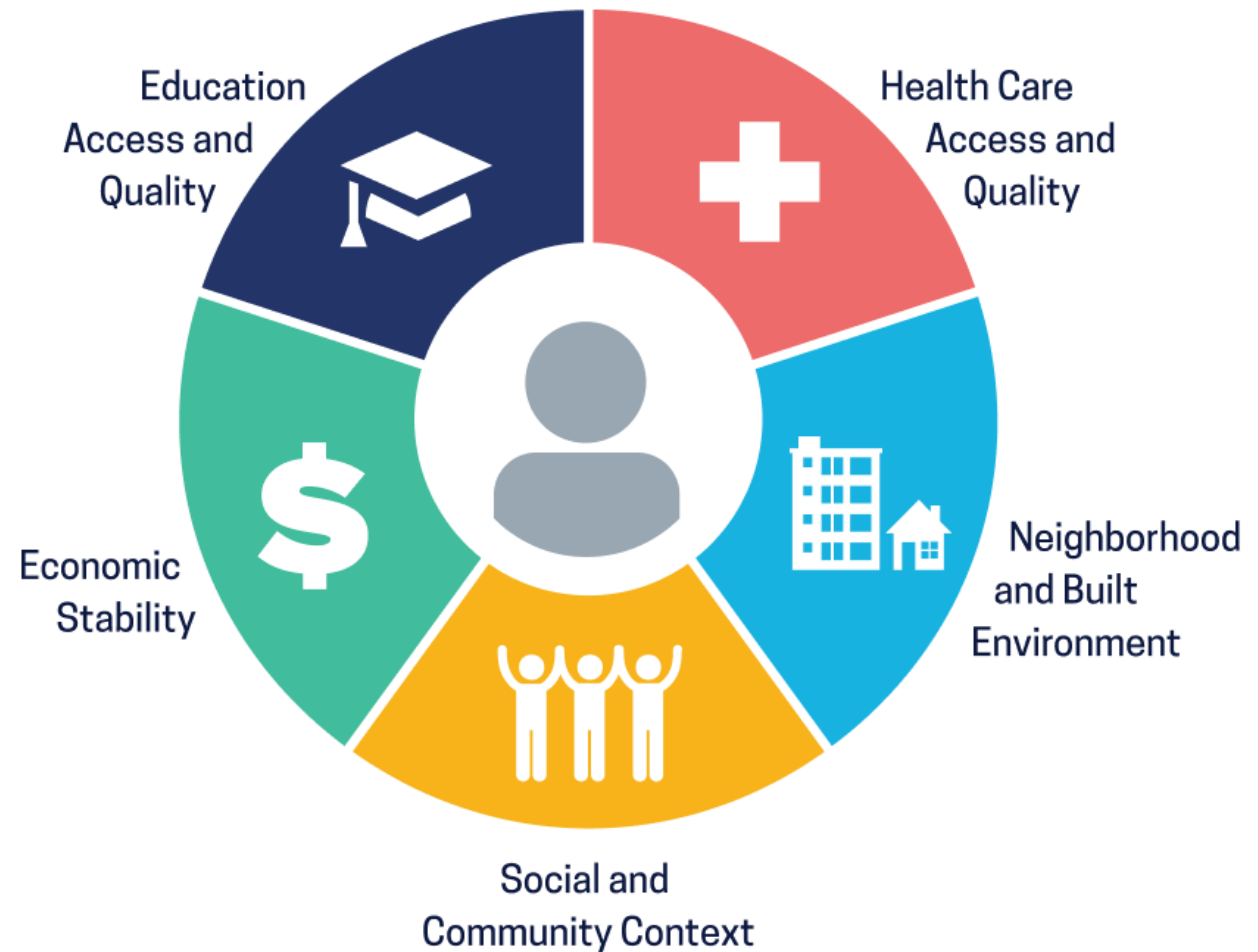
The conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. SDOH can be grouped into 5 domains.



**Prevent
Blindness**

Focus on Eye Health Summit

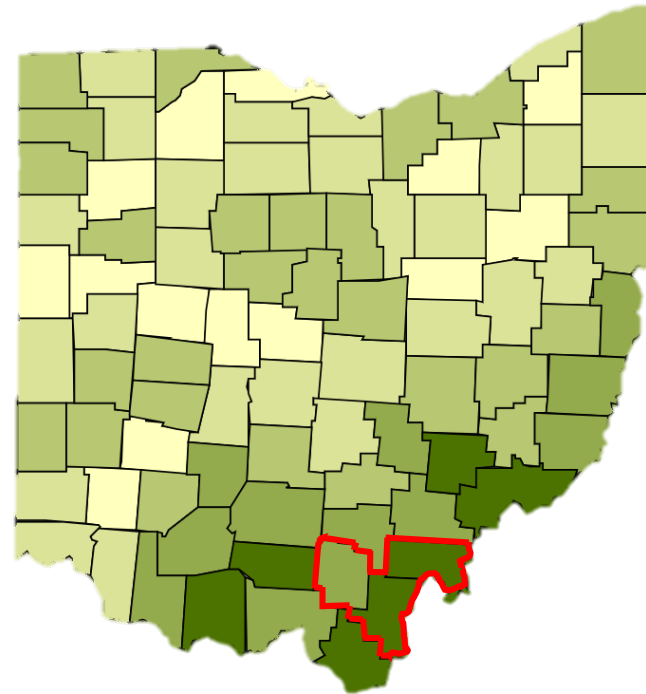
Social Determinants of Health



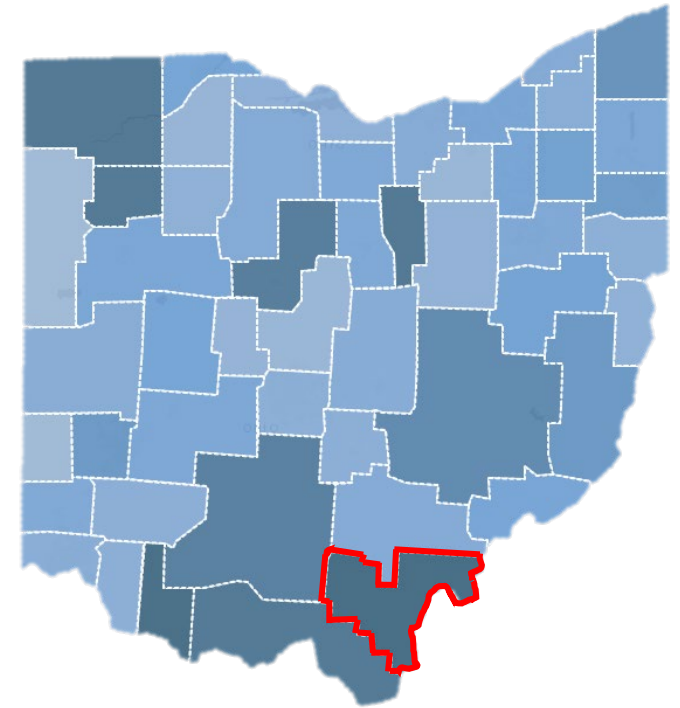


Evaluating Health Care Access and Utilization

“During the past 12 months, was there a time when you needed vision care or eye glasses, but could not get it at that time?”



Vision Impairment Prevalence
American Community Survey



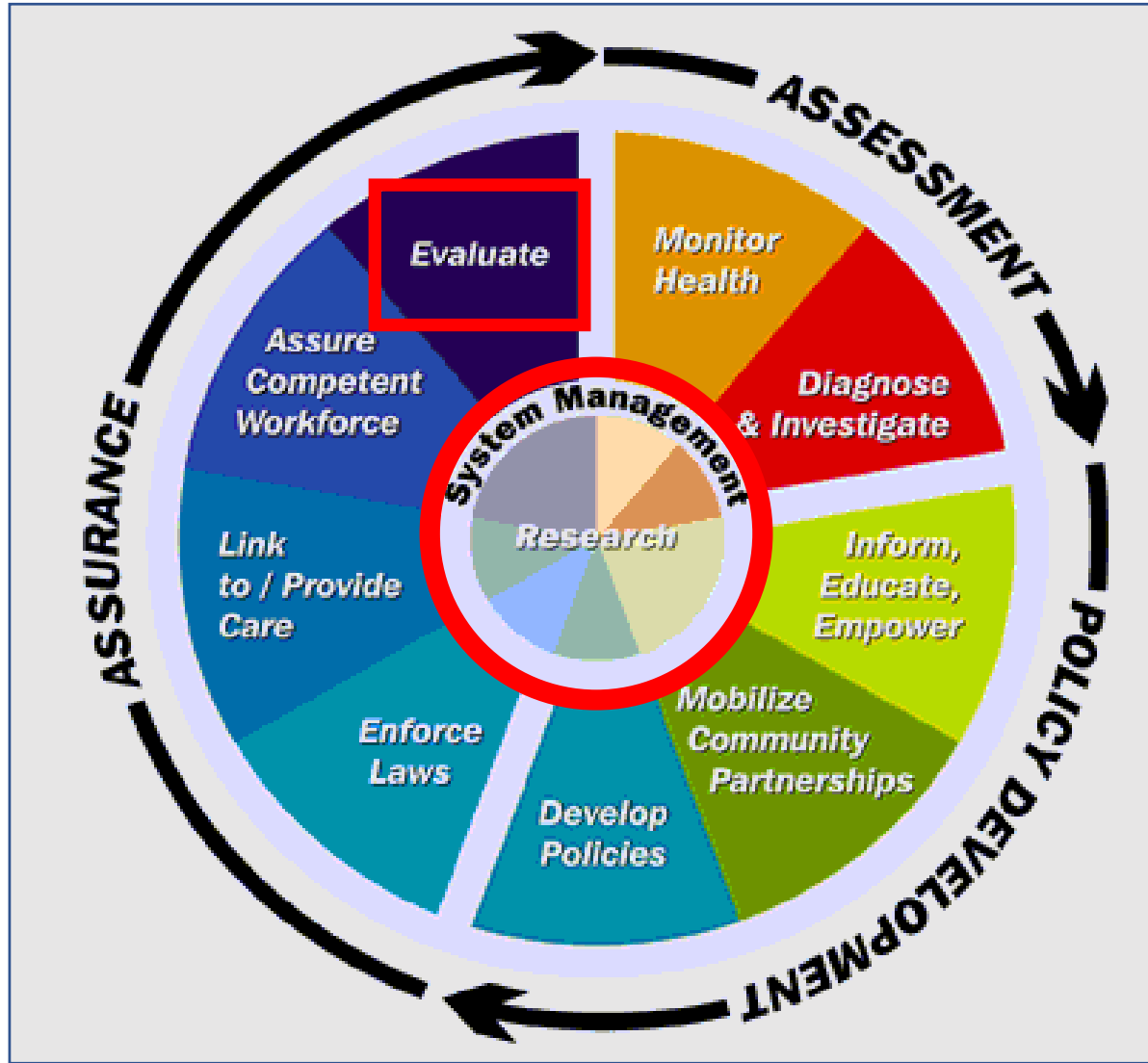
Lack of Vision Care Access
Ohio Medicaid Assessment Survey



The three core functions and ten essential public health services



The Public Health Framework





Using Existing Infrastructure to Evaluate Vision Care Access and Utilization

- Using the BRFSS for state-specific policy assessments
 - Vision Module and state-added questions
 - Assessing vision care utilization and the impact of Medicaid expansion in Ohio
 - The primary reason individuals don't seek vision care services is that they do not perceive a need
 - Insurance coverage for vision care services has increased in between 2005-2011 and 2018-2019
 - Despite increases in vision care coverage, utilization of vision care services has remained stagnant

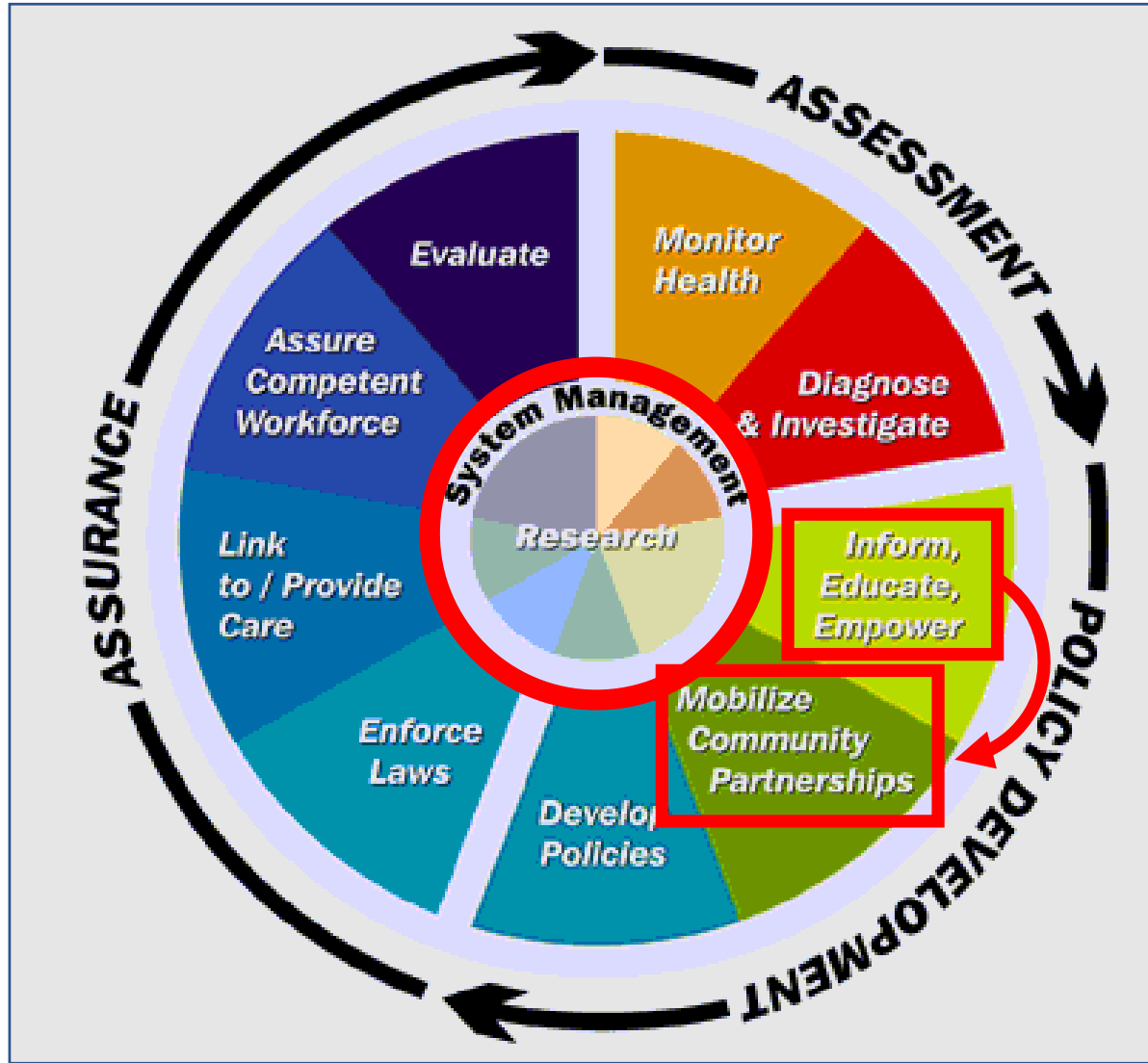




The three core functions and ten essential public health services



The Public Health Framework





Mobilizing Partnerships to Improve Care Coordination

Healthy People 2030

V-08 Increase the use of vision rehab services by people with vision loss

Baseline: 4.3%

Target: 6.2%

V-09 Increase the use of assistive and adaptive devices by people with vision loss

Baseline: 12.4%

Target: 15.9%

United States' Older Population and Vision Loss: A Briefing



VisionServe Alliance

LEADING TO A BETTER WORLD
FOR PEOPLE WITH VISION LOSS
8760 Manchester Road
St. Louis, MO 63144
VisionServeAlliance.org
(314) 961-8235

April 4, 2022

Prepared by:



Suggested Citation: VisionServe Alliance (2022). *United States' Older Population and Vision Loss: A Briefing*, St. Louis.

U.S. Older Population
and Vision Loss: A Briefing

Page 1 of 24
VisionServe Alliance



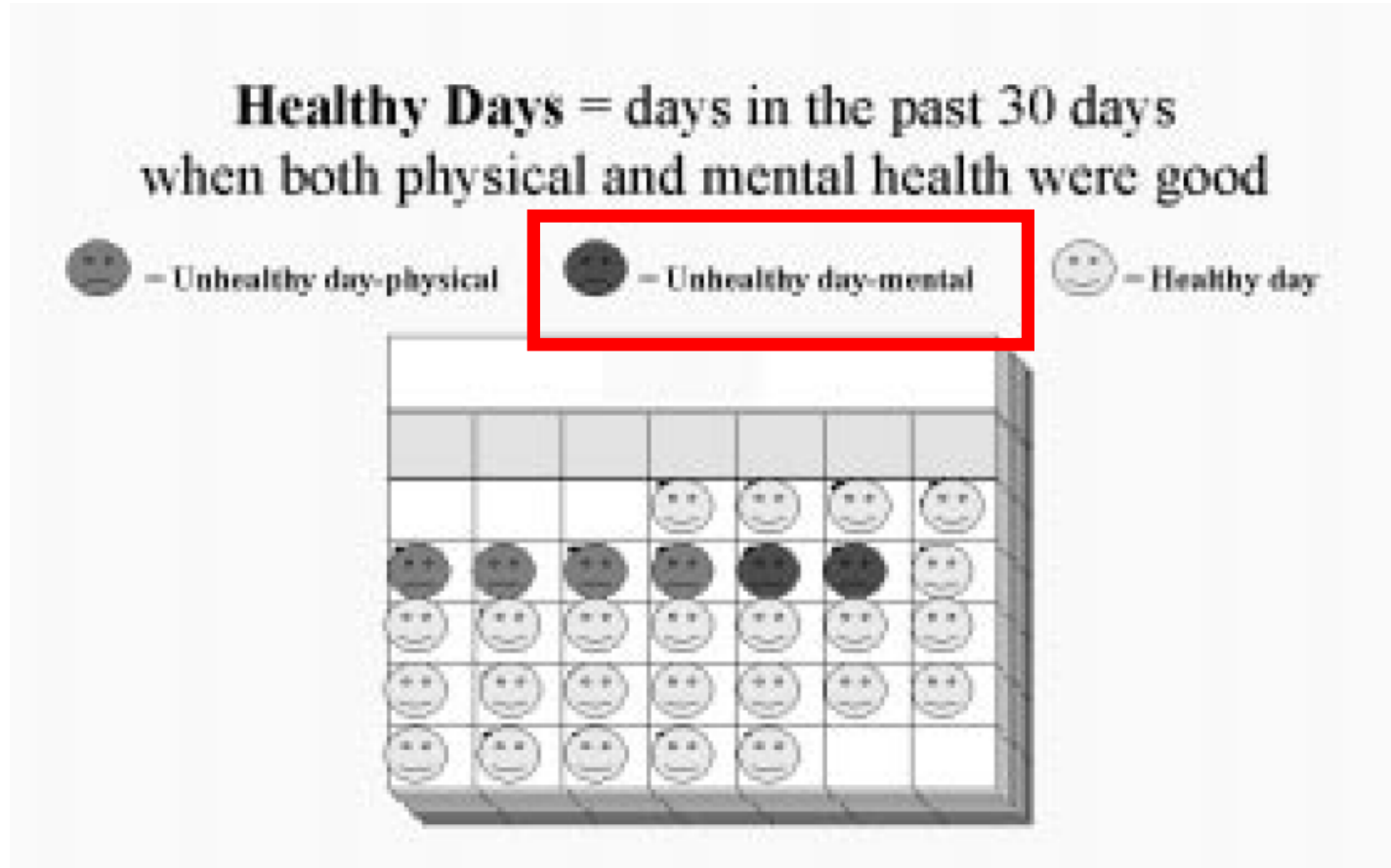
Outline

- Background
- Where the Data Reside
- What the Data Are Telling Us
- Identifying Upstream Influences
- **Future Work**



Vision Impairment and Mental Health

“Now thinking about your mental health, which includes stress, depression, and problems with emotions, how many days during the past 30 days was your mental health not good?”





Non-visually impaired number of mentally unhealthy days (out of 30)

- No VI and no depression: 2.49 days
- No VI and depression: 11.29 days

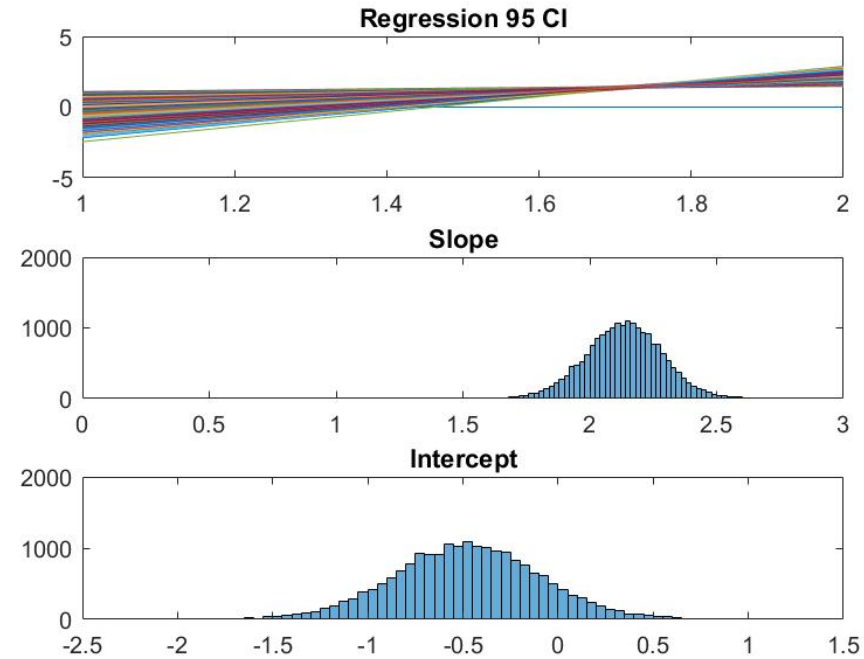
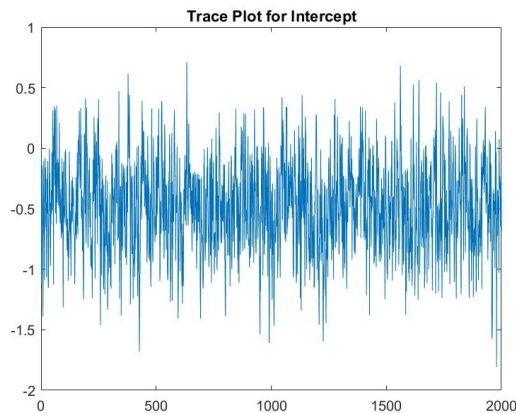
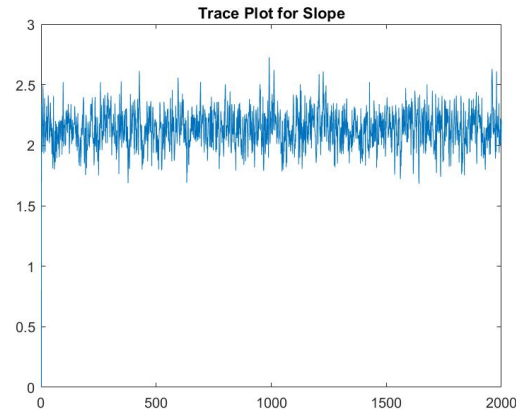


Visually impaired number of mentally unhealthy days (out of 30)

- VI and no depression: 4.35 days
- VI and depression: 15.62 days



Vision Impairment and Mathematical Modeling



Christopher Clark, OD, PhD
Indiana University School of Optometry



There is Still a Lot of Work to Do

“The reason for collecting, analyzing, and disseminating information on a disease is to control that disease. Collection and analysis should not be allowed to consume resources if action does not follow.”

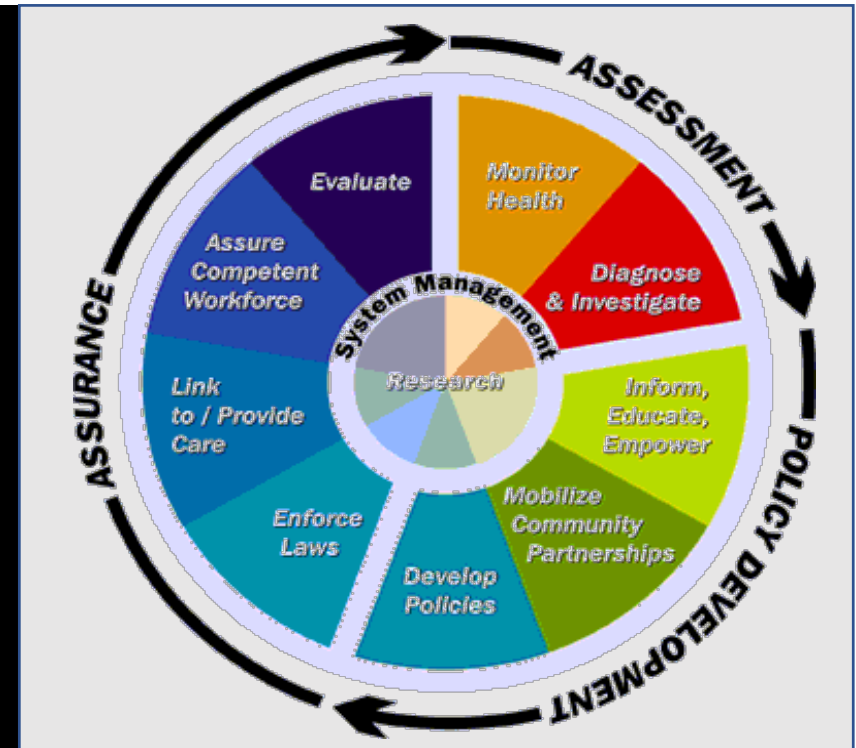
—William Foege, 1976

Former CDC Director

Significant role in smallpox eradication



Photo: Kay Hinton, Emory University



Resources and Useful Links

- The Vision Health Initiative
 - <https://www.cdc.gov/visionhealth/index.htm>
- CDC's Vision and Eye Health Toolkit
 - <https://www.cdc.gov/visionhealth/pdf/VisionAndEyeHealthGuide508.pdf>
- State Profiles in Vision Health
 - <https://www.cdc.gov/visionhealth/data/state-profiles/index.htm>
- Vision Impairment and Physical Healthy Days
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8505137/>
- Vision Care Utilization and Insurance Coverage Assessment in Ohio
 - <https://www.prognosisohio.com/episodes/vision>

Thank You

Questions?

vannasdale.1@osu.edu