

2023 Forum on Aging in Rural Oregon

Accelerated Aging in our Communities: Identifying risk and areas for opportunity

Laura K. Byerly, MD
Assistant Professor of Medicine
Oregon Health & Science University
Division of General Internal Medicine & Geriatrics

Thank you to our partners:



Disclosures

- Laura Byerly has no conflicts to disclose
 - Her work is partially funded through the HRSA Geriatric Academic Career Award program

All images are used under a creative commons license

Session Objectives

By the end of this session, you will be able to:

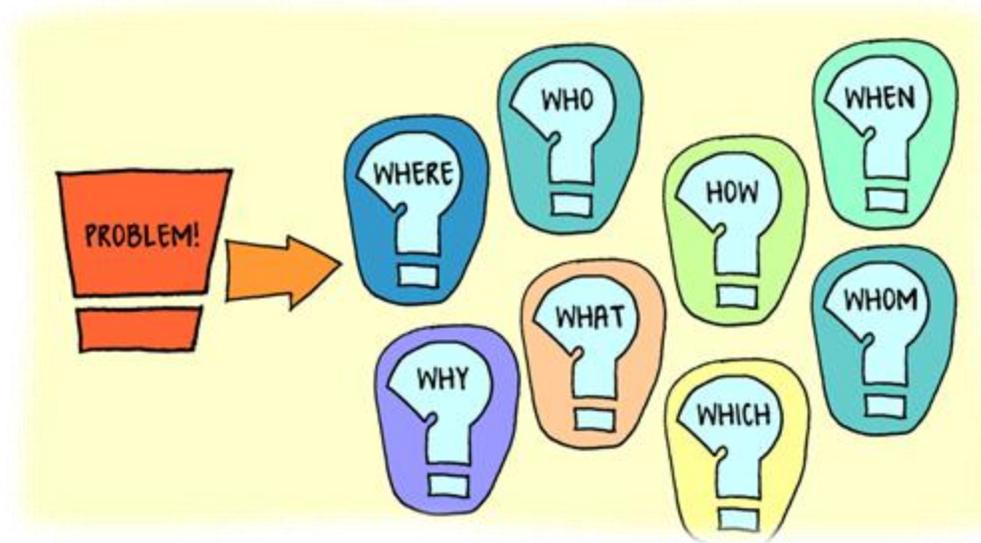
1. Describe the term “**accelerated aging**” and identify adults who are at **higher risk** of experiencing accelerated aging
2. Describe how accelerated aging affects the **development of geriatric syndromes** at younger chronological age
3. Describe factors that particularly increase the risk of accelerated aging in **rural older adults**
4. Identify opportunities for the community and healthcare team to help **optimize the care of adults** experiencing, or at risk for, accelerated aging

Accelerated Aging: Definitions and big picture

- Development of biological markers of aging and chronic disease at a rate faster than expected for chronological age
- Increased chronic illness and functional decline at a younger age
- “50 is the new 65”

Recognizing accelerated aging

Who is experiencing it?
How would you be able to tell?

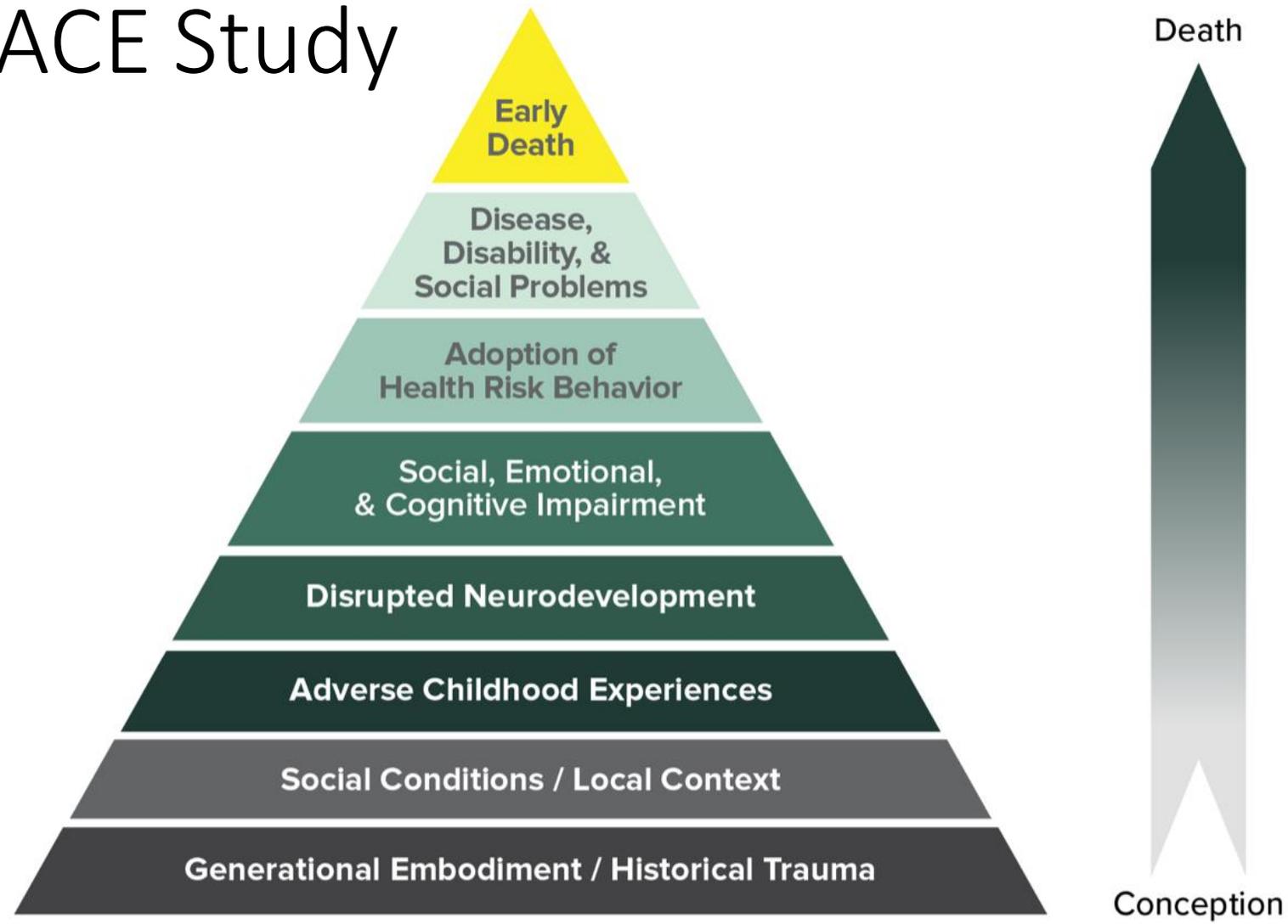


*Environmental and societal factors impact
the rate at which we age*

Scary, right?

Let's dive into the "why" before the "who"

Kaiser ACE Study

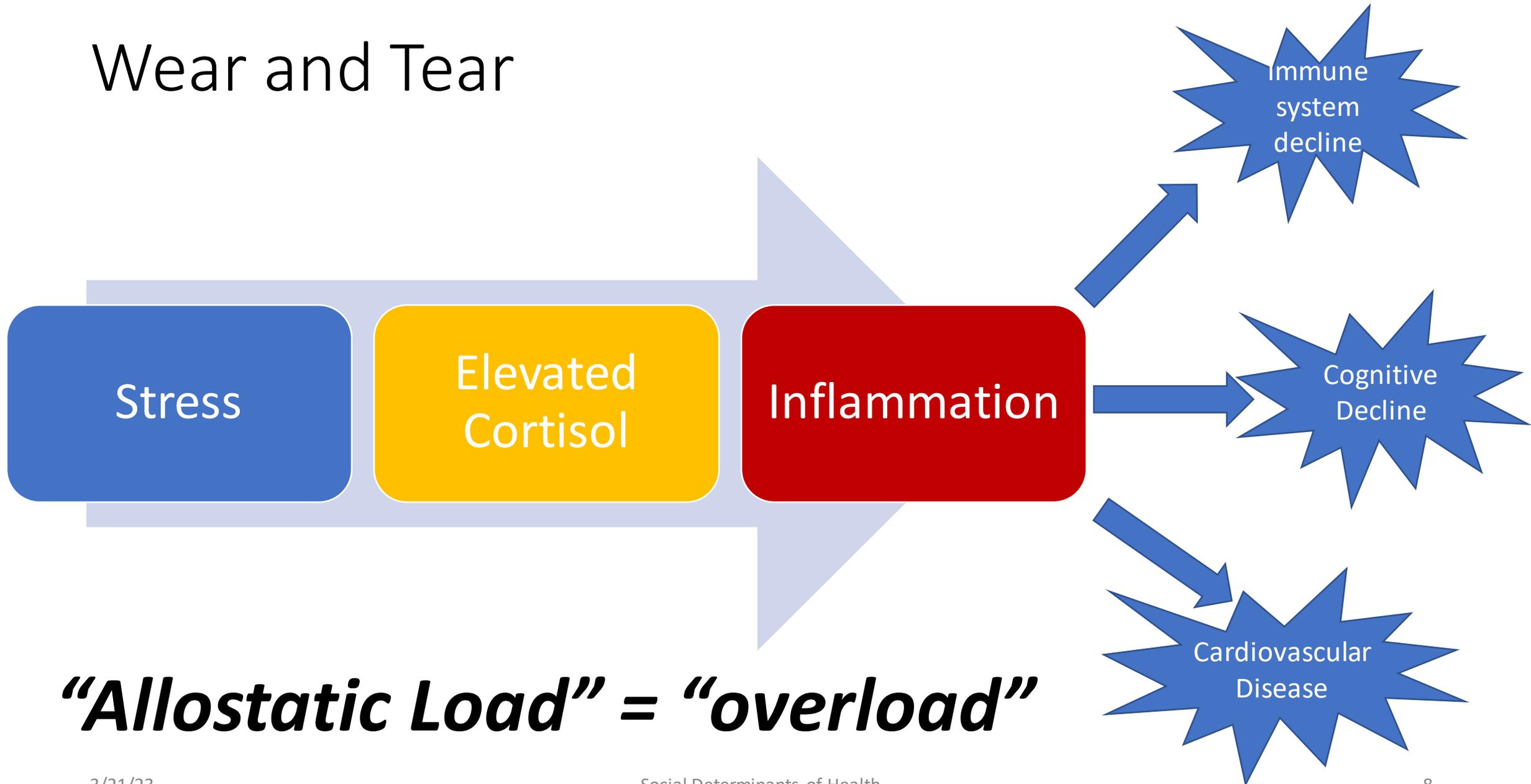


Mechanism by which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

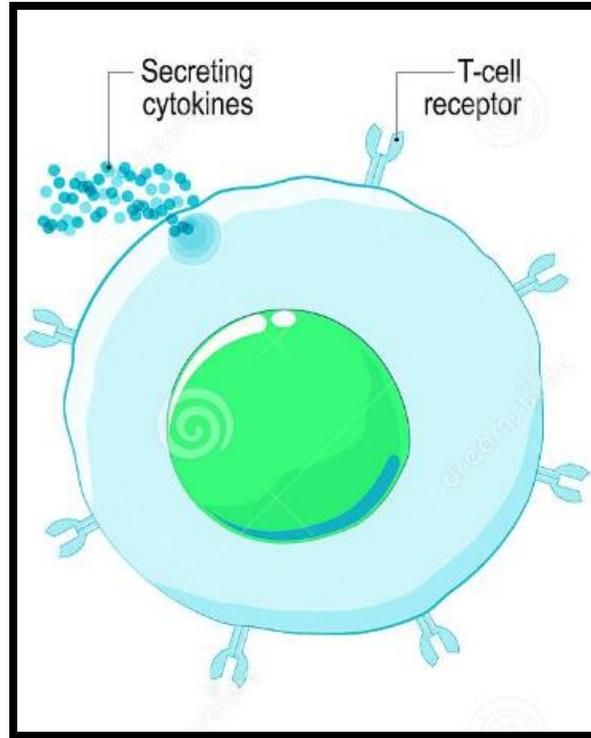
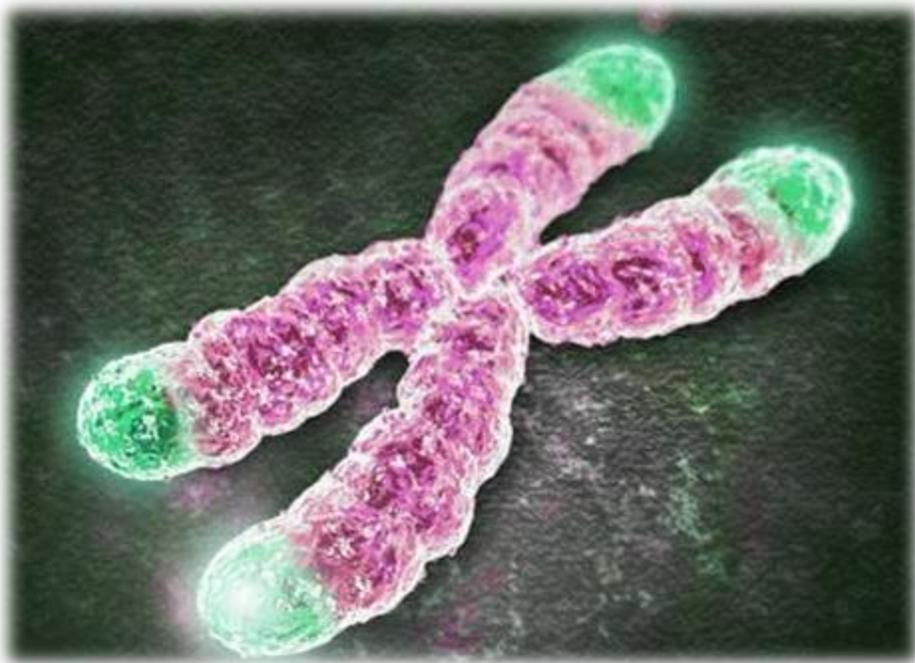
<https://www.cdc.gov/violenceprevention/aces/about.html>

Accelerated Aging - Byerly

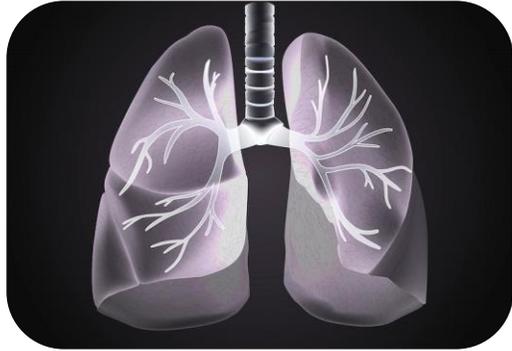
Wear and Tear



Quick Biology Lesson!



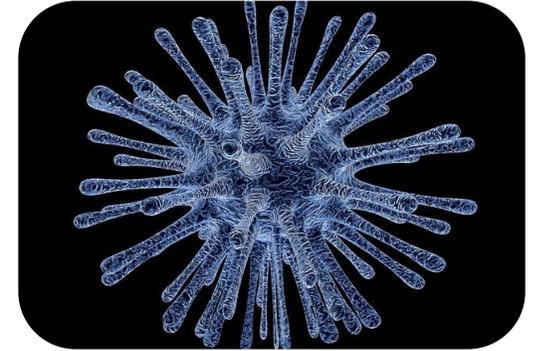
Accelerated aging & medical conditions



COPD



Diabetes



Infections



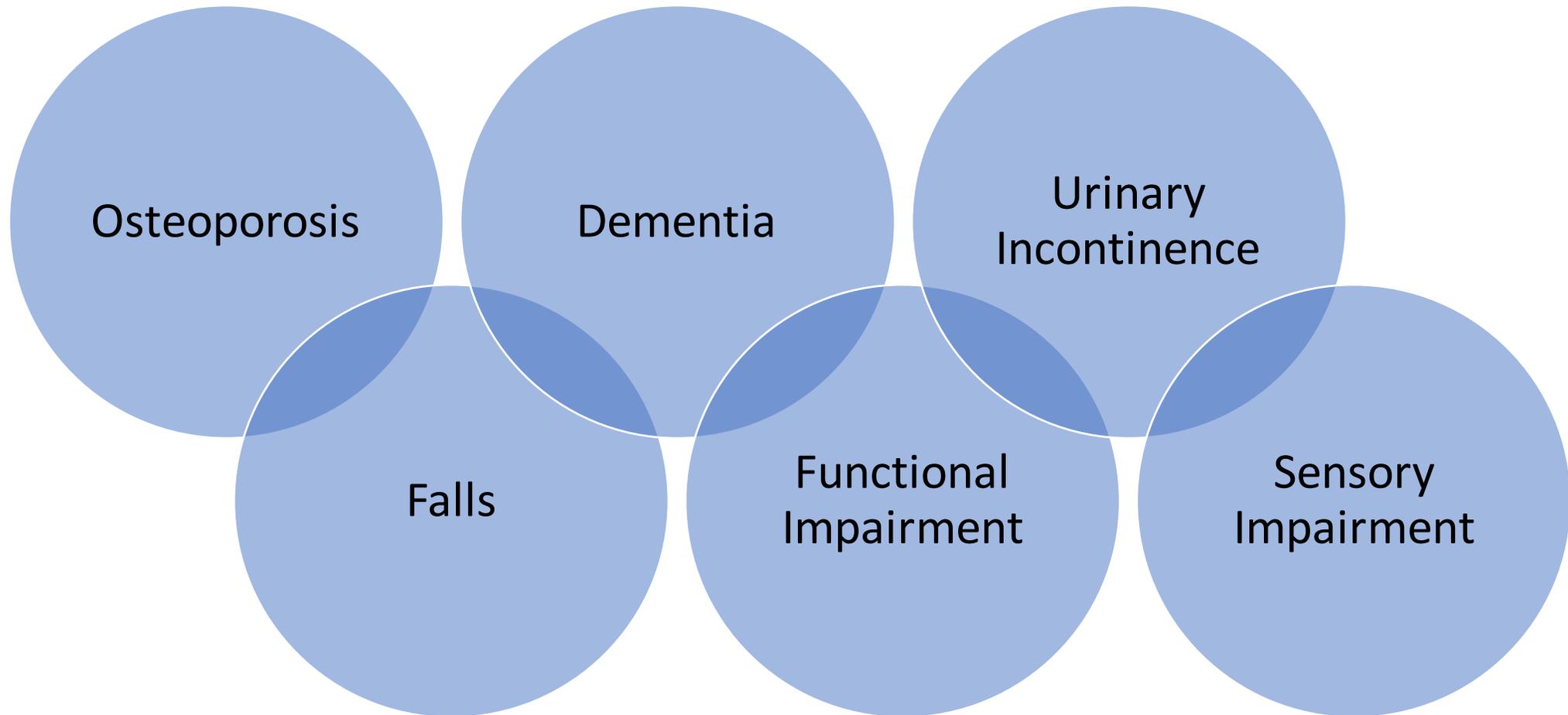
Cardiovascular
disease



Cancer

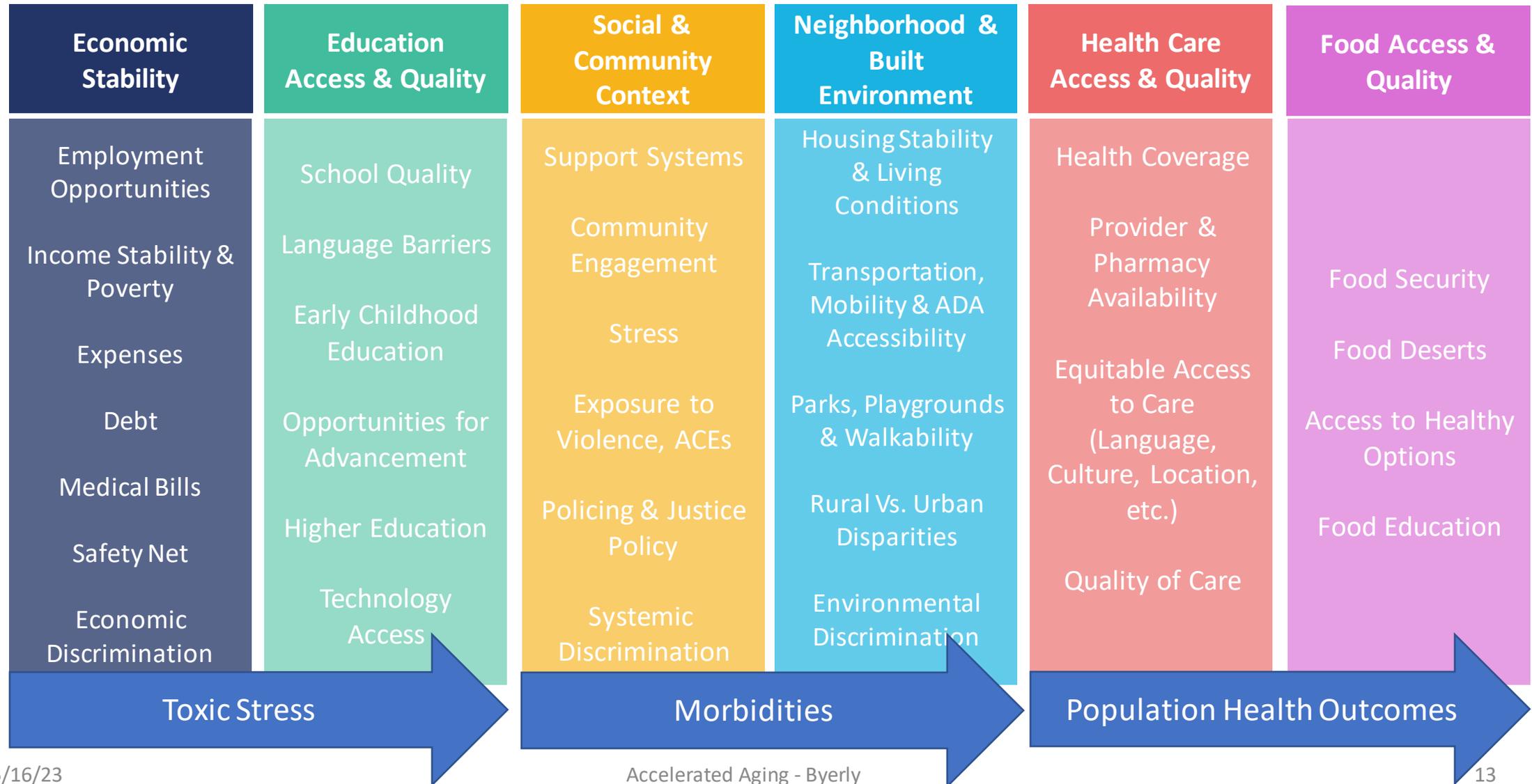
Pathways to geriatric syndromes...

...at non-geriatric “ages”



So now, let's think about the "who"

Social Determinants/Drivers of Health



Factors for aging rural Oregonians

What social drivers disproportionately affect rural older adults that could contribute to accelerated aging?

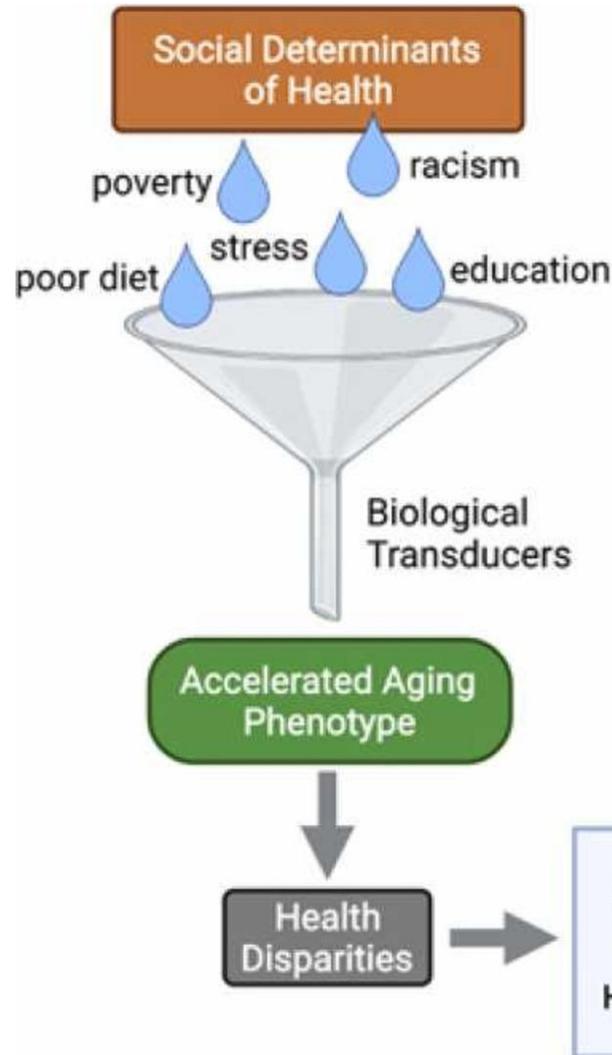
Factors for aging rural Oregonians



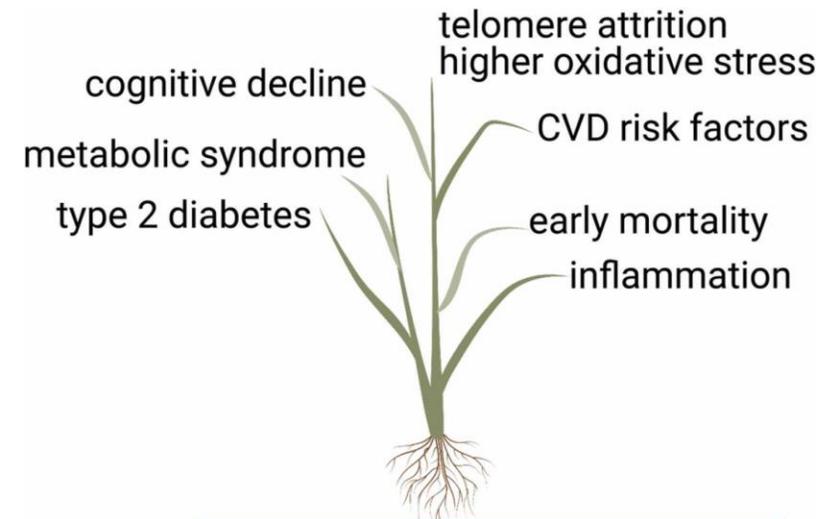
*Implications for **health** →
Implications for
accelerated aging*

The accelerated aging phenotype: The role of race and social determinants of health on aging

Nicole Noren Hooten, [Natasha L. Pacheco](#)¹, [Jessica T. Smith](#)¹, [Michele K. Evans](#)  



Communities of color facing discrimination and impacted social determinants are associated with biological markers of aging, development of chronic comorbidity, and geriatric syndromes



Discrimination is one of the root causes of accelerated aging

Screening for accelerated aging risk factors

OHSU “Social Determinants” form at check-in

Patient support survey

We care about your well-being and know that stressful things can affect your health. We would like to know about these things so we can care for you better and offer resources. We may not be able to help with every need, but we can connect you with someone who can support you.

This survey will ask personal questions. It is OK not to answer these questions if you do not want to. Please let us know if you need help answering or if you have questions for us.

I prefer not to do this survey today.

Money and Finances

How hard is it for you to pay for things like food, housing, medical care and heating?

Very hard Somewhat hard Not hard at all

Housing

Was there a time in the last year when you were not able to pay your rent or housing payment on time?

Yes No

In the last 12 months, how many places have you lived?

Was there a time in the last year when you did not have a steady place to sleep, or you slept in a shelter (counting now)?

Yes No

Transportation

Have you had to skip doctor visits or not get your medicine because you had no way to get there?

Yes No

Has not having transportation kept you from meetings, work, or from getting things you need for daily life?

Yes No

Food

How often in the last year did you feel worried that you would run out of food before you had money to buy more?

Often Sometimes Never

How often in the last year was there a time when the food you bought didn't last until you had money to buy more?

Often Sometimes Never

Social Frailty Index

- New tool!
- Identifies social risk factors for mortality

1. How old are you?

2. What is your gender? Female Male

3. Are you currently working for pay? Yes No

4. Do you have any living children? Yes → Go to Q5 No → Go to Q6

5. Thinking about all of YOUR LIVING CHILDREN. How often do you meet up (include both arranged and chance meetings)

Daily	Several times a week	Once a week	Several times a month	At least once a month	Not in the last month	Never/not relevant
<input type="checkbox"/>						

6. Please tell us HOW OFTEN YOU DO EACH ACTIVITY. (Mark (X) one box for each line.)

	Daily	Several times a week	Once a week	Several times a month	At least once a month	Not in the last month	Never/not relevant
Do activities with grandchildren, nieces/nephews, or neighborhood children?	<input type="checkbox"/>						
Do any other volunteer or charity work?	<input type="checkbox"/>						

7. How much of the time do you feel isolated from others?

Often	Some of the time	Hardly ever or never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. This next question asks how you feel about your local area, that is everywhere within a 20-minute walk or about a mile of your home. The closer your mark is to a statement the more strongly you agree with it

This area is kept very clean 1 2 3 4 5 6 7 This area is always full of rubbish and litter

9. Using a 0 to 10 scale where 0 means "no control at all" and 10 means "very much control," how would you rate the amount of control you have over your financial situation these days?

No control 00 01 02 03 04 05 06 07 08 09 10 Very much control

(Check one number.)

10. In your day-to-day life, HOW OFTEN HAVE ANY OF THE FOLLOWING THINGS HAPPENED TO YOU?

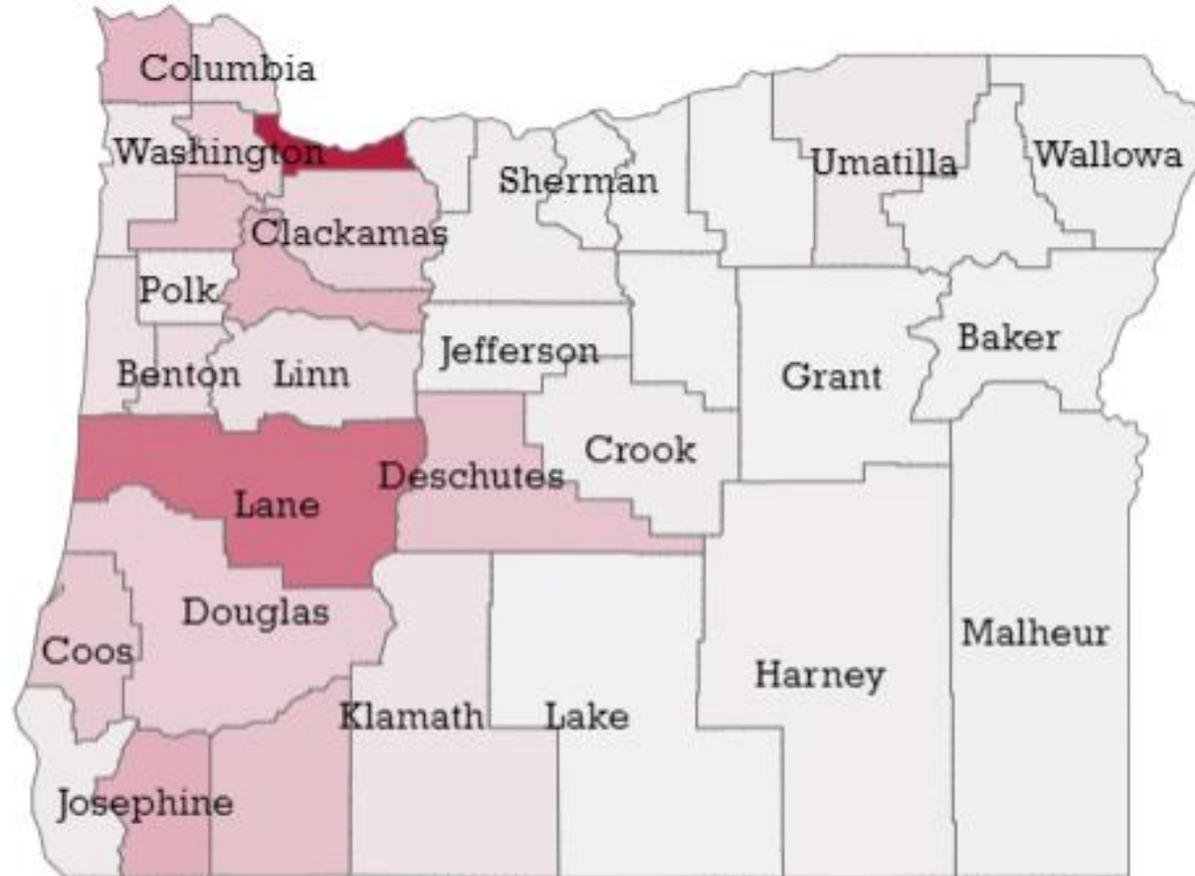
	Almost every day	At least once a week	A few times a month	A few times a year	Less than once a year	Never/not relevant
You are treated with less courtesy or respect than other people.	<input type="checkbox"/>					

Shah et al, Social Frailty Index: Development and validation of an index of social attributes predictive of mortality in older adults, PNAS, 2023

A diver is seen ascending a rope in clear blue water. The diver is positioned vertically, with their head near the bottom of the frame and feet near the top. They are wearing a wetsuit and fins. Bubbles are visible around the diver, suggesting they are breathing. The background is a uniform, clear blue color.

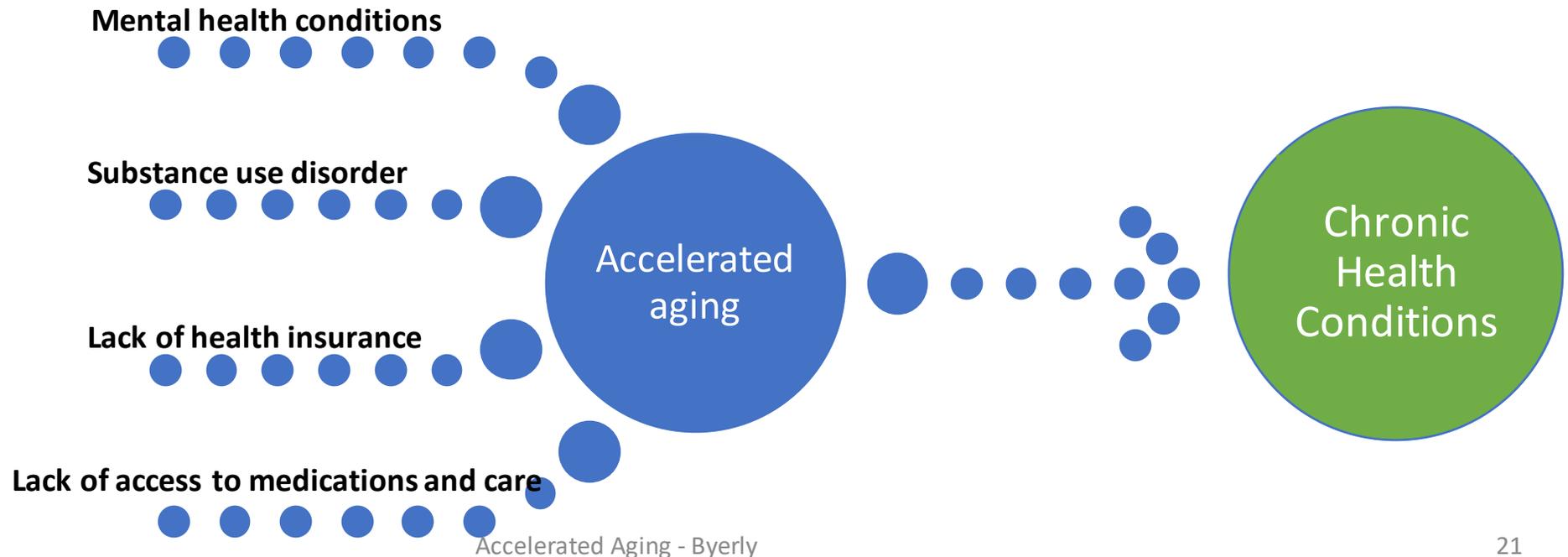
Accelerated Aging Deep Dives

Accelerated aging deep dive: Houselessness



Accelerated aging deep dive: Houselessness

- Adults experiencing houselessness in their **50s** experience chronic illnesses and geriatric syndromes at rates similar to those of housed adults **15–20 years older**
- Lack of stable housing association with financial, social, and medical risk factors



Accelerated aging deep dive: **Houselessness**

- 50% of adults >50yo have ≥ 2 chronic medical conditions
 - COPD, Hypertension, Arthritis, Depression
- Geriatric syndrome rates = 80yo peers
 - ADL impairment (1/3)
 - IADL impairment (60%)
 - Falls (50%) and Mobility impairment (40%)
 - Cognitive impairment (25%)
 - Hearing impairment (>1/3)
 - Vision impairment (20%)
 - Urinary incontinence (50%)



23 rural Oregon counties to wait longer for emergency housing, homelessness dollars
© Provided by KATU Portland

Case discussion

Mr. Thompson is a 56-year-old cisman veteran experiencing houselessness with hx of COPD, diabetes, arthritis, PTSD, and alcohol use disorder in remission, whom you see in your primary care clinic. He reports that he has had increasing difficulty with walking for about 5 years because of worsening arthritis and numbness in his feet, and has started having falls in the past year or so. His most recent fall was yesterday when he slipped in a puddle on the sidewalk outside the local shelter where he is staying. He is fearful of falling; his last walker was stolen 6 months ago.

You notice that his refill report shows lapses in medication fills.

On exam, he has bruises but no skin tears or concerns for fracture.

Case discussion

- What social drivers do you want to know more about in considering Mr. Thompson's health?
- What factors intrinsic to a shelter environment increase Mr. Thompson's risk of falling?
- What are potential reasons for his medication non-adherence?
- What resources do you have to offer Mr. Thompson to improve his function and health?

Environmental Hazard	Associated Risk
<i>Homeless Shelter</i>	
Bunk beds	Falls, injuries
Lack of refrigeration	Inability to properly store medications (e.g., insulin)
Lack of secure storage	Stolen/lost medications Stolen/lost adaptive equipment
Noisy environment	Disrupted sleep
Group living environment	Victimization, lack of privacy, falls, injuries
Group showers	Victimization, lack of privacy, falls, injuries
Bathing and toileting facilities without adaptive equipment	Falls, injuries
Institutional meals, often with high starch and salt content	Limited ability to modify diet to accommodate health conditions
<i>Street</i>	
Lack of public toilet facilities	Urinary incontinence, inability to maintain hygiene
Need to walk long distances between services, requiring higher functional status	Falls, injuries
Need to navigate complex web of social services to obtain food and shelter, requiring intact cognition and executive function	Food insecurity
Exposure to elements	Falls, injuries

Brown R, Kushel, M. Understanding the Effects of Homelessness and Housing Instability on Older Adults. In: Williams BA, Chang A, Ahalt C, Chen H, Conant R, Landefeld C, Ritchie C, Yukawa M. eds. Current Diagnosis & Treatment: Geriatrics, Second Edition New York, NY: McGraw-Hill; 2014.

Care for homeless adults experiencing accelerated aging

- Screen for ADL/IADL impairments
 - Brief Instrumental Functioning Scale (BIFS) validated for homeless adults
- Screen for falls at age 50
 - Documentation requesting lower bunk
 - Physical Therapy—don't assume it can't happen
- Screen for cognitive impairment
 - Use usual metrics (MOCA, SLUMS)
 - Early referral to social work to determine resources
- Medication management
 - Storage options and refrigeration
 - Weekly dispenses to minimize lost/stolen medications

Permanent supportive house (+)

*Mission Creek
Senior
Community
(San Francisco)*



- 140 units of senior housing, including 51 units for seniors experiencing houselessness
- Onsite Adult Day Health Center and Case Management/Referrals

Oregon's current projects

Owens-Adair Annex (Clatsop/Tillamook/Columbia)



46 units expected to serve low-income seniors and people with disabilities earning 30% to 50% of the area median income. (under construction)

48 units, on-site social services such as health care, employment and food assistance for older adults with special needs. Opened June 2022

Kafoury Court (Multnomah)



40 units, intended to house seniors of color experiencing homelessness and displacement from NE Portland neighborhoods due to gentrification (under construction)

Tukwilla Springs (Clackamas)



Accelerated aging deep dive: Incarceration

- Increasing number of prisoners >55yo (300% rise)
- Older parolees have increased (1.5%→6% of state prisoners)
- **1 in 15 older adults** self-report a history of experiencing incarceration

Existing comorbidities + trauma/stress →
10-15 year physiological age acceleration

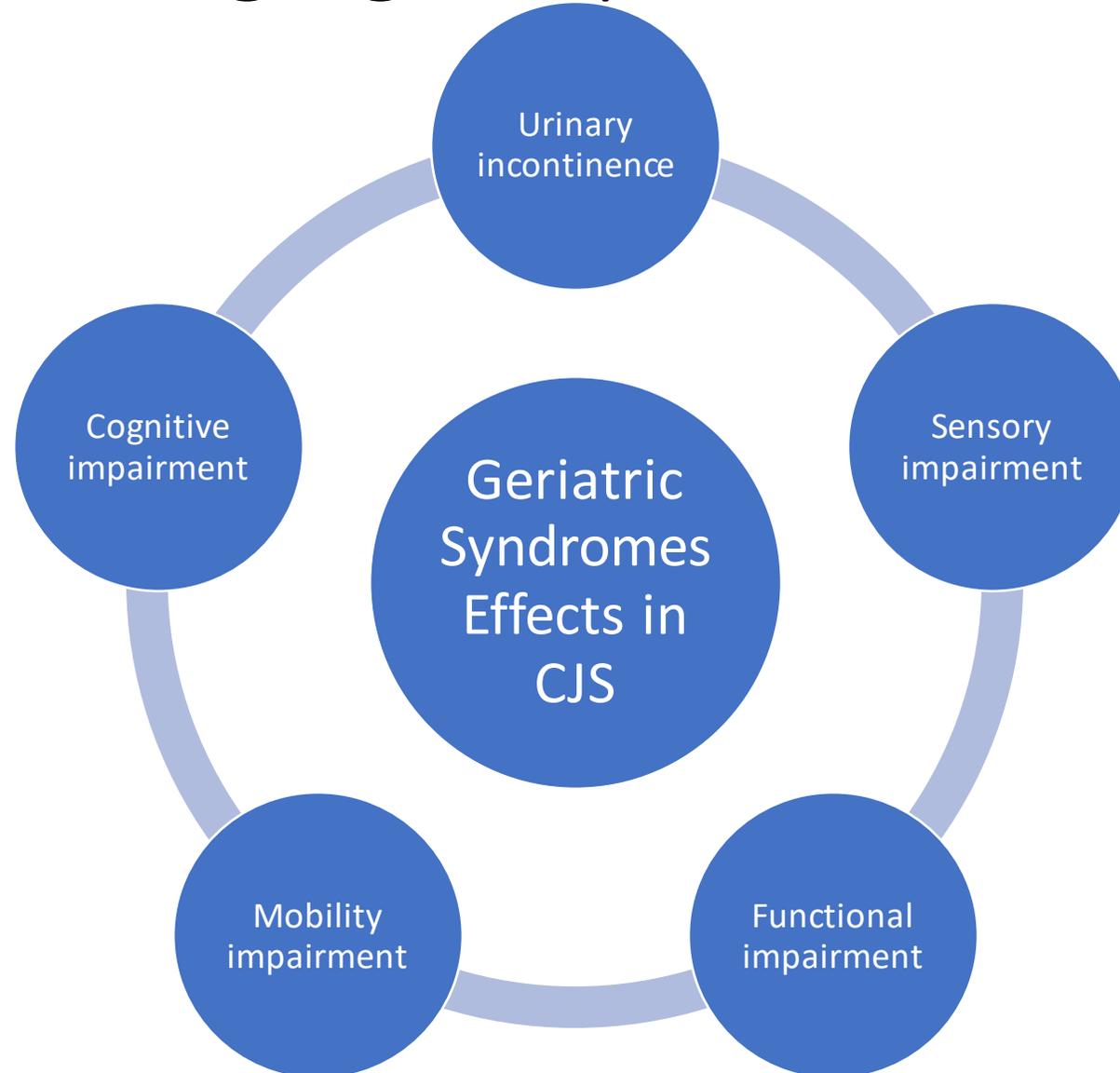
Considered “geriatric” age at 50yo



Accelerated aging deep dive: Incarceration

- Risk factors for health while incarcerated
 - Diet (salt, carbohydrates, fat)
 - Minimal exercise
 - Mistrust of medical profession/lack of adequate healthcare for conditions
- Risk factors for health at release to community
 - Government health benefits take time to reinstate
 - Isolation from friends/family
 - Lack of stable housing
 - Mistrust of medical profession/access challenges

Accelerated aging deep dive: Incarceration

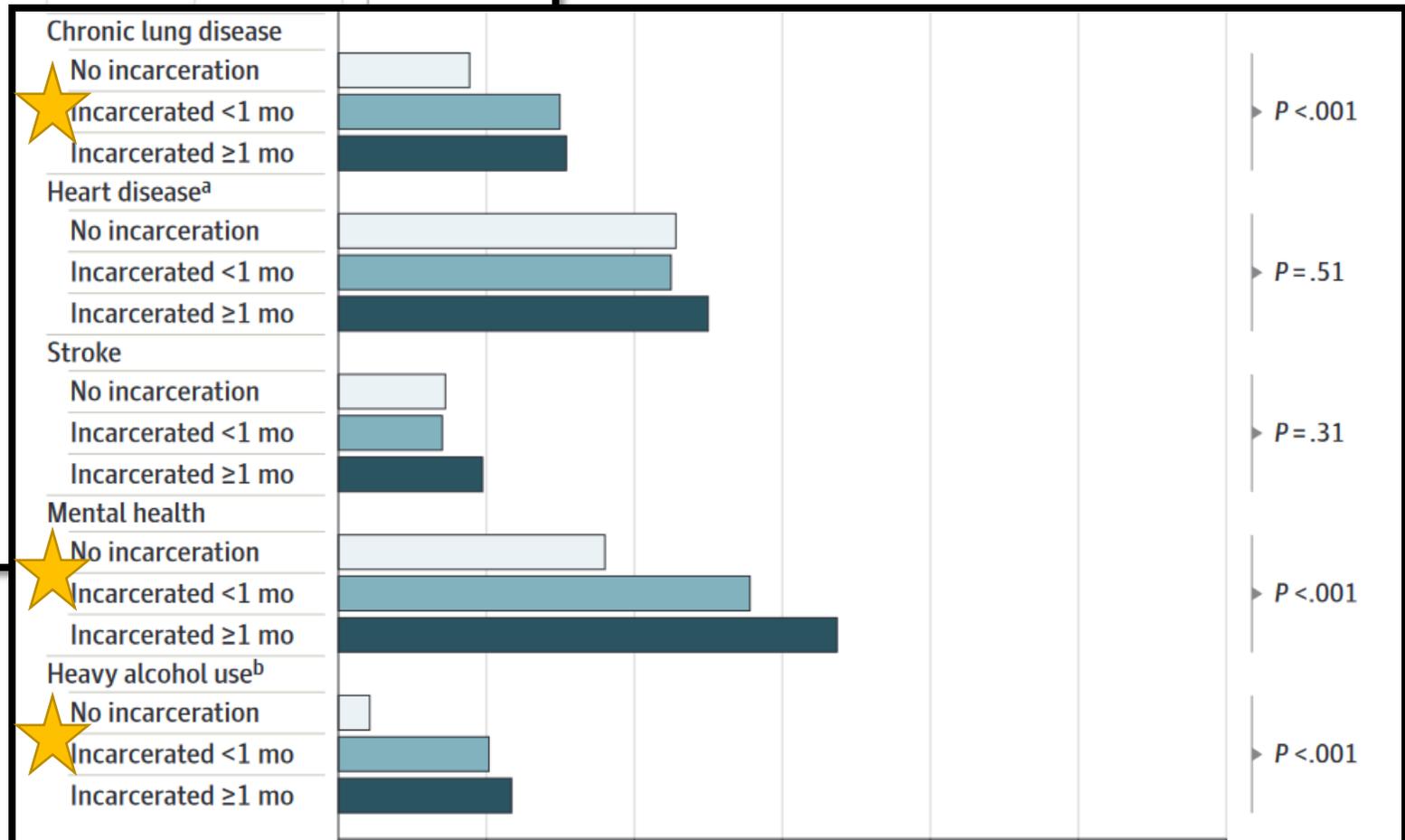
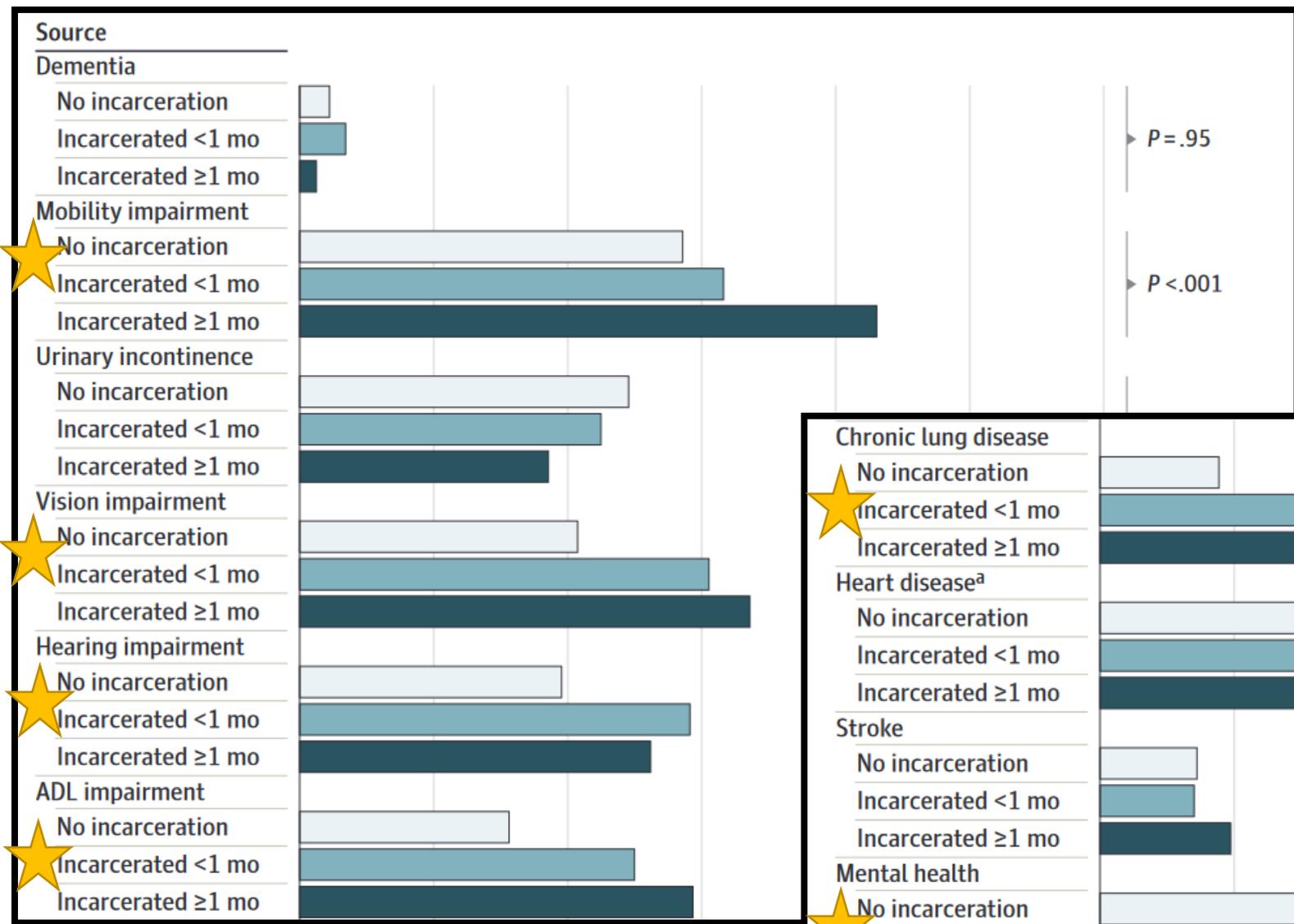


Aging and health following incarceration

“Incarceration leaves a negative imprint on the physical health of this population. The total health effects of incarceration are a product of the transition from arrest to confinement, the time spent in prison, and the period following release”



Berg, M. T., Rogers, E. M., Lei, M.-K., & Simons, R. L. (2021). Losing Years Doing Time: Incarceration Exposure and Accelerated Biological Aging among African American Adults. *Journal of Health and Social Behavior*, 62(4), 460–476.



Garcia-Grossman et al, JAMA, 2023

Clinical care for older persons following incarceration

Takeaways

- Accelerated aging leads to geriatric syndromes 10-15 years ahead of chronological age
- Trauma and stress at any age accelerate physiological aging
- Screen your patients for trauma and social factors that could contribute to health
- Persons who have experienced homelessness or the criminal justice system are particularly vulnerable to accelerated aging
- There is no magic “solution”—but identifying geriatric syndromes in individuals with accelerated aging lets you intervene and improve quality of life

2023 Forum on Aging in Rural Oregon

Thank you!

Laura Byerly

byerlyla@ohsu.edu

