Social Determinants of Health: From Association to Intervention

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VERITY Course

April 5, 2024

Health Equity

- “Equity is the absence of unfair, avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically or by other dimensions of inequality (e.g., sex, gender, ethnicity, disability or sexual orientation).”
- “Health equity is achieved when everyone can attain their full potential for health and well-being.”

https://www.who.int/health-topics/health-equity#tab=tab_1
https://www.aafp.org/news/health-of-the-public/health-equity-framework.html

Patient JR

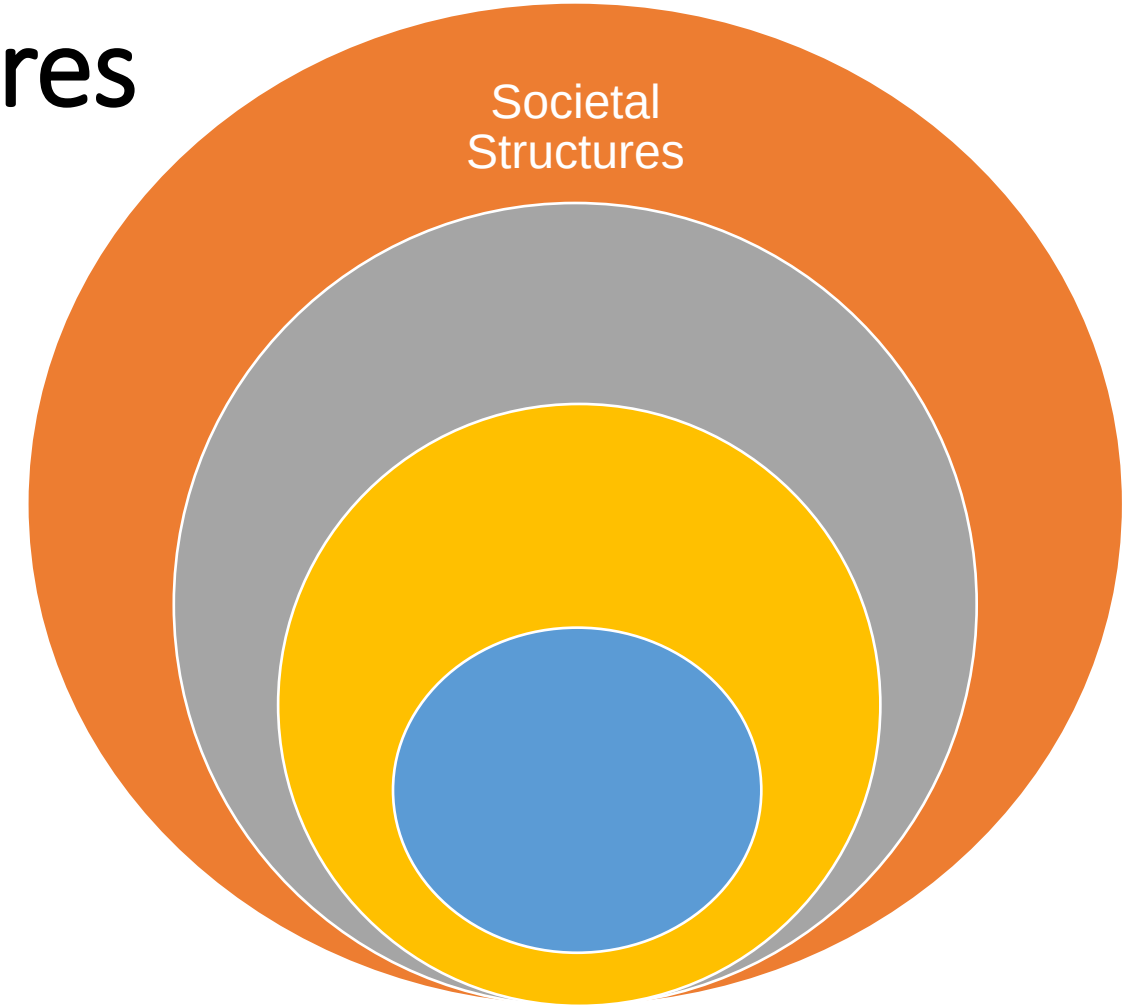
- 32 y/o Hispanic woman with h/o SLE (ANA+, dsDNA+, Sm+, hypocomplementemia) and RA (+ACCP, +RF) overlap, with severe joint pain, progressive erosive disease in hands and feet, and proteinuria
- Treated with glucocorticoids and hydroxychloroquine intermittently; prior medications included methotrexate, azathioprine, abatacept, infliximab
- Adherence to medications and outpatient appointments highly variable
- ED visits at least once/month for pain management and infections
- SLE/RA management complicated by unstable living situation, financial insecurity, substance use disorder, new Hepatitis C infection, severe depression, anxiety, prior trauma exposures, and PTSD
- Medication choice limited by recurrent infections, inconsistent follow-up for lab monitoring, and ambivalence regarding pregnancy
- Became pregnant and entered a substance use disorder program, delivered a healthy baby
- 6 weeks post-partum, found unresponsive and died on arrival to the BWH ED

Outline

- To discuss multilevel drivers of racial, ethnic and socioeconomic inequities in rheumatic disease incidence, care utilization and outcomes
- To present strategies that may help address aspects of these inequities among individuals with rheumatic conditions

Drivers of Inequities: Structures

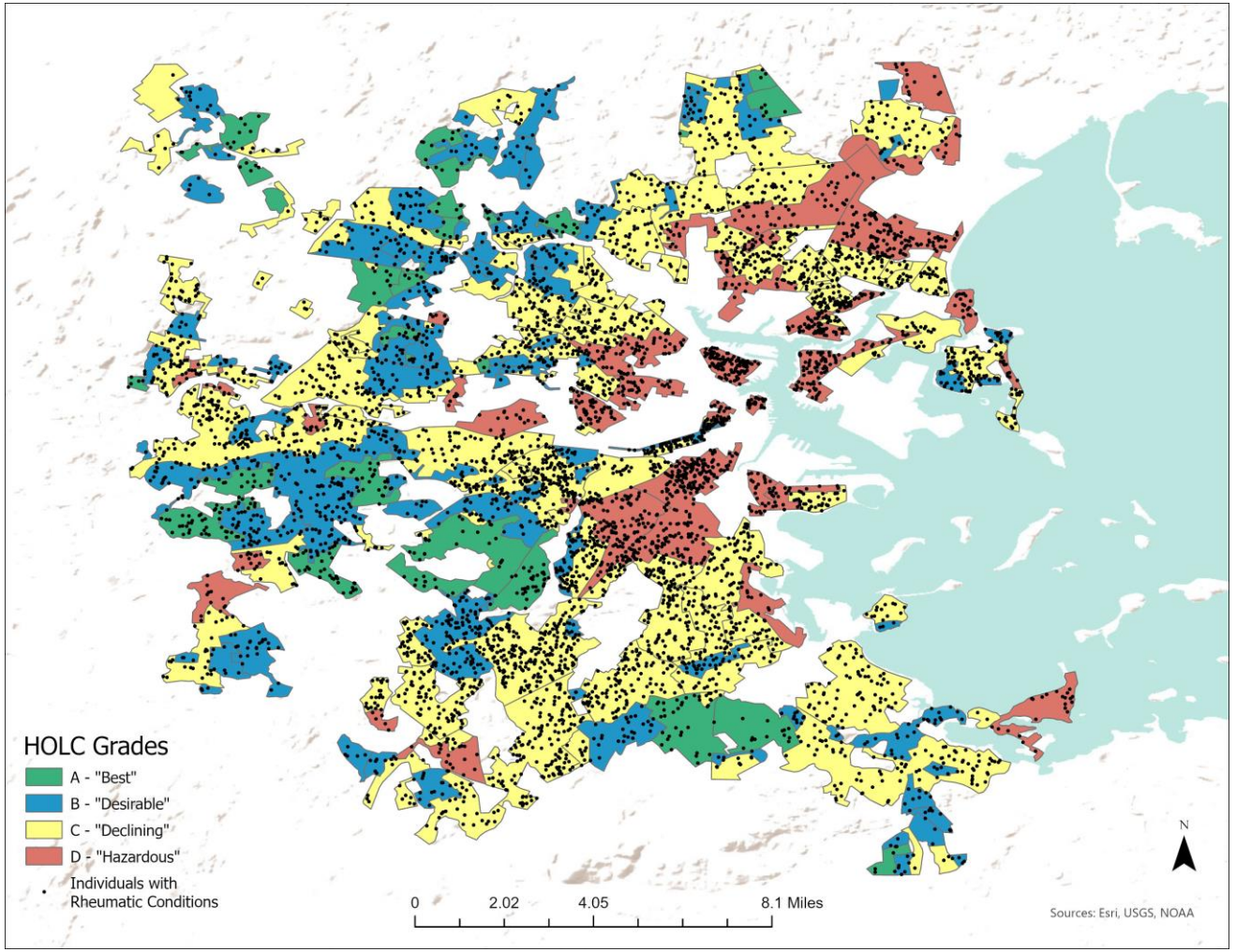
- Societal structures including structural racism and income inequality that are perpetuated through governmental policies and institutional processes
- Upstream driver of inequities in social determinants of health



Jones, CP. Med Care 2014 Oct;52 (10 Suppl 3): S71-5
Jones CP et al. J Health Care Poor and Underserved 20 (2009):1-12
Bailey ZD et al. Lancet. 2017;389(10077):1453–63
Bailey ZD et al. N Engl J Med. 2021; 384(8) 768-73
Hardeman RR et al. Health Aff (Millwood). 2022;41(2):179-86
Dyer Z. et al. Health Aff (Millwood). 2023; 42 (10)

Historical Redlining

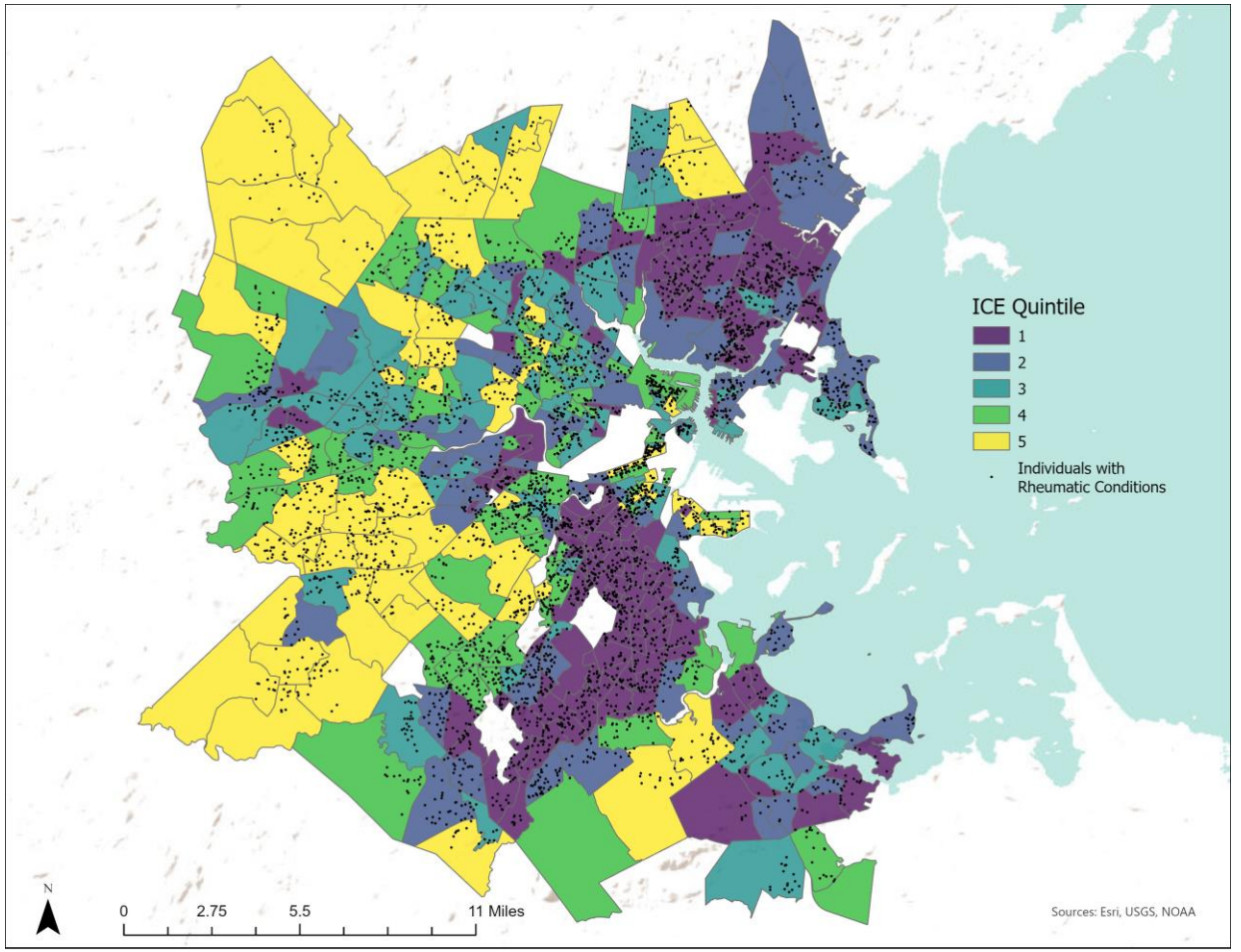
- U.S. federal policy from the 1930s
- Home Owners' Loan Corporation (HOLC) created color-coded residential security maps to revive the housing market
- Assessed the risk of investment and encouraged lending in predominantly white, affluent area; discouraged it in neighborhoods considered to be "inner city", with high proportions of Black individuals and immigrants
- Among 5,597 adults with ≥2 ICD-10 codes for rheumatic conditions receiving rheumatology care in the past 3 years across MGB, 23% live in the most historically redlined areas (HOLC D)



Yang, S et al. Arthritis Rheumatol.2023;75 (suppl 9) [ACR Abstract]. Manuscript under review.
Rothstein R. The Color of Law: A Forgotten History of How Our Government Segregated America. 2017.

Present-Day Racialized Economic Segregation

- Index at the Concentration at the Extremes (ICE) measures “the extent to which the population in an area is concentrated into relative extremes of advantage (Q5) and deprivation (Q1)”
- ICE for racialized economic segregation
  - Q1= highest concentration of Black, low income
  - Q5= highest concentration of Non-Hispanic White, high income
- 32% of the individuals with rheumatic conditions lived in areas with the most concentrated present-day racialized economic deprivation (ICE Q1); 96% were in areas that were historically deemed “hazardous” (HOLC grade D) or “declining” (HOLC grade C)
- Areas with concentrated deprivation experience inadequate distribution of resources and infrastructure, fewer opportunities, adverse environmental exposures and poorer healthcare access



Yang, S et al. Arthritis Rheumatol.2023;75 (suppl 9) [ACR Abstract]. Manuscript under review. Sonderlund et al. PLOS One 2022.; Krieger et al. Health and Place 2015; Swope et al. J Urban Health 2022. Dyer et al. Health Affairs 2023

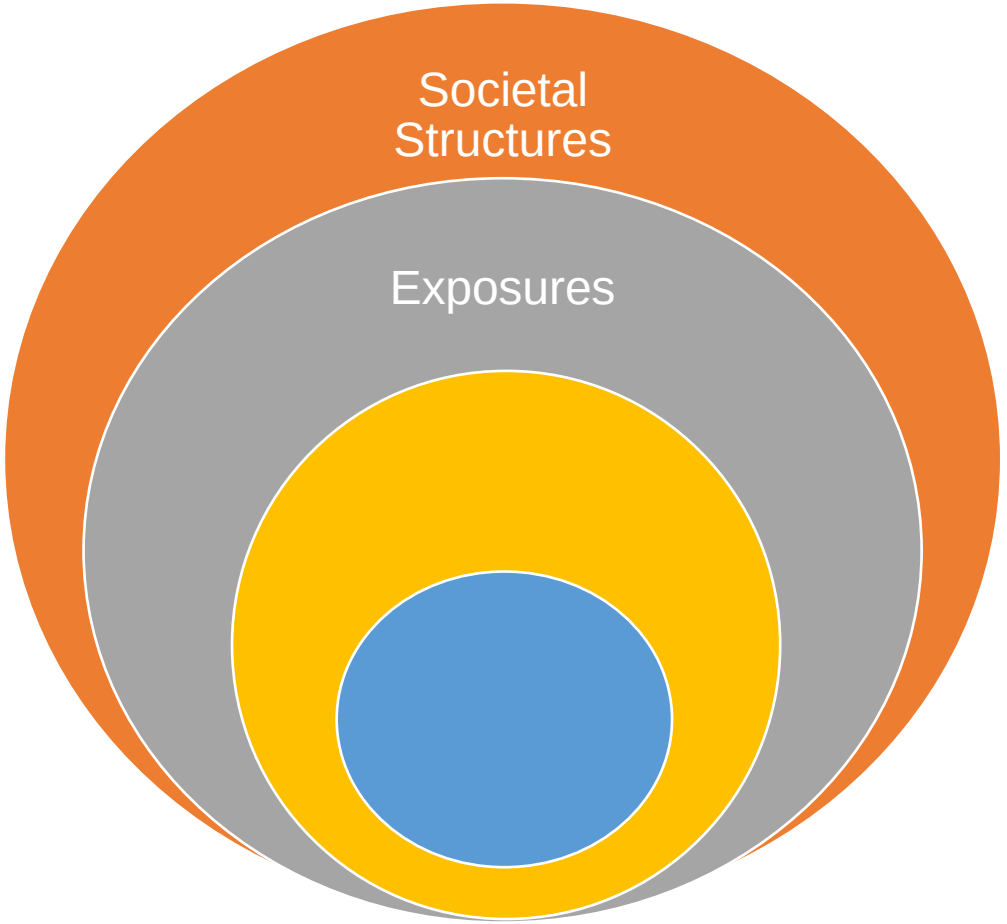
Structural Racism and Care Fragmentation

- Studied associations between historical and present-day manifestations of structural racism on fragmented care, a key contributor to inequities in care receipt and outcomes, among these 5,597 individuals with rheumatic conditions
- Multilevel models were adjusted for demographic factors, insurance status, rheumatic condition and comorbidities
  - Individuals in historically redlined areas had 1.79 times greater odds (95% CI 1.22-2.63) of ≥4 missed appointments and 2.72 times greater odds (95% CI 1.50-4.94) of ≥3 emergency department (ED) visits (vs. HOLC A)
  - Individuals in areas with highly concentrated racial and economic deprivation had 2.14 times greater odds (95% CI 1.67-2.75) of ≥4 missed appointments and 3.02 times greater odds (95% CI 2.06-4.42) of ≥3 ED visits (vs. areas with highly concentrated privilege)
- Strength of these associations highlights the importance of considering **structural factors** when designing interventions to address care fragmentation

Yang, S et al. Arthritis Rheumatol.2023;75 (suppl 9) [ACR Abstract]. Manuscript under review.

Drivers of Inequities: Exposures

- Differences in exposures to stressors from life conditions, social determinants of health, trauma, adverse environmental factors across the life course



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Social Determinants of Health

- "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." ~*Healthy People 2023*
- In RISE, among individuals with RA, faster declines in function and overall poorer functional status observed in patients living in zip codes with more deprivation
- In NHANES data, 30% of individuals with RA had some degree of food insecurity, which was associated with higher odds of depression
- In a large SLE study, living in poverty was associated with greater disease damage and moving out of poverty with less damage accrual

Izadi et al. JAMA Netw Open 2021
Cai et al. BMC Rheumatol 2022
Yelin at al Arthritis Rheumatol 2017

Exposures to adversity and inflammation

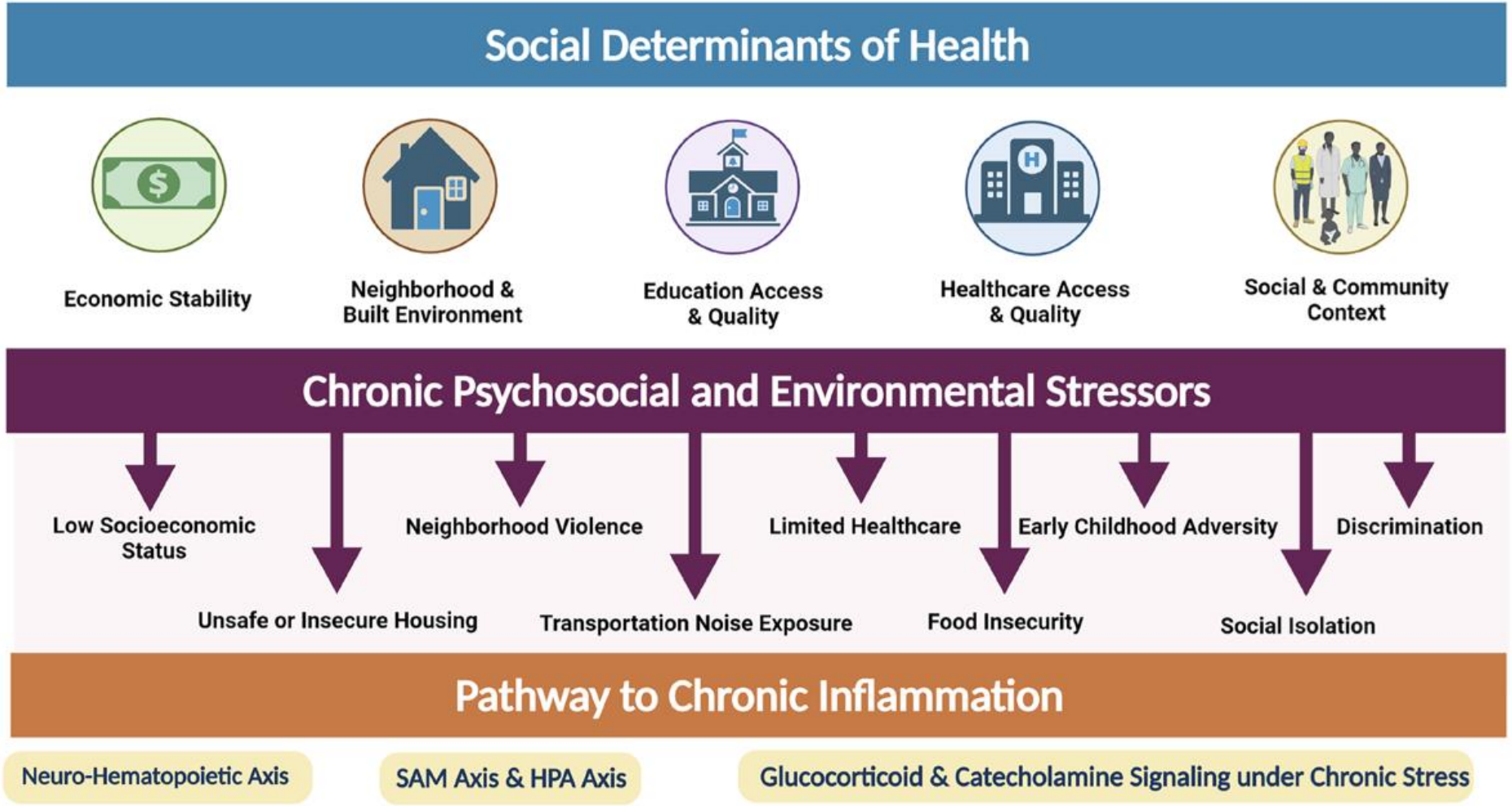


Figure from: Powell-Wiley et al. Circulation Research 2022
https://www.cdc.gov/publichealthgateway/sdoh/index.html

SDoH among MGB Rheumatology Patients

- 45% of individuals (N=558) had documentation in EHR notes (by social work, care coordination, nurses, physicians) of ≥1 SDoH need
  - 171 (31%) had evidence of financial insecurity
  - 105 (19%) transportation needs
  - 94 (17%) food insecurity
- Only one rheumatologist's note included description of these needs
- Only 26 (5%) had ≥1 ICD-10 billing code
  - Most frequent was Z59.9 ("problem related to housing and economic circumstances, unspecified")
  - Z code implementation started in 2016; no increase in use per year since then (under 5% each year, peaked at 3.4% in 2019)
- In multivariable logistic regression models, Black (v. White) race and public or no insurance (v. Commercial) were associated with significantly higher odds of SDoH needs
- Findings informed a natural language processing algorithm to identify financial insecurity

Z code	Description
Z55	Problems related to education and literacy
Z56	Problems related to employment and unemployment
Z57	Occupational exposure to risk factors
Z59	Problems related to housing and economic circumstances
Z60	Problems related to social environment
Z62	Problems related to upbringing
Z63	Other problems related to primary support group, including family circumstances
Z64	Problems related to certain psychosocial circumstances
Z65	Problems related to other psychosocial circumstances

Ulysse S et al. Arthritis Care Res 2023
Chandler et al. ACR Open Rheumatology 2024 (Accepted)

Poverty and Financial Insecurity

- Longitudinal study by Yelin et al. of 783 individuals with SLE followed from 2003-2015 and each year, categorized by whether they had a household income ≤125% of the US federal poverty level
- After adjusting for sociodemographics, behaviors and healthcare features, living in poverty was associated with higher disease damage
- Individuals who exited poverty had similar increases in damage compared to those never in poverty and significantly less than those who remained in poverty
- Recently published cross-sectional study in a CA-based SLE cohort (N=252), demonstrated strong associations between economic insecurities and patient reported outcomes
- Stronger and more consistent associations seen with nuanced measures of financial insecurity (e.g., concerns about affording SLE care and about future financial hardship) than with income-based poverty measures or educational attainment

Yelin et al. Arthritis Rheum 2017
Sandoval-Heglund et al. Lancet Rheumatology 2024

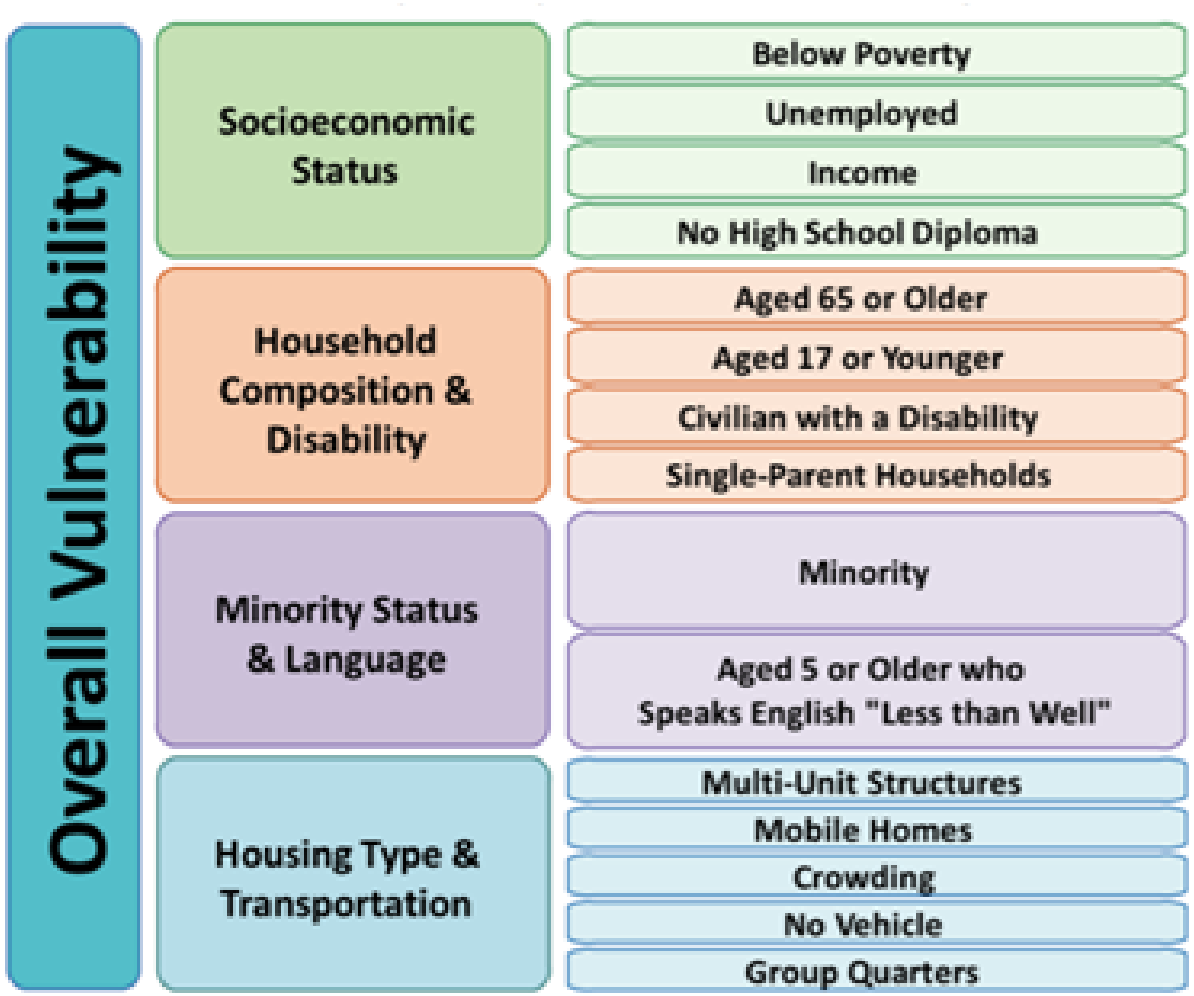
Social and Heat Vulnerability

- Neighborhood and environmental exposures are key SDoH
- Extreme heat events are among the most dangerous results of climate change with respect to morbidity and mortality
- Individuals living in neighborhoods made vulnerable from structural racism are disproportionately impacted and the consequences are the most severe
- Aimed to investigate the associations between area-level exposure to social and heat vulnerability and recurrent hospitalizations among individuals receiving rheumatology care at MGB in MA

https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0454
Santacroce et al. Arthritis Care Res 2023

Social Vulnerability Index (SVI)

- Social Vulnerability Index (SVI) CDC/ASTDR (CDC, 2020; Flanagan, 2011)
  - 15 census variables
  - Census tract level
  - Developed to help identify communities that may need extra support around disasters



https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html

Heat Vulnerability Index (HVI)

- Heat Vulnerability Index (HVI): Developed to identify areas where people may be most susceptible to the negative effects of extreme heat events
  - Metropolitan Area Planning Council, Metro Boston for local HVI
  - Census variables, land cover and surface temperature data
  - Census tract level

Exposure
Land surface temperature, heat islands, housing units

Sensitivity
Age, occupations, health, housing/demographics

Adaptive Capacity
Information access, financial resources, race/ethnicity, housing demographics

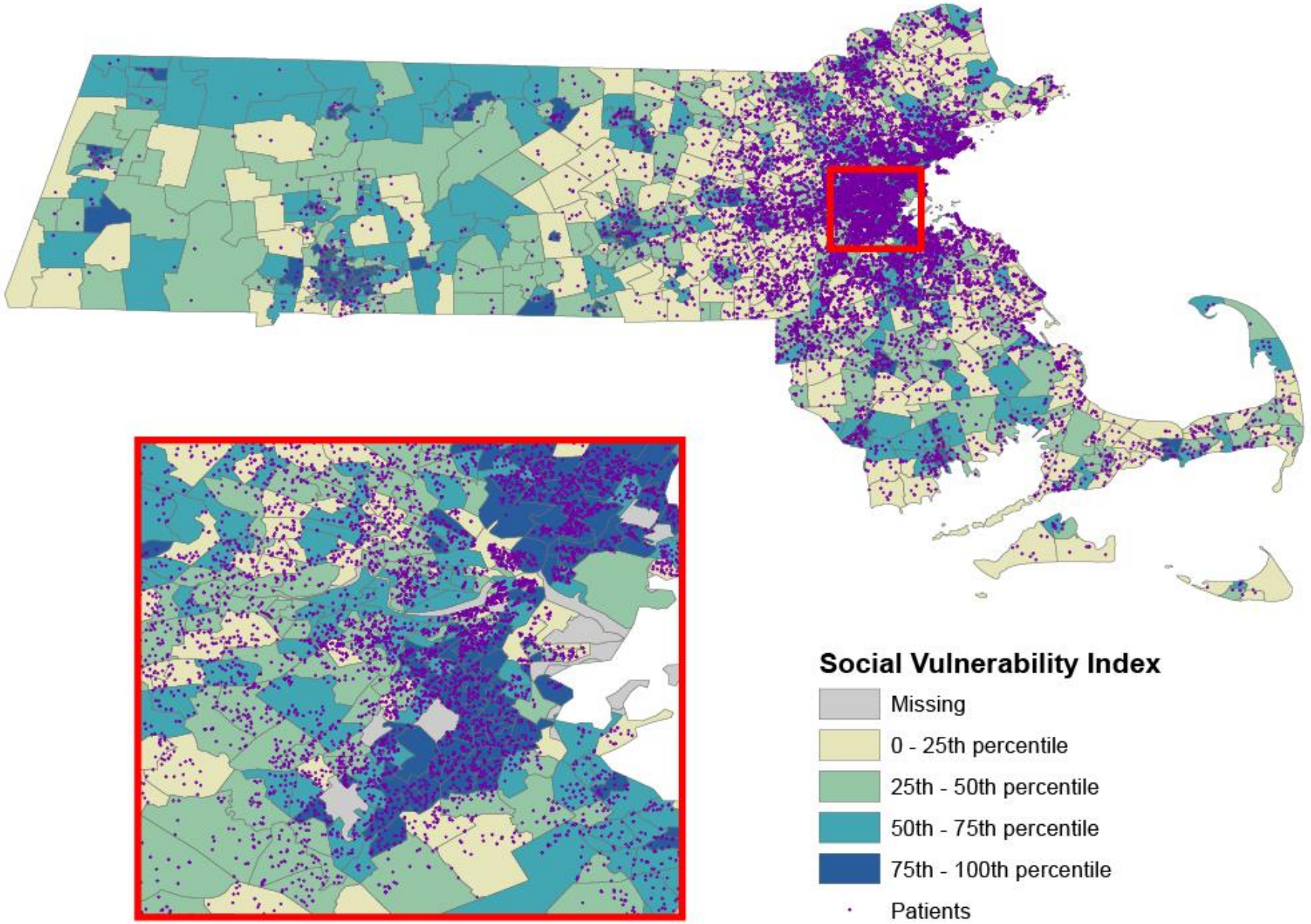
https://climate-vulnerability.mapc.org

Social and Heat Vulnerability and Acute Care Use

- Identified 14,401 individuals with a rheumatic condition (systemic disease, crystalline arthritis, OA) who received care at MGB 4/18-4/21
- Geocoded addresses and linked at the census tract to SVI and HVI
- Used multilevel, multinomial logistic regression models to examine the odds of 1-3 and $\geq$4 hospitalizations (ref=0) over two years post index date separately by vulnerability index, adjusting for age, gender, race/ethnicity, insurance, and comorbidities

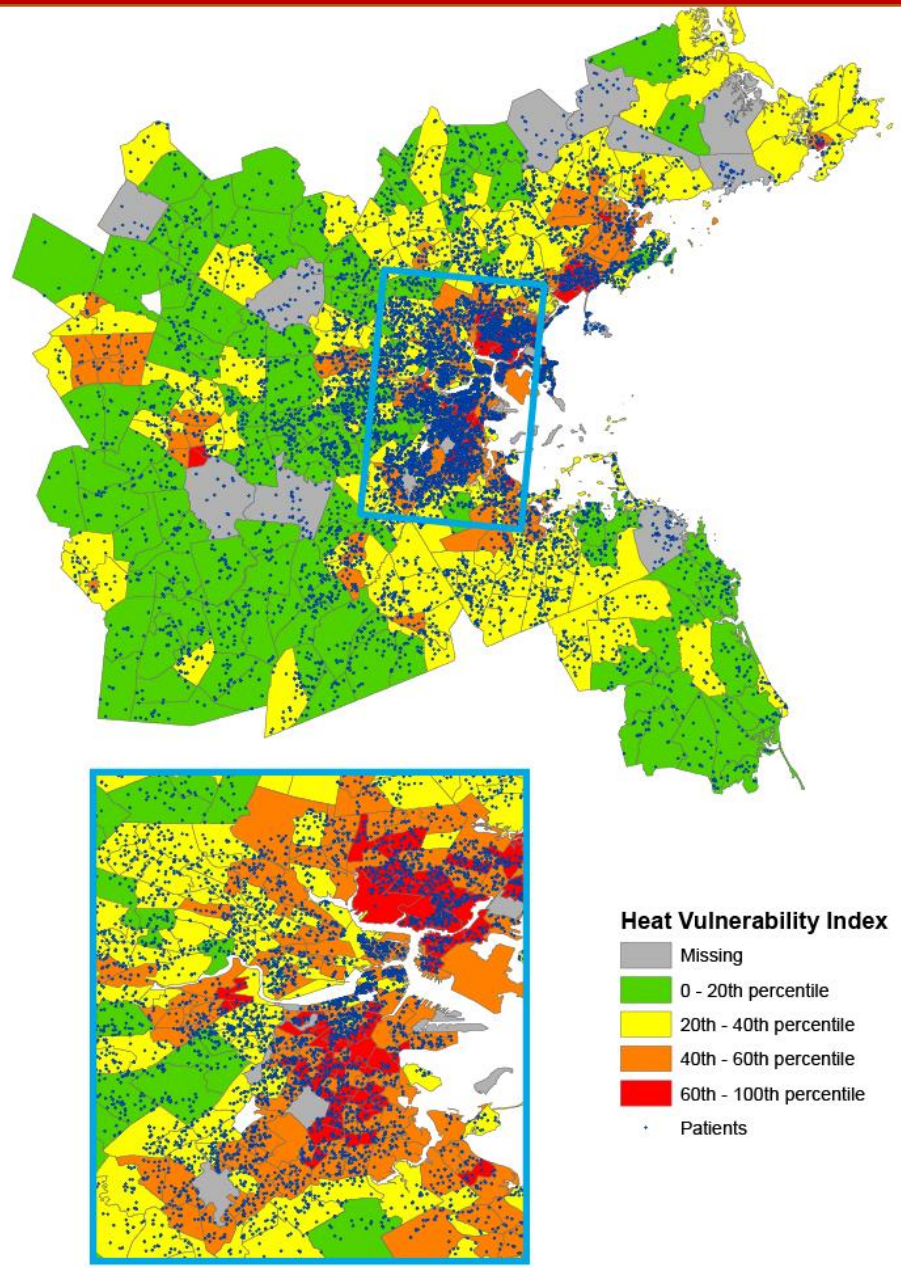
Santacroce et al. Arthritis Care Res 2023

SVI



Santacroce et al. Arthritis Care Res 2023

HVI



Santacroce et al. Arthritis Care Res 2023

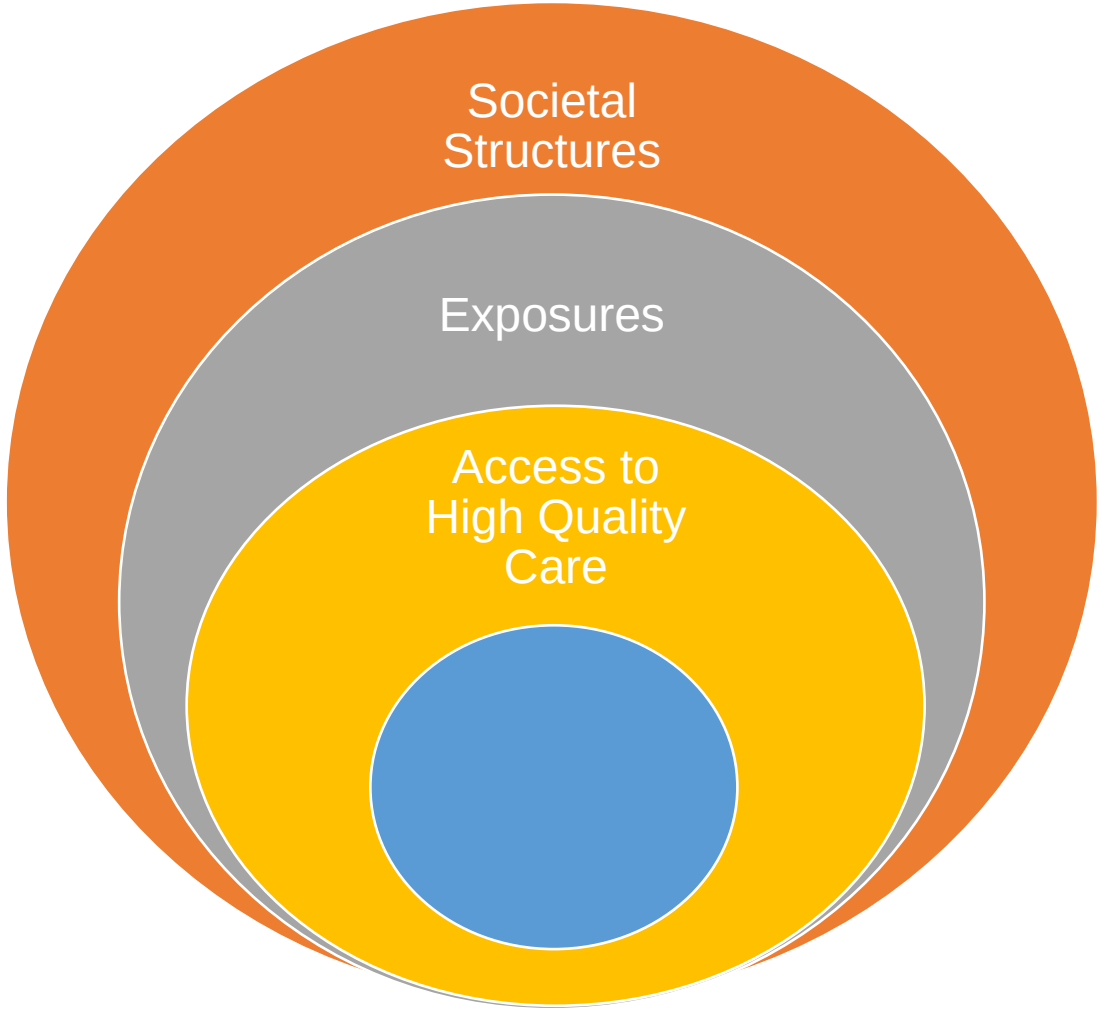
SVI and HVI and Recurrent Hospitalizations

- The mean age was 61.9 (SD 15.7) years, 70% female, 79% White, 7% Black, and 2% Hispanic
- 18.8% lived in the highest SVI areas, 11.7% in the highest HVI areas; 11% in both
- Accounting for individual-level factors, individuals living in the highest vs. lowest SVI areas had 1.84 times higher odds (95% CI 1.43-2.36) of ≥4 hospitalizations
- Individuals living in the highest vs. lowest HVI areas had 1.64 times greater odds (95% CI 1.17-2.31) of ≥4 hospitalizations
- Black race, male gender, public insurance, and greater comorbidities were associated with recurrent hospitalizations
- Significant associations were seen between area heat and social vulnerability and recurrent hospitalizations among individuals with systemic rheumatic conditions and crystalline arthritis

Santacroce et al. Arthritis Care Res 2023

Drivers of Inequities: Access to High Quality Care

- Differences in access to sustained, high-quality health care, medications, preventive care, mental healthcare, research studies, technology, diverse providers



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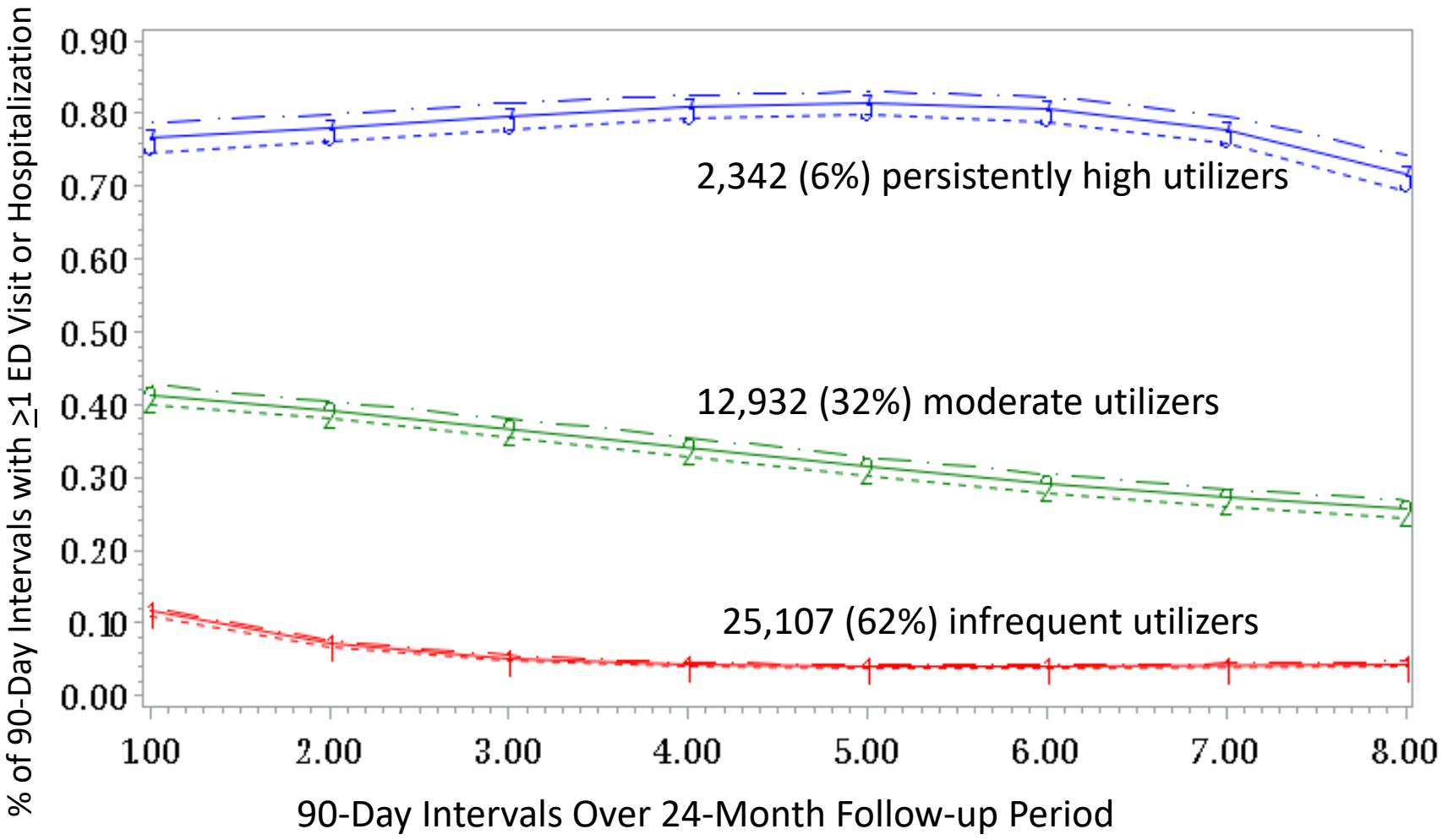
Jones CP et al. J Health Care Poor and Underserved 20 (2009):1-12

Inequities in Acute Care Use in SLE

- 40,381 SLE patients enrolled in Medicaid (2000-2010) from 29 states
- Examined patterns of ED visits and hospitalizations
- Persistently high use associated with higher mortality, more severe SLE, Black race, chronic pain, depression and cardiovascular disease
- Male sex, older age and hydroxychloroquine use associated with less frequent acute care use



Feldman et al. Seminars in Arthritis Rheum 2020

Access to Hydroxychloroquine (HCQ)

- 9,560 Medicaid beneficiaries with incident SLE
  - 41% received HCQ (or chloroquine) within 12 months of diagnosis
  - 72% received glucocorticoids during this time
- All racial/ethnic groups more likely than White individuals to receive HCQ
- Younger patients (18-25) 2.3 times more likely
- Alcohol use disorder, opioid use, diabetes, end-stage renal disease and smoking associated with a lower rate of dispensing
- Receiving 1-2 preventive care services associated with 29% higher rate of receipt; ≥2 services with a 46% higher rate
- More outpatient visits associated with higher rate of receipt; more hospitalizations with lower rate

Pryor et al. Arthritis Care Res 2022

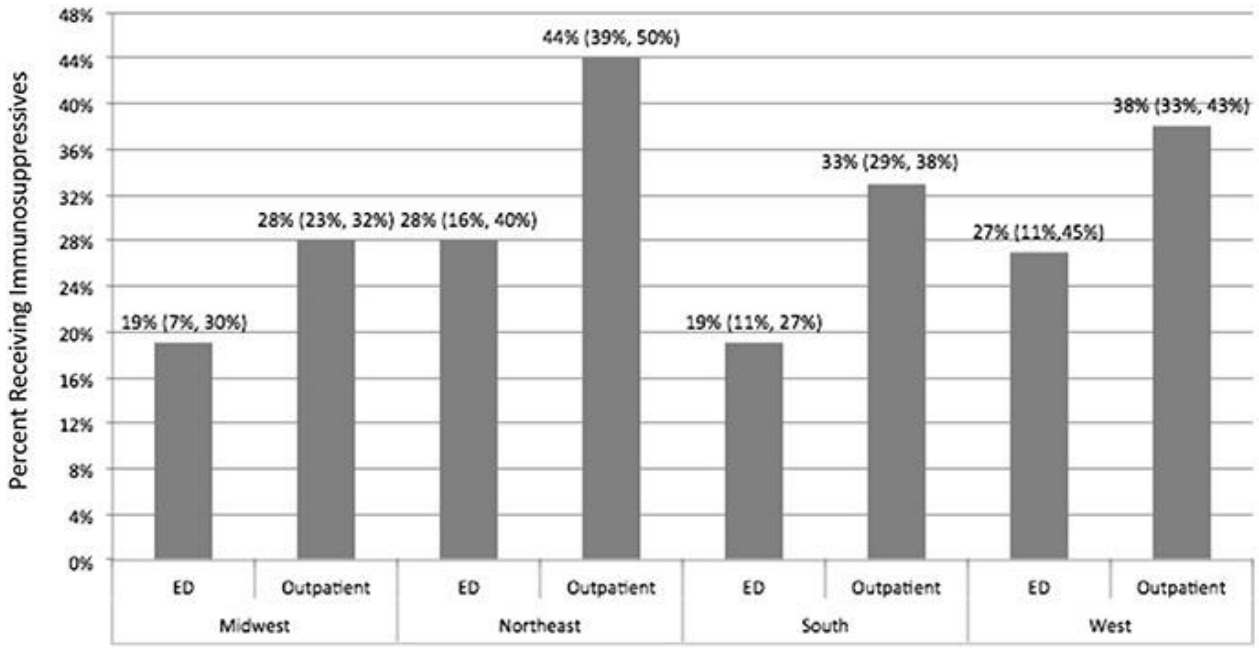
Vaccine-Preventable Acute Care Use

- Extremely low documentation of vaccination over a 12-month period (N=46,075)
  - ~10% of the Medicaid SLE population with any vaccination
- Incidence rate of acute care use for vaccine-preventable illness was 6.8 per 1000 person-years
  - 93% of events occurred in patients without documented vaccinations
- In adjusted models, higher risk of acute care use for vaccine-preventable illnesses among Black patients, in the Midwest and South and among patients with more baseline ED visits and hospitalizations
- More outpatient visits associated with >30% reduced risk of acute care use for vaccine-preventable illnesses

Feldman et al. Arthritis Care Res 2021

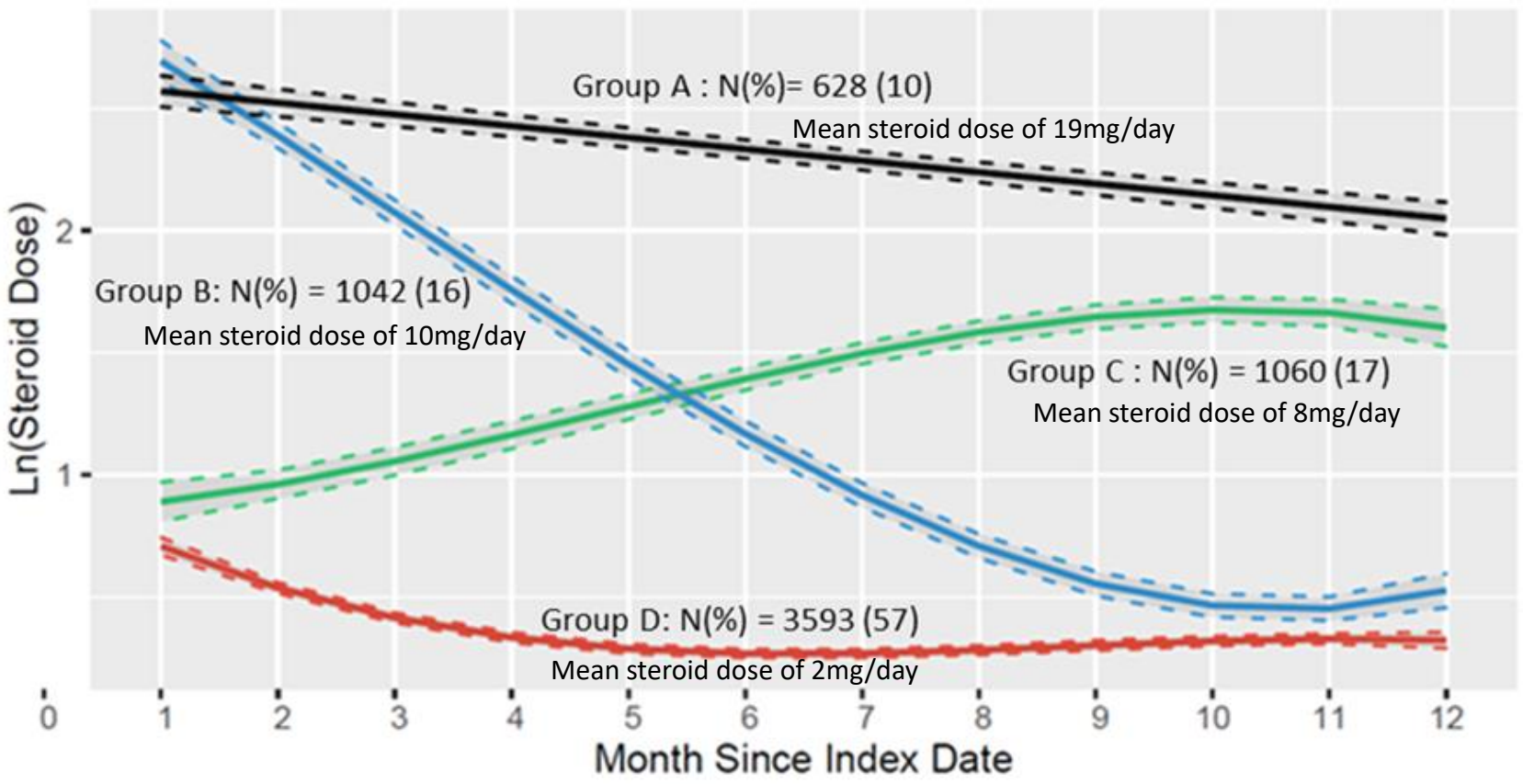
Inequities in SLE Care Quality in Medicaid

- Poor quality of care for those with incident lupus nephritis
  - Only 21.9% received immunosuppressives, 44% ACE-I/ARBs, and 36% antimalarials
- Higher quality of care in Northeast
- Fewer patients seen in the ED receiving immunosuppressives



Yazdany et al. Arthritis Care Res 2014; 66(4) 617-24

Inequities in Steroid Use (N=6,323)



Group A: Persistently high steroid dose trajectory; Group B: Downtrending steroid dose trajectory; Group C: Uptrending Steroid dose trajectory; Group D: Persistently low steroid dose trajectory

- Adjusted multinomial models with higher odds of belonging to the highest vs. lowest steroid trajectory for Black (OR 2.06, 95% CI 1.64-2.60), Hispanic (OR 1.82, 95% CI 1.38-2.40), and Asian (OR 2.40, 95% CI 1.52-3.80) vs. White individuals
- >5 outpatient visits during the baseline period associated with lower odds of being in the persistently high-dose steroid trajectory (OR 0.78; 95% CI 0.61-1.00)

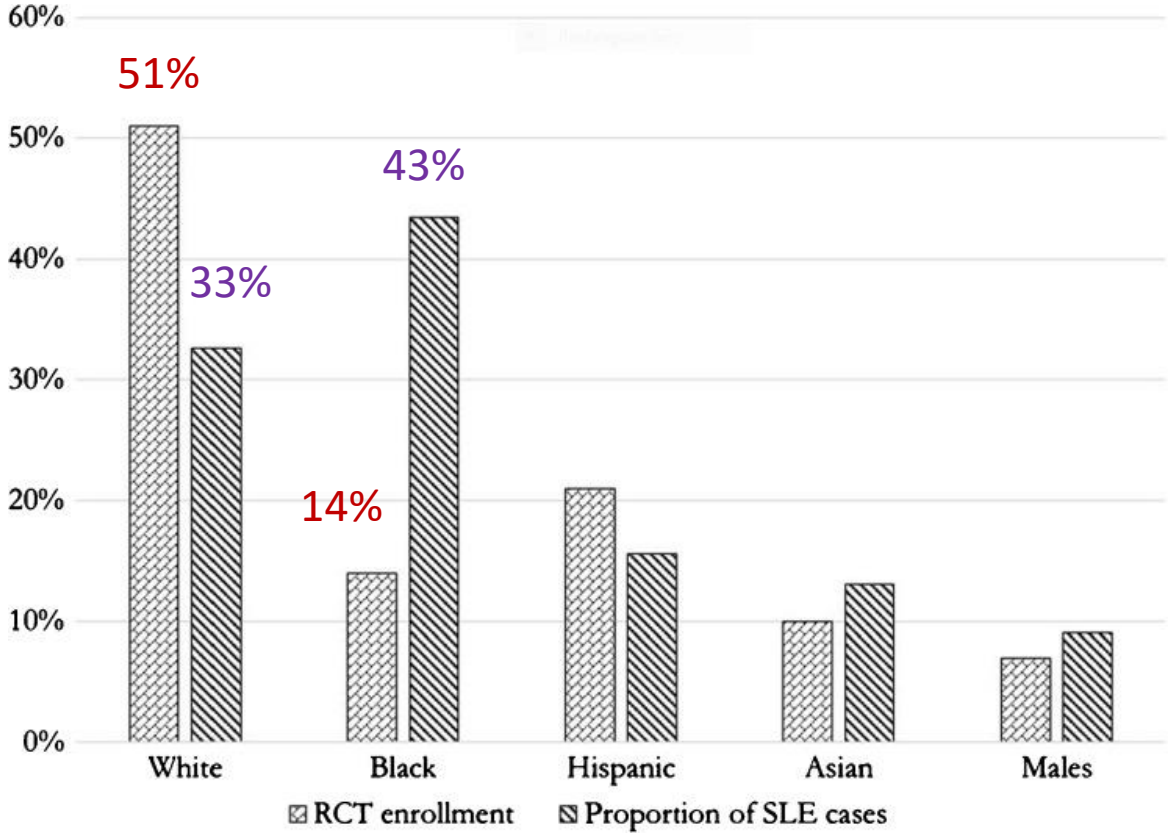
Chandler et al. Seminars Arthritis Rheum 2022

Racial Differences in Steroid Use

- Racial differences persisted despite multiple different adjustments for markers of SLE disease severity
- Black individuals had the lowest utilization of baseline immunosuppressive medications and while use increased in the persistently high dose steroid trajectory for White, Asian and Hispanic individuals, it decreased for Black individuals (role of nonadherence vs. under-prescribing)
- Black and Hispanic individuals had less outpatient utilization compared to White individuals and this was a significant predictor of persistent high dose steroid use
- Currently no studies with diverse enrollment to guide standard-of-care steroid tapering regimens

Chandler et al. Seminars Arthritis Rheum 2022

Lack of racial/ethnic diversity in SLE trials

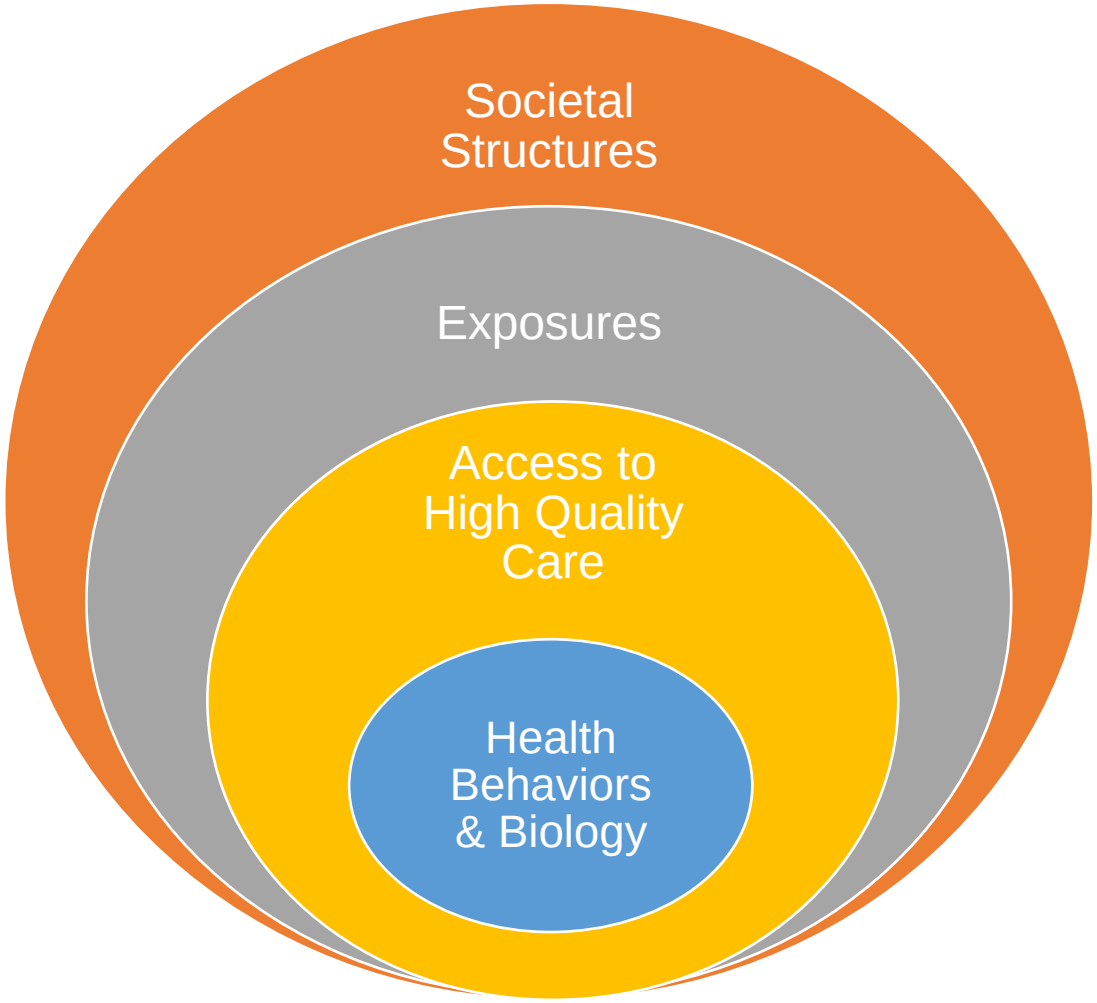


- Individuals of African descent significantly underrepresented in SLE clinical trials
- Why?
  - Lack of trust from historical injustices and ongoing discrimination
  - Structural racism
  - Barriers from inclusion/exclusion criteria
  - Unconscious bias
  - Lack of diversity among providers and researchers
  - Lack of culturally relevant recruitment and consent materials

Falasinnu et al. Curr Rheumatol Rep. 2018
Sneed et al. Arthritis Care Res 2021

Drivers of Inequities: Health Behaviors & Biology

- Differences in **health behaviors** (e.g., medication adherence) that result from the perpetuation of societal structures and disproportionate burden of exposures, social risk factors and suboptimal care access and quality, and **biological factors** that may place certain populations at greater risk**,** particularly in the setting of recurrent adverse exposures across the life course



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Outline

- To discuss multilevel drivers of racial, ethnic and socioeconomic inequities in rheumatic disease incidence, care utilization and outcomes
- **To present strategies that may help address aspects of these inequities among individuals with rheumatic conditions**

Integrated Care Management Program (iCMP)

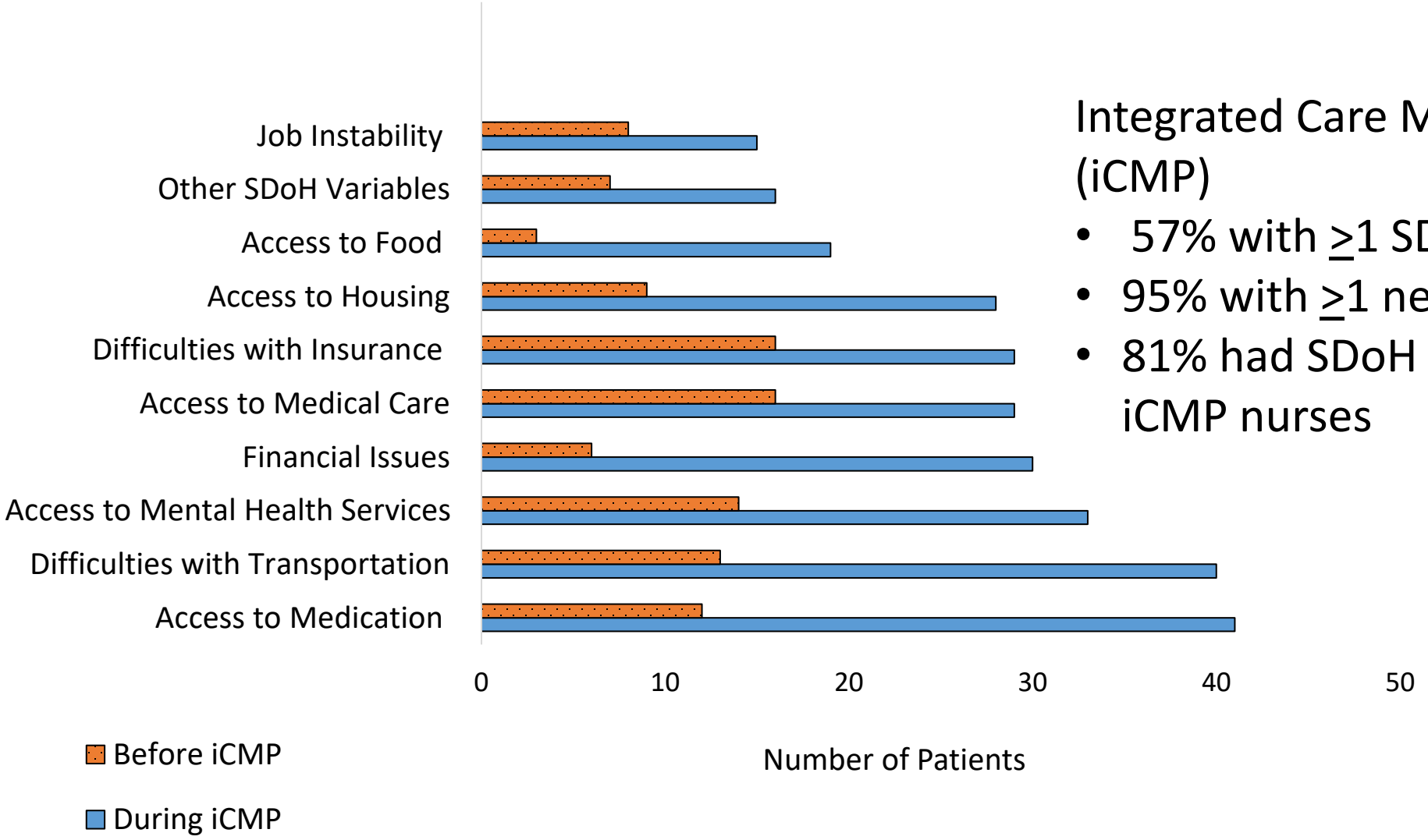
- Started in 2006 – enrolls the top 2% of medically and psychosocially complex (“high-risk”) patients across MGB with the goal of reducing avoidable, recurrent acute care use and costs
- Uses an algorithm that factors in age, comorbidities, acute care utilization and direct referrals from primary care physicians
- Matches patients with a nurse care coordinator in primary care
- Nurse conducts needs assessments and matches patients with resources, provides appointment reminders, triages urgent issues

Hsu et al. Health Affairs 2017

Lupus Patients in iCMP

- Access to linked EHR-claims data from 2011-2019
- Applied EHR-based algorithm (PPV 90%) to identify SLE patients
- N=69; 67 with linked claims
  - 55% White, 25% Black, 16% other, 3% Asian, 21% Hispanic
  - 20 with Commercial insurance, 59 Medicare, 4 Medicaid, 16 with $\geq$1
- Duration of iCMP enrollment was about 46 months (SD 29)

Social Determinants in High-Risk Lupus Patients (N=69)



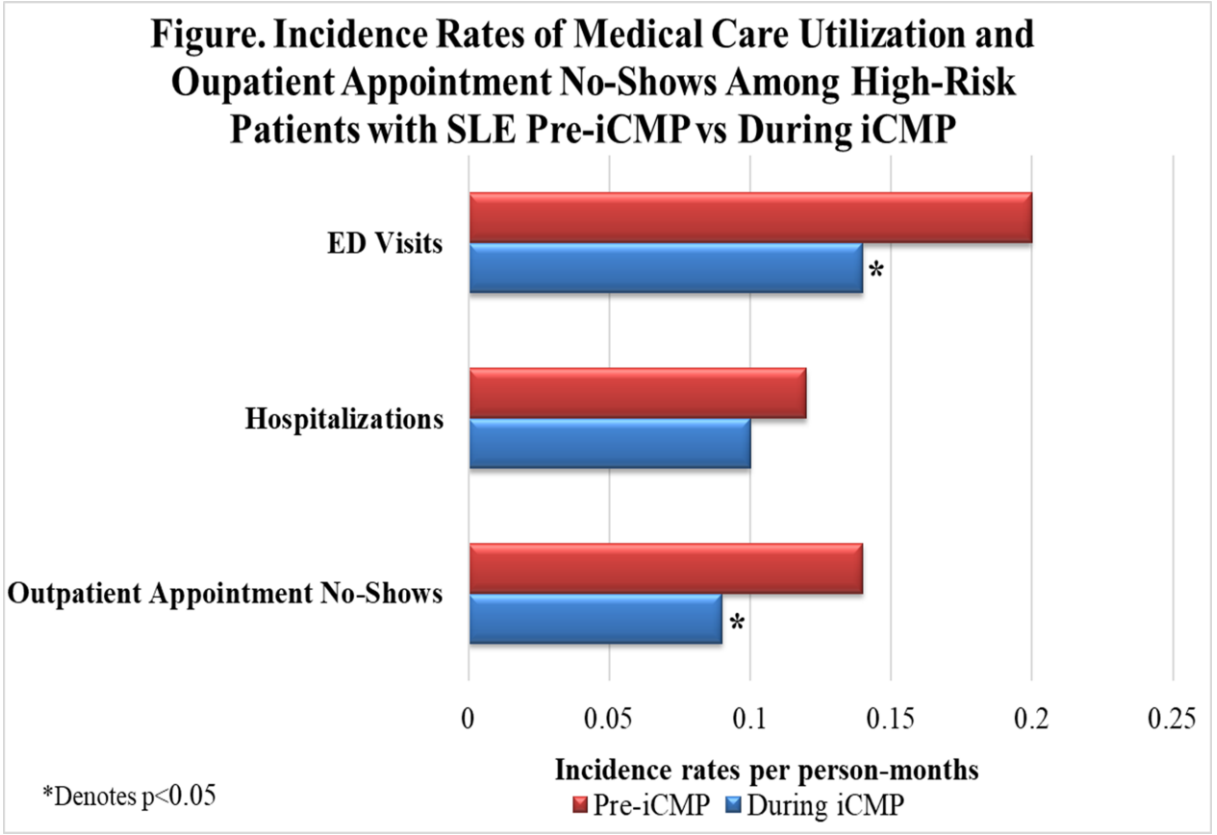
Integrated Care Management Program (iCMP)

- 57% with ≥1 SDoH need pre-iCMP
- 95% with ≥1 need during iCMP
- 81% had SDoH need addressed by iCMP nurses

Taber, K. et al. ACR Open Rheumatology 2021

iCMP and Acute Care Use Reduction (N=67)

- Lupus patients enrolled in iCMP with linked EMR-claims data (2012-2019)
- **ED visits**: 0.14/person-month during iCMP vs. 0.20/person-month pre-iCMP (IRR 0.66, 95% CI 0.48-0.92, p=0.01)
- **Outpatient no-shows**: 0.09/person-month during iCMP vs. 0.14/person-month pre-iCMP (IRR 0.74, 95% CI 0.57-0.97, p=0.03)
- **Adjusted analyses** (age, sex, race, ethnicity, number of comorbidities, year, and clustering by patient) showed a **37% reduction in the rate of ED visits** during iCMP vs. pre-iCMP (p=0.003)



Williams et al. ACR Open 2022

iCMP and Acute Care Use Reduction

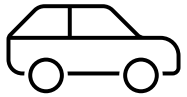
- iCMP enrollment was associated with:
  - Decreased rate of ED visits for primary diagnosis of musculoskeletal disorder (p=0.008)
  - No difference in rate of hospitalizations or ED visits for primary or secondary diagnosis of SLE
- Associated with reduced rates of **avoidable ED visits** (IRR 0.50, 95% CI 0.28-0.88), and **avoidable hospitalizations** (IRR 0.37, 95% CI 0.21-0.65) for AHRQ and SLE-specific conditions

Williams et al. ACR Open 2022

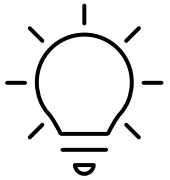
SDoH in Inflammatory Arthritis

- A two-part project across MGB rheumatology clinics
- **Part 1:** To develop infrastructure to systematically collect, document and address SDoH for individuals with inflammatory arthritis receiving rheumatology care at MGB
- **Part 2:** An adaptive RCT testing different strategies to 1) address SDOH needs, 2) reduce appointment no shows, 3) reduce acute care use, 4) improve patient satisfaction [*Enrolling*]
- **Ultimate goal:** To advocate for payer-blind, rheumatology-based resources to systematically collect and address these needs

SDOH Screening

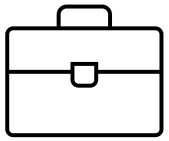


Transportation



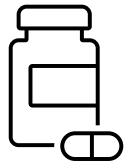
Paying for utilities

Housing



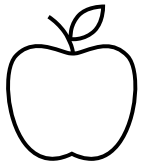
Unemployment

Child or family care



Paying for medications

Education



Food

Elder or disabled care

This form gives us more information about you and your family. Your answers will help us put more support services in place in the future.

	Has the lack of transportation kept you from medical appointments or from getting medications?	◯ Yes	◯ No	
	Within the past 12 months we worried whether our food would run out before we got money to buy more.	◯ Never True	◯ Sometimes True	◯ Often True
	Within the past 12 months the food we bought just didn't last and we didn't have money to get more.	◯ Never True	◯ Sometimes True	◯ Often True
	What is your housing situation today?	◯ I have housing	◯ I do not have housing *(staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, or in a park)*	◯ I choose not to answer
	How many times have you moved in the past 12 months?	◯ Zero (I did not move)	◯ One time	◯ Two or more times ◯ I choose not to answer
	Are you worried that in the next 2 months, you may not have your own housing to live in?	◯ Yes	◯ No	◯ I choose not to answer
	Do you have trouble paying your heating or electricity bill?	◯ Yes	◯ No	◯ I choose not to answer
	Do you have trouble paying for medicines?	◯ Yes	◯ No	◯ I choose not to answer
	Are you currently unemployed and looking for work?	◯ Yes	◯ No	◯ I choose not to answer
	Are you interested in more education for yourself related to completing high school / applying to college / learning the English language / developing job or technical skills / developing parenting skills?	◯ Yes	◯ No	◯ I choose not to answer
	Do you have trouble with childcare or the care of a family member?	◯ Yes	◯ No	◯ I choose not to answer

Would you like information about any of the following topics? ☐ None

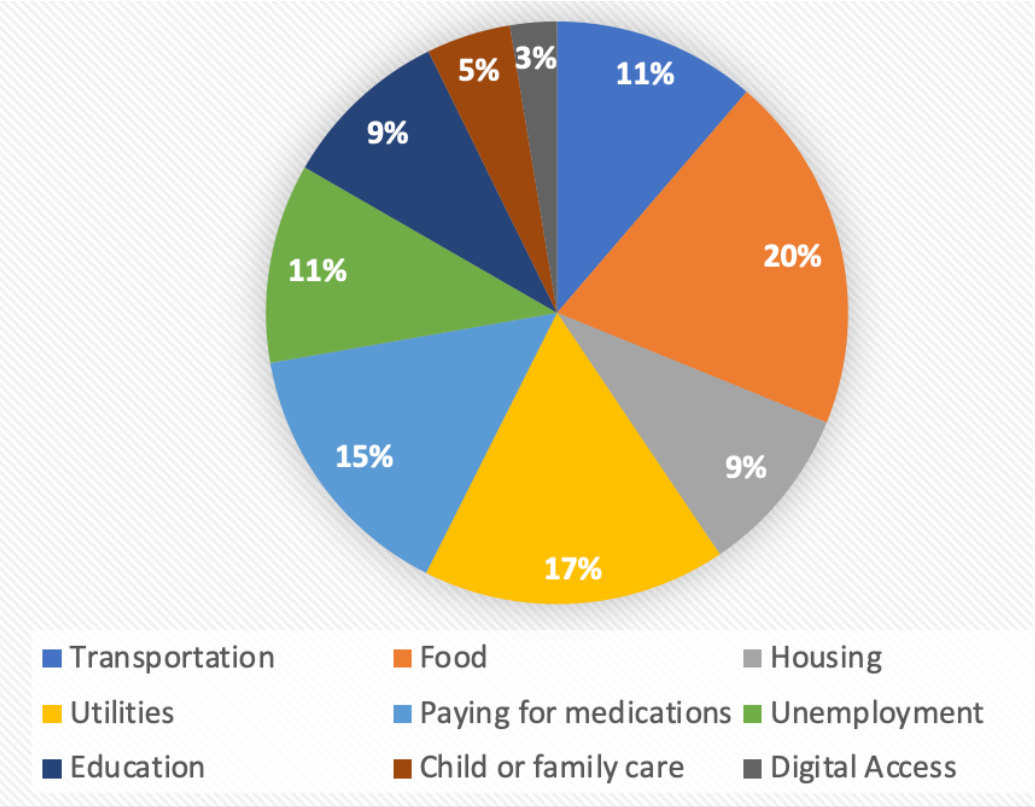
☐ Transportation	☐ Food	☐ Housing
☐ Paying utility bills	☐ Paying for medications	☐ Job search or training
☐ Education	☐ Childcare	☐ Care for elder or disabled

In the last 12 months, have you received assistance from an organization or program to help you with any of the following: ☐ None

☐ Transportation	☐ Food	☐ Housing
☐ Paying utility bills	☐ Paying for medications	☐ Job search or training
☐ Education	☐ Childcare	☐ Care for elder or disabled

SDoH Screening

- 10,500 MGB rheumatology patients completed the screening since launch in June 2022
- 17% have indicated at least one SDoH need
- 670 individuals asked for additional information
- 72% of rheumatologists have referred at least 1 patient to the team for assistance
- Screening added ≤3 minutes to the workflow at check-in
- Remaining challenges include lack of social work support, mental health resources, in-person interpreters and patient assistance funds to offset medication costs



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Individuals Reached by rCRS

SDoH Need	# Reached by rCRS*	Examples of Categories of Services Provided by rCRS
Food insecurity	81	• Determined eligibility for state and federal programs • Assisted with SNAP and patient assistance program applications • Assisted with packaged meal delivery application to community-based organization • Connected patients with local food pantries
Difficulty paying utility bills	76	• Facilitated access to utility payment assistance programs • Reviewed finances and monthly bills to plan payments
Difficulty paying for medications	72	• Connected patients with organizations for copayment assistance • Connected patients with multihospital-based specialty pharmacy program staff members • Connected patients with pharmaceutical company patient assistance programs when indicated • Aided in determining whether certain over the counter medications could be more affordable
Transportation needs	49	• Assisted with PT-1 applications • Connected patients with local public transportation ADA services • Provided information on other transportation assistance programs
Housing instability	34	• Aided with CHAMP, RAFT and Section 8 housing applications • Provided contact information for organizations offering volunteer legal services • Obtained housing letters from rheumatologists and primary care providers
Unemployment	38	• Connected patients with local hiring offices in their respective towns and with job listing websites
Desire for more education	39	• Investigated training programs based on patients' needs and loan/payment assistant programs for these programs

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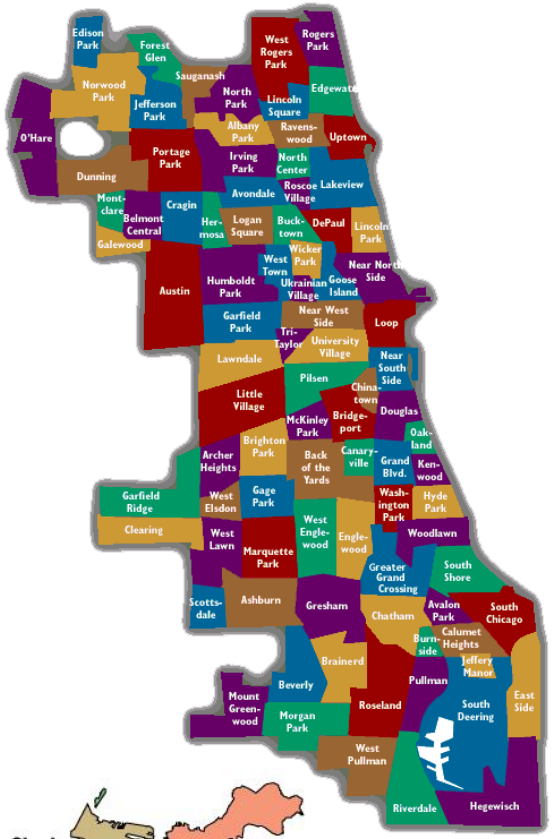
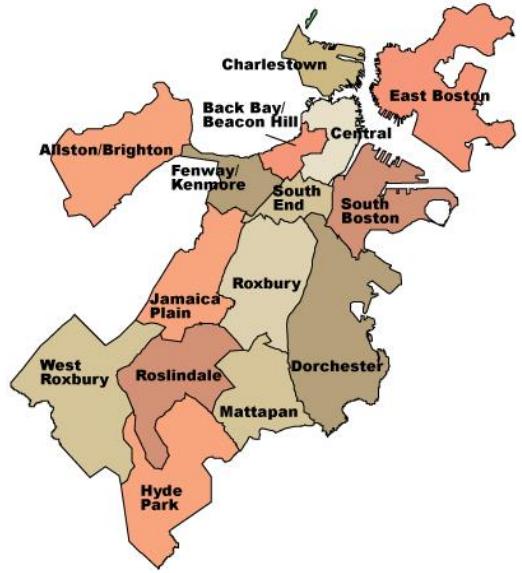
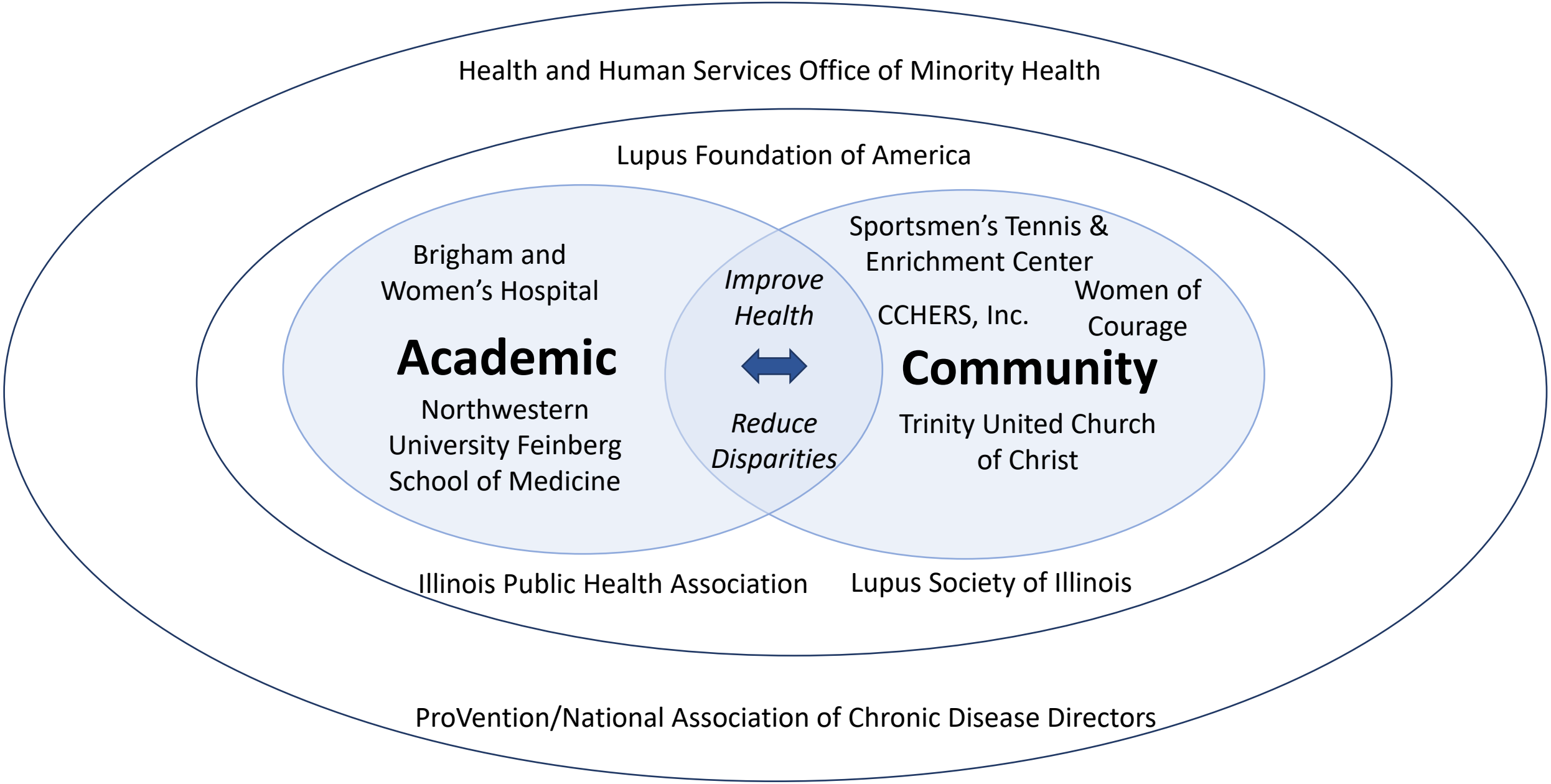
Academic-Community Partnership: Lupus Conversations

Part I Aim: To develop and implement a community-based, culturally-sensitive intervention to disseminate lupus-related education in Chicago- and Boston-based African American communities to promote early and sustained care-seeking behavior

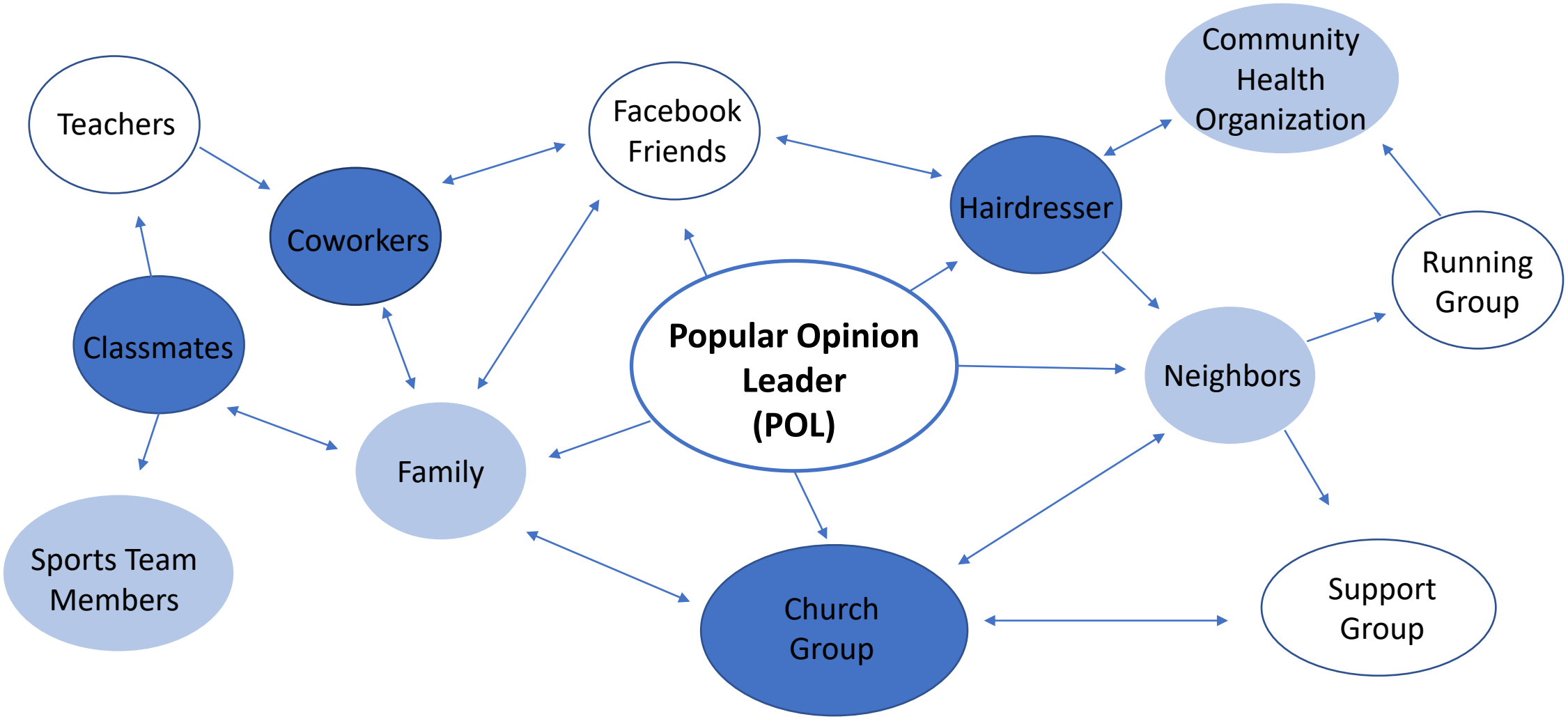
Part II Aim: To leverage a community-academic partnership in Boston and Chicago to catalyze conversations and disseminate information about clinical trials among Black and African American communities






Health and Human Services Office of Minority Health
Lupus Foundation of America
Brigham and Women's Hospital
Academic
Northwestern University Feinberg School of Medicine
Improve Health
Reduce Disparities
Sportsmen's Tennis & Enrichment Center
CCHERS, Inc.
Women of Courage
Community
Trinity United Church of Christ
Illinois Public Health Association
Lupus Society of Illinois
ProVention/National Association of Chronic Disease Directors

Popular Opinion Leader (POL) Model



Part II: Lupus Trials Awareness

- Using Critical Race Theory framing, held focus groups to understand factors that influence clinical trial participation
  - Themes limiting participation included mistrust related to racism, concerns about placebo group assignment, strict study exclusion criteria and SLE-specific factors
  - Themes motivating participation included recommendations from physicians and reputable institutions, a desire to help the greater good and culturally sensitive marketing of trials
- This informed the POL training curriculum, including a module on racism and medical research

Sneed et al. Arthritis Care Res 2021
Arneson et al. Arthritis Care Res 2022

POL Enrollment and Training

- Recruited and trained 19 POLs in Boston, 17 in Chicago
- 89% female, 81% identified as Black of African American
- 69% with lupus
- Converted to entirely virtual platform
- Demonstrated statistically significant knowledge improvement in pre-post tests for the modules
  - Significant improvement regarding conduct of clinical trials and history of racism in research

Arneson et al. Arthritis Care Res 2022

POL Dissemination

- 20 POLs (63%) reported dissemination
- 424 community members reached in Boston (90% virtually)
- 1,887 community members reached in Chicago (95% virtually)

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Striving for Equity in Rheumatology

- Recognize the role of structural racism and social determinants of health in racial, ethnic and socioeconomic disparities in care utilization patterns and receipt of high-quality care in rheumatology
- Highlight the importance of subspecialist awareness and subspecialty-based infrastructure to uncover and address these key factors that contribute to inequities in care and outcomes
- Appreciate that these inequities are avoidable and that hospital and community-based interventions that address the multilevel contributors are urgently needed

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OMH U.S. Department of Health and Human Services Office of Minority Health

Rheumatology Research Foundation
Advancing Treatment | Finding Cures

NIH National Institute of Arthritis and Musculoskeletal and Skin Diseases

Bristol Myers Squibb Foundation