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Update: Disparities in Liver Disease

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Disclosures

- Gilead: Advisory board

Objectives

1. Define health equity and health disparities
2. Review recent data on social determinants of health in liver disease
3. Explore potential interventions to improve disparities in liver disease

Definitions and Concepts

Concept	Research question	Application to policy or program planning
Disparity	Is there a difference in health status rates between population groups?	Is the difference too large?
Inequity	Is the disparity in rates due to differences in social, economic, environmental, or healthcare resources?	Is the distribution of resources fair?
Inequality	How do rates vary with the amount of the resource, and how is the population distributed among resource groups?	Can the distribution of the population among resource groups and/or the rates within resource groups be influenced?

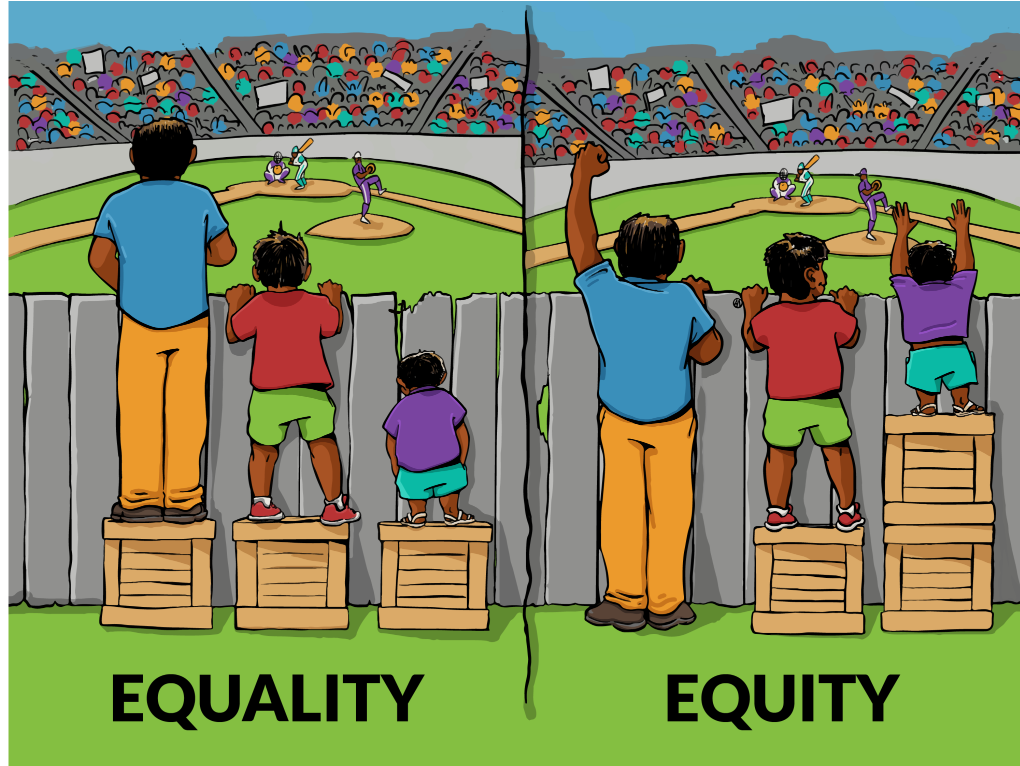
Adapted from *Healthy People*. 2010. CDC National Center for Health Statistics. https://www.cdc.gov/nchs/ppt/nchs2010/41_klein.pdf.

Defining Health Disparities

- Healthy People 2020 definition: **Preventable** differences in the burden of disease, injury, violence, ***or opportunities to achieve optimal health*** that is closely linked with economic, social, and environmental disadvantage
- The **increased presence and severity** of certain diseases, poorer health outcomes, and greater difficulty in obtaining healthcare services for these racial and ethnic groups
- They are related to inequities in ***education, poverty, access to quality health care, geography, and environmental exposures***

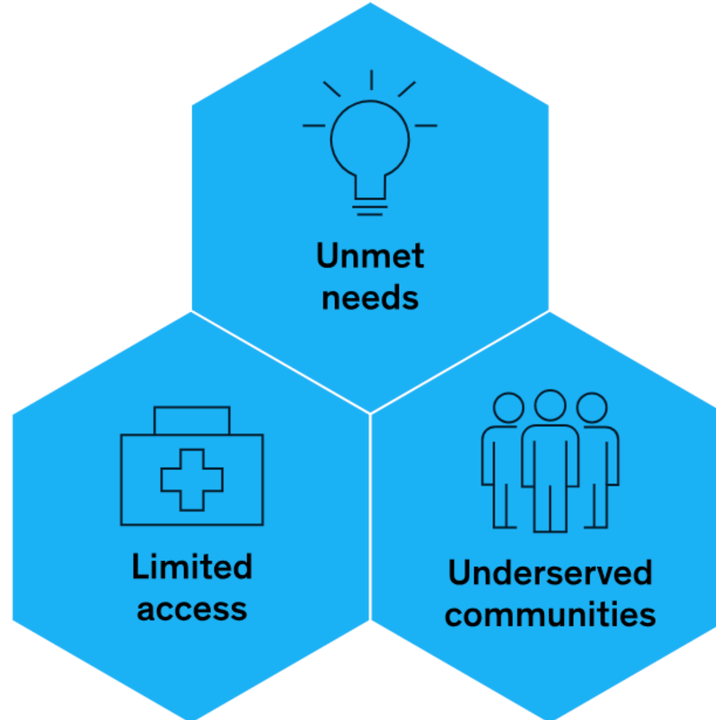
Equality vs Equity

Equality means each individual or group is given the SAME resources or opportunities



Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome

Health Inequity



https://www.mckinsey.com/industries/life-sciences/our-insights/health-equity-a-framework-for-the-epidemiology-of-care.

Social Determinants of Health

- Social determinants of health (SDOH) are defined by the World Health Organization as:

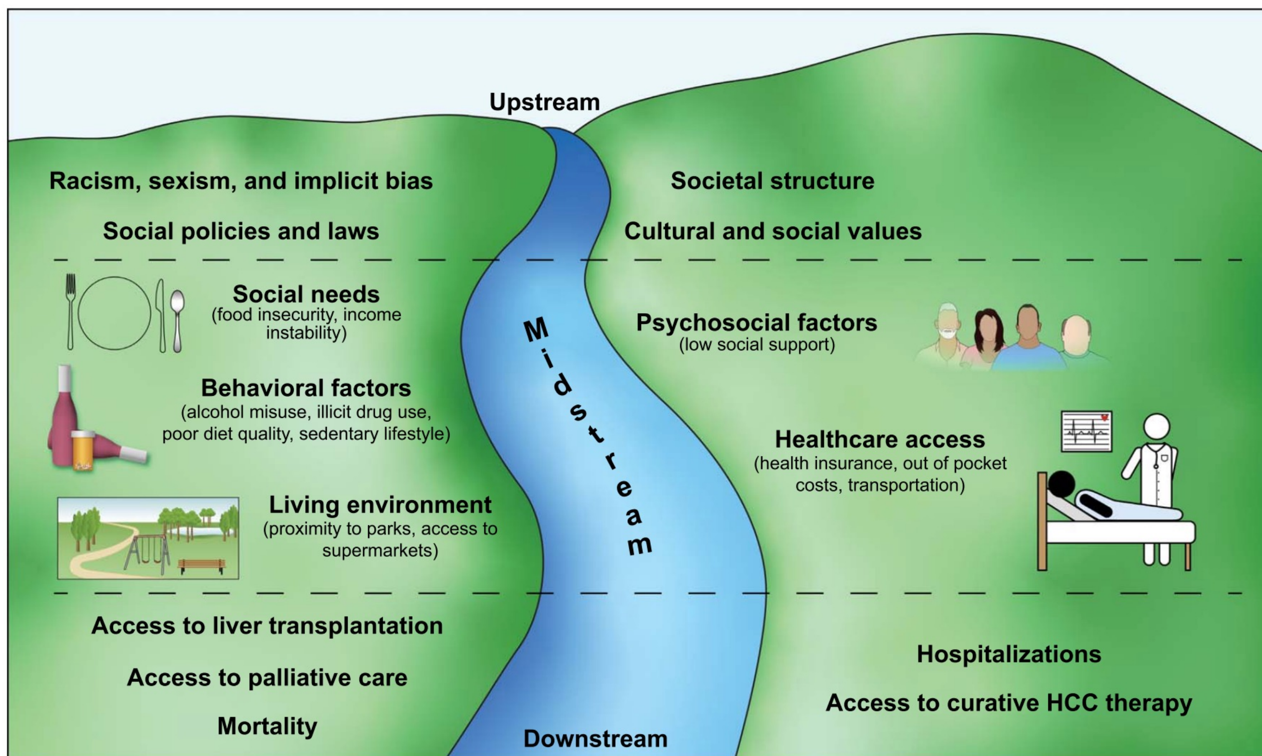
> *"the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels"*

- Modifiable factors affecting health outcomes

Social Determinants of Health

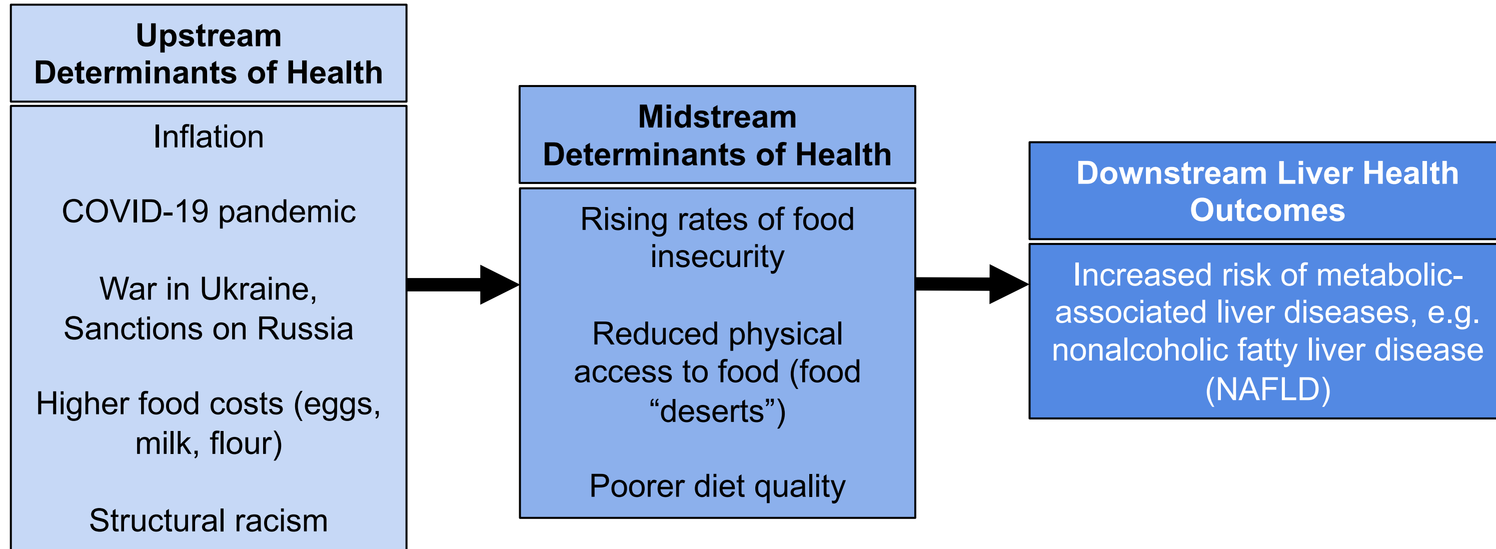
https://www.cdc.gov/publichealthgateway/sdoh/index.html.

Conceptual Framework



Kardashian, Nephew et al. *Hepatology.* 2022.

Nonalcoholic Fatty Liver Disease as an Example



Based on a schematic in Solar and Irwin (WHO, 2010) and deBeaumont (2018).

Health-Related Social Needs (vs SDOH)

- The social and economic needs that individuals experience that affect their ability to maintain their health and well-being (ex. food insecurity, housing instability, lack of transportation)
- Disparities in social needs are a *result* of SDOH

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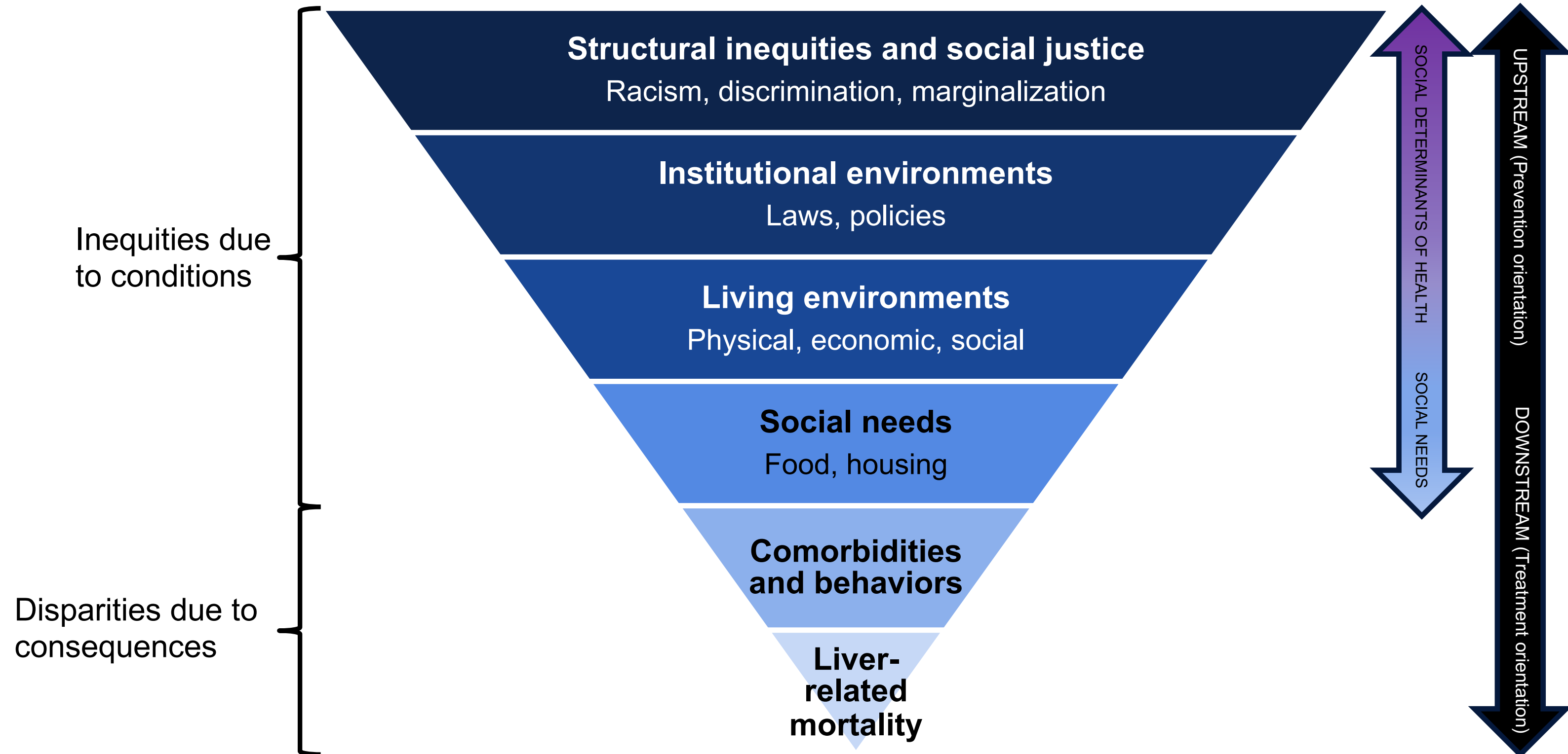
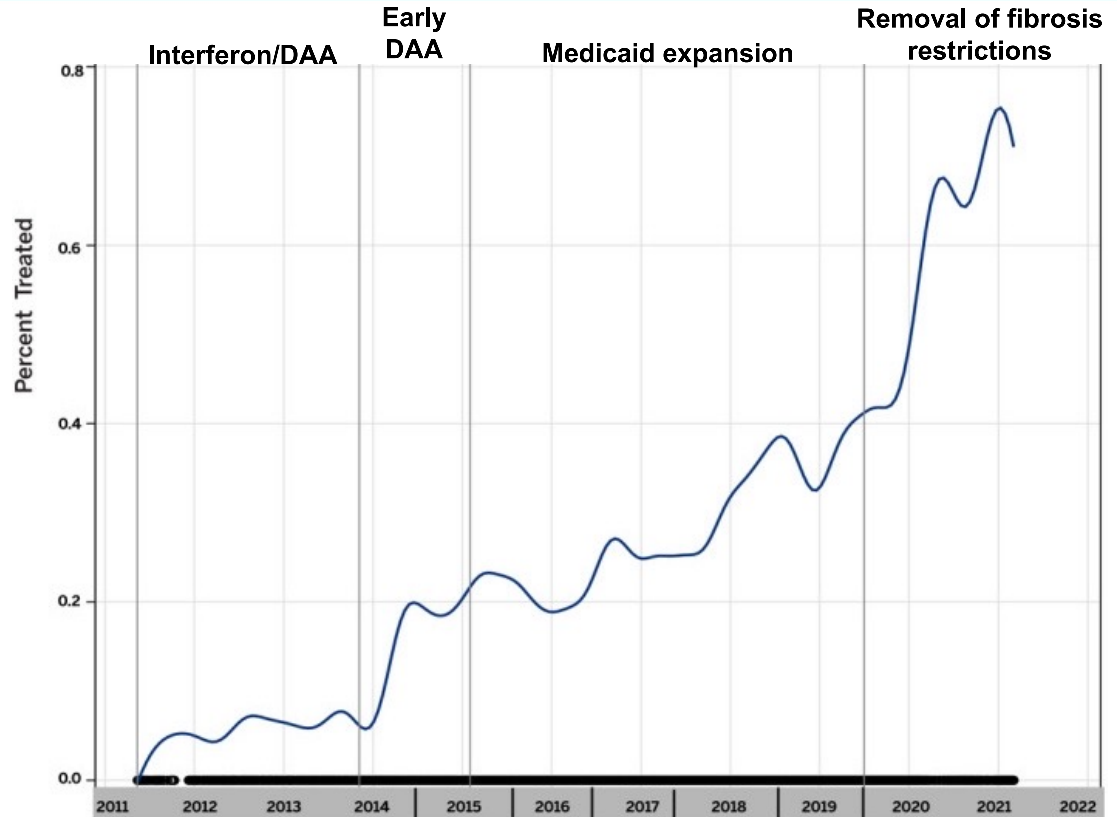
Social Determinants Influence Liver Health



Adapted from Alcaraz et al. *CA Cancer J Clin.* 2020.

Increased HCV Treatment Rates After Removal of Medicaid Restrictions

- Retrospective analysis of 10,336 adults in the Indiana University Health Practices (19 hospitals, 178 outpatient clinics)
- DAAs had limited impact on HCV treatment until Medicaid restrictions were removed
- Persons per month treated
  - Period 1: 2.4
  - Period 2: 9.3
  - Period 3: 32.8
  - Period 4: 72.3



Nephew LD et al. *J Viral Hepat.* 2022.

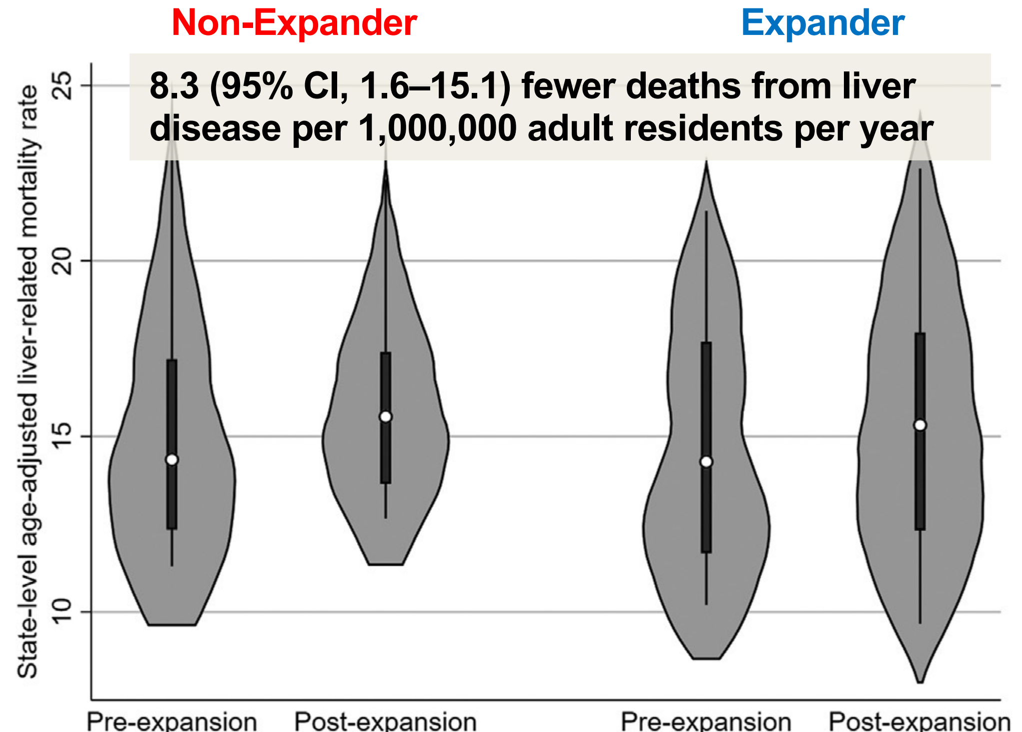
Impact of Medicaid Expansion on Cirrhosis Outcomes

CDC WONDER 2010-2018 database

Adults aged 25-64 years

After Medicaid expansion (ME) in 2014 in 31 states:

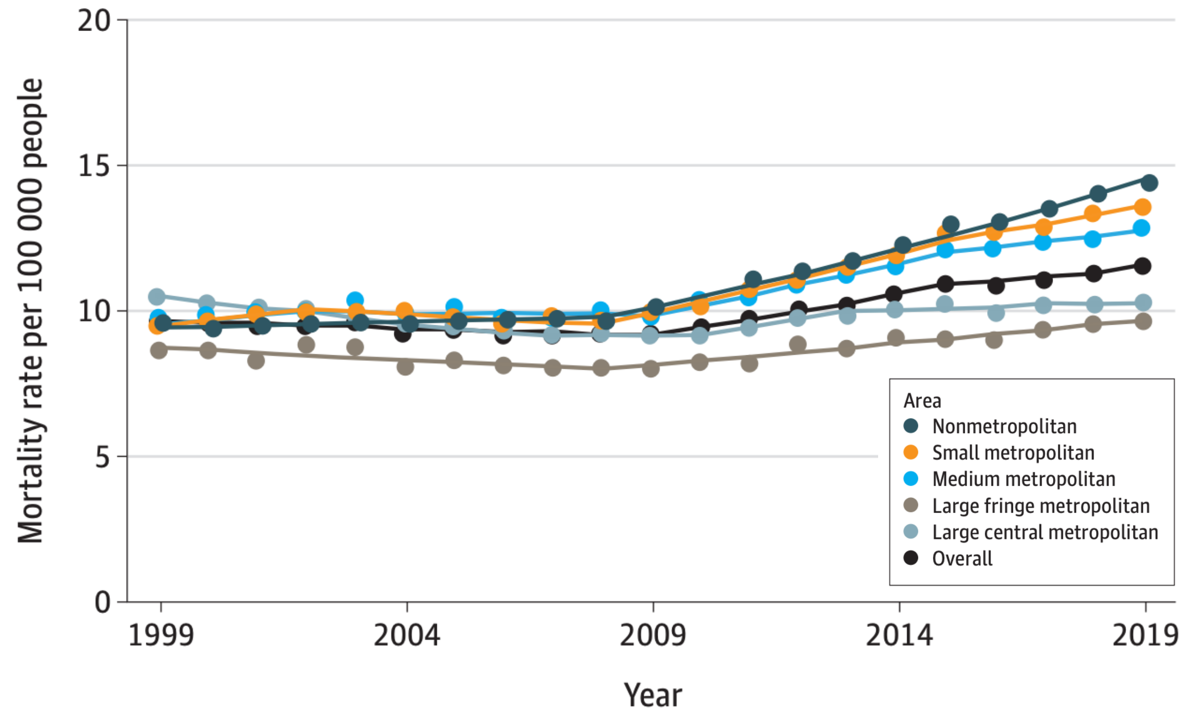
- Lower cirrhosis-related hospitalizations and costs in ME states
- More early detection of HCC and lower mortality
- ≥10% increase in proportion of LT candidates with Medicaid



Kumar et al. *Clin Gastro Hep*. 2022.

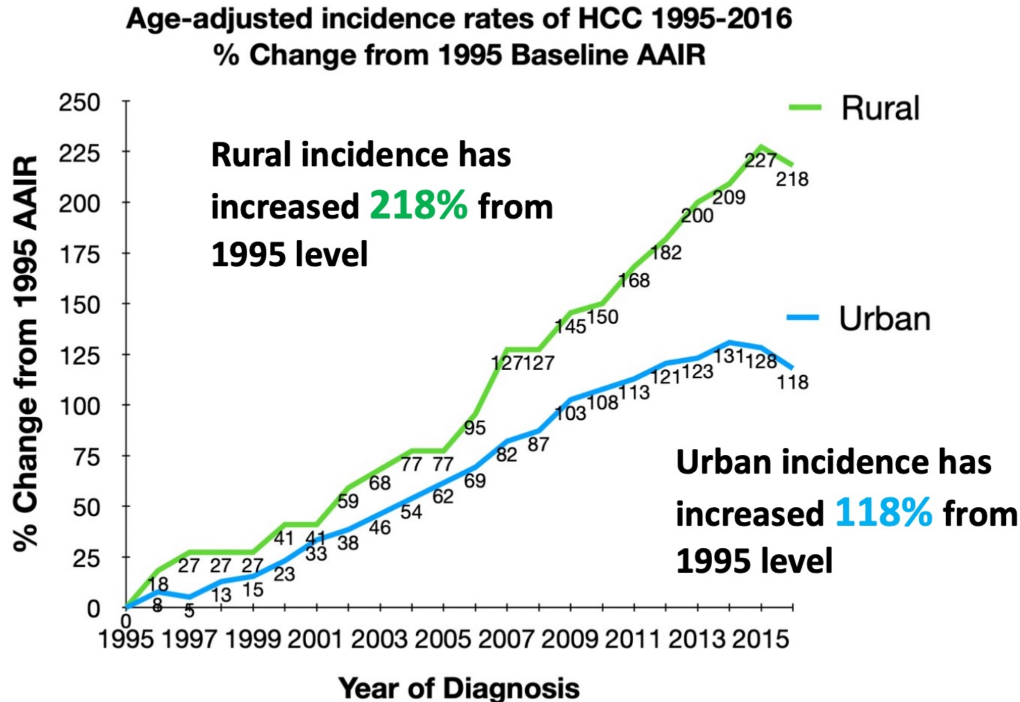
Place Is a Determinant of Liver Health

- Cross-sectional study from CDC WONDER database 1999-2019
- 701,863 deceased participants with cirrhosis
- Age-adjusted mortality due to cirrhosis and its complications is **rising**, and rising fastest in rural areas



Ha et al. *JAMA Netw Open*. 2022.

Rural Urban Disparities Exist in HCC Incidence



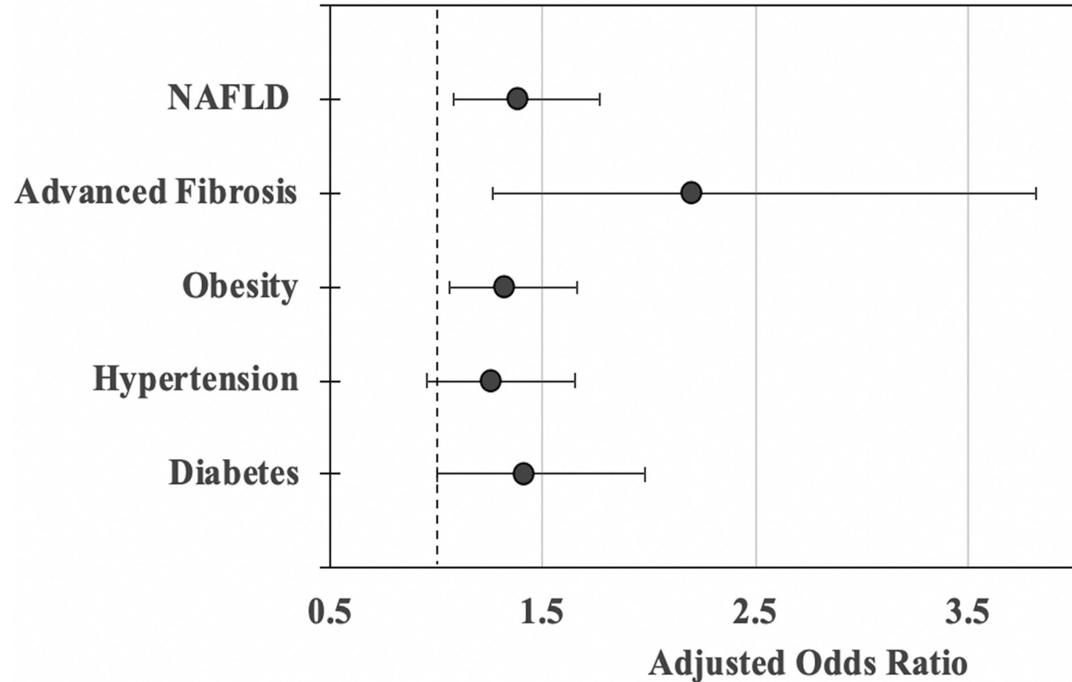
Population: Incident cases of hepatocellular carcinoma (HCC) diagnosed 1995-2016

Data set: North American Association of Central Cancer Registries

Key takeaway: Gap between rural and urban HCC incidence trends is **increasing** over time

Zhou and Gainey. *Clin Gastroenterol Hepatol*. 2021.

Food Insecurity Is Associated With NAFLD and Advanced Fibrosis



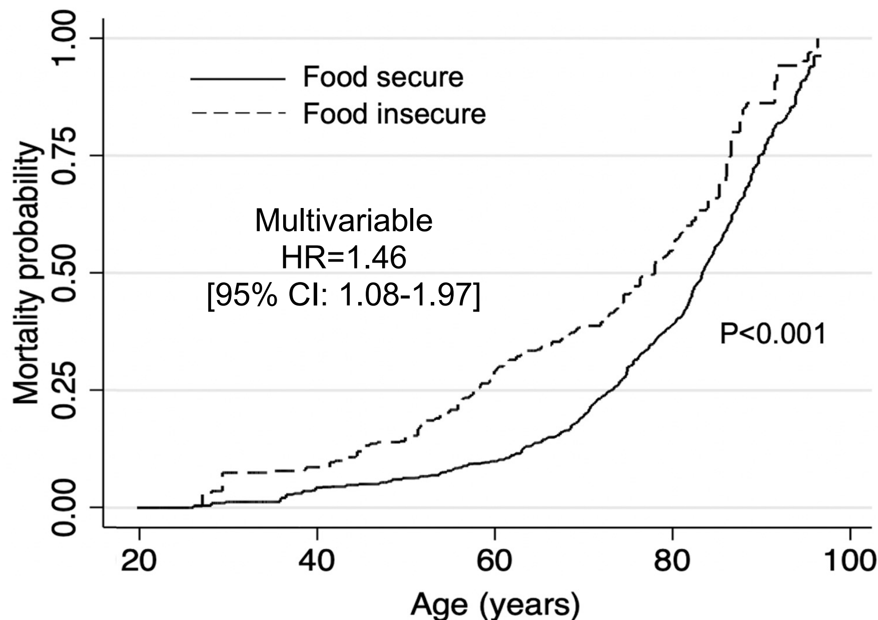
Analysis: Cross-sectional, NHANES 2005-2014

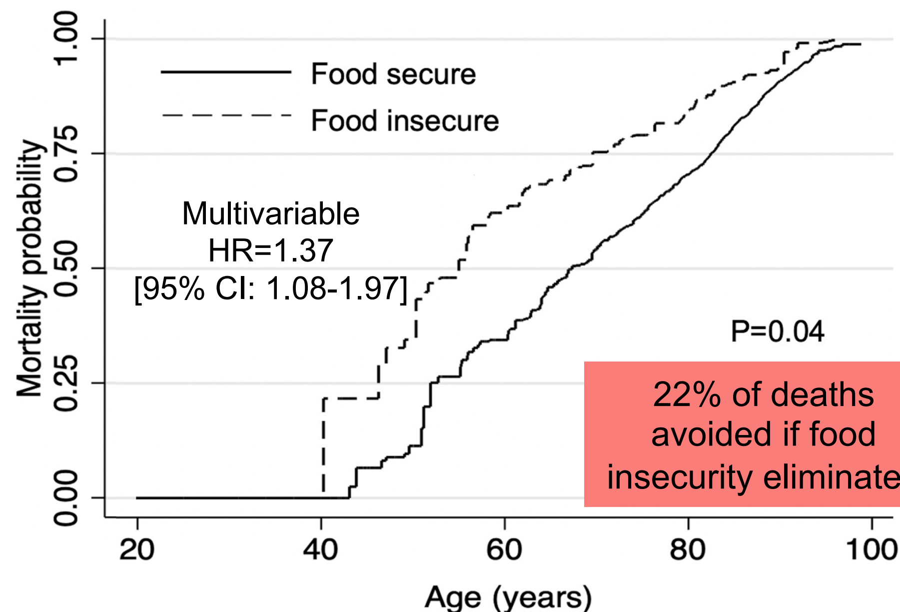
Population: 2627 adults
Median age 43yo, 58% female, 54% white, 29% food insecure

Greater odds of liver disease among food insecure participants	
1.38 (1.08 - 1.77)	2.20 (1.27 - 3.82)
NAFLD	Advanced fibrosis

Golovaty et al. *J Nutrition*. 2019.

Food Insecurity Is Associated With Mortality





Kardashian et al. *Clin Gastro Hep.* 2021.

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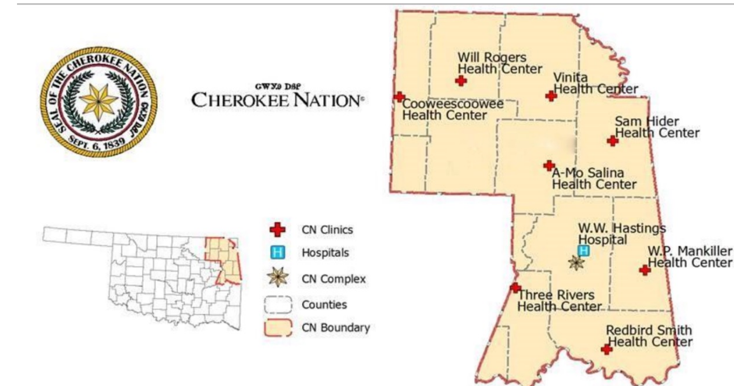
Practical Solutions to Address Disparities

Level of influence	Recommendations
Societal	• Examine impacts of policy changes (ex. remove payer restrictions to HCV treatment; recent changes to the national liver allocation system for liver transplantation) • Engage in advocacy with elected officials through professional societies (AASLD, AGA, ACG)
Community	• Develop relationships with community organizations • Expand access to diagnosis and treatment by meeting patients where they are (ex. ECHO, DeLIVER van for hepatitis C treatment)
Interpersonal or institutional	• Standardize collection of SDOH data from all patients • Prioritize patient-centered care • Develop patient navigation programs for socially disadvantaged groups to access resources (ex. DAAs, liver transplant)
Individual	• Identify and correct implicit biases, focus research efforts on disparities

Cherokee Nation HCV Elimination Program

- 14-county Cherokee Nation reservation in rural Oklahoma serving 132,000 American Indian and Alaska Native individuals
- Cherokee Nation Health Services developed a **comprehensive, community-based HCV elimination program**
- Compared outcomes in screening, linkage to care, treatment, and cure before and after implementation (2012-2015 vs 2015-2017)



Cherokee Nation HCV Elimination Program

CNHS HCV Care Model

Universal Screening
Screened 50,246 patients
All patients aged 20-69

Patient Navigator
Staff contacts HCV+ individuals and arranges follow-up testing and evaluation

HCV Evaluation and Non-Adherence Risk Assessment
Nurse, BH counselor, HCV provider, case manager, pharmacist, community health worker
DAA procured and MAT started, if needed

HCV Treatment
All patients offered treatment

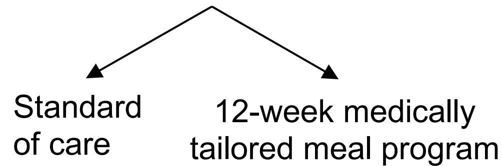
Community Health Worker
Home visits for patients at high risk of non-adherence

In less than 2 years

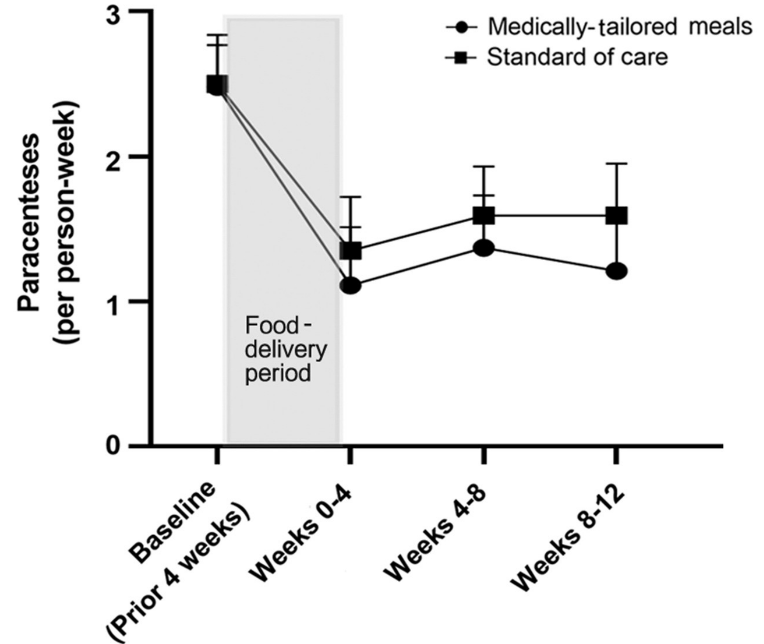
- 85% achieved HCV cure
- 84% linkage to care
- 44% screening
- 59% treatment initiation

Another Example of a Community-Provider Partnership in Cirrhosis Care

- SALTYFOOD trial of medically-tailored meal program for decompensated cirrhosis pts
- 40 cirrhosis patients with ascites



- Partnership with Mom's Meals Nourish Care



Tapper EB et al. *Gastroenterol Rep.* 2020.

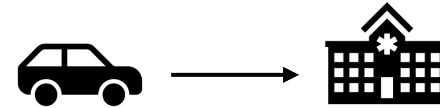
Pilot RCT of a Need-Based Transportation Assistance Program in Liver Transplant Candidates

Phase 1: 219 LT candidates surveyed regarding transportation barriers

→ **1 in 4** reported at least one barrier

	Barriers	No Barriers
Foreign-born	82.4%	53.6%
Non-US citizens	58.8%	27.3%
Medicaid-insured	54.0%	44.9%
Unsteady living situation	28.0%	10.2%
Food insecurity	54.9%	15.6%
Evaluation time	**151 days**	**134 days**

Phase 2: Transportation Intervention



Keck Medical Center of USC

Rideshare-supported transportation to **any** medical visit (labs, procedures, imaging, clinic, admission, etc) during the **liver transplant evaluation** period

Chahine, Zhou. AASLD 2023.

Achieving Health Equity in Your Everyday Practice

Researchers

- Collect data on SDOH from all patients
- Apply for research funding using preliminary data from your population's specific barriers to achieving health equity
- Collaborate with health equity experts

Clinicians

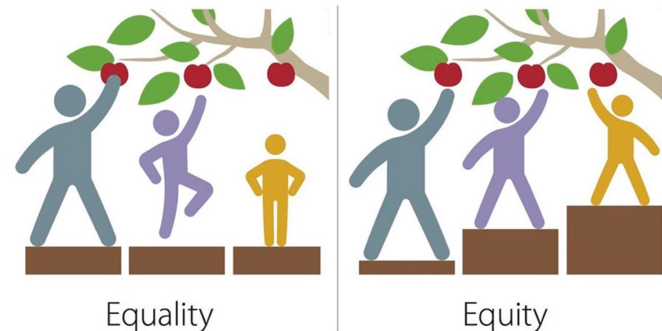
- Recognize your own biases
- Assess for your patient's social needs and refer to appropriate services (social work, case managers)

Educators

- Promote implicit bias and anti-racism training in medical school, residency, and fellowship
- Advocate to increase representation of underrepresented minority physicians

Summary and Key Takeaways

- Health begins upstream of disease risk factors with social determinants of health
- Equality $\neq$ equity
- Policies and laws, place, and unmet social needs contribute to disparities in liver disease incidence and outcomes
- Eliminating disparities and achieving equity requires customized interventions at the society, community, institutional, and individual levels of influence
- We can all do our part in our own practices



Thank You!