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UHERO

THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

# Maui Wildfire Exposure Study & HO'ĀLA Model for Maui



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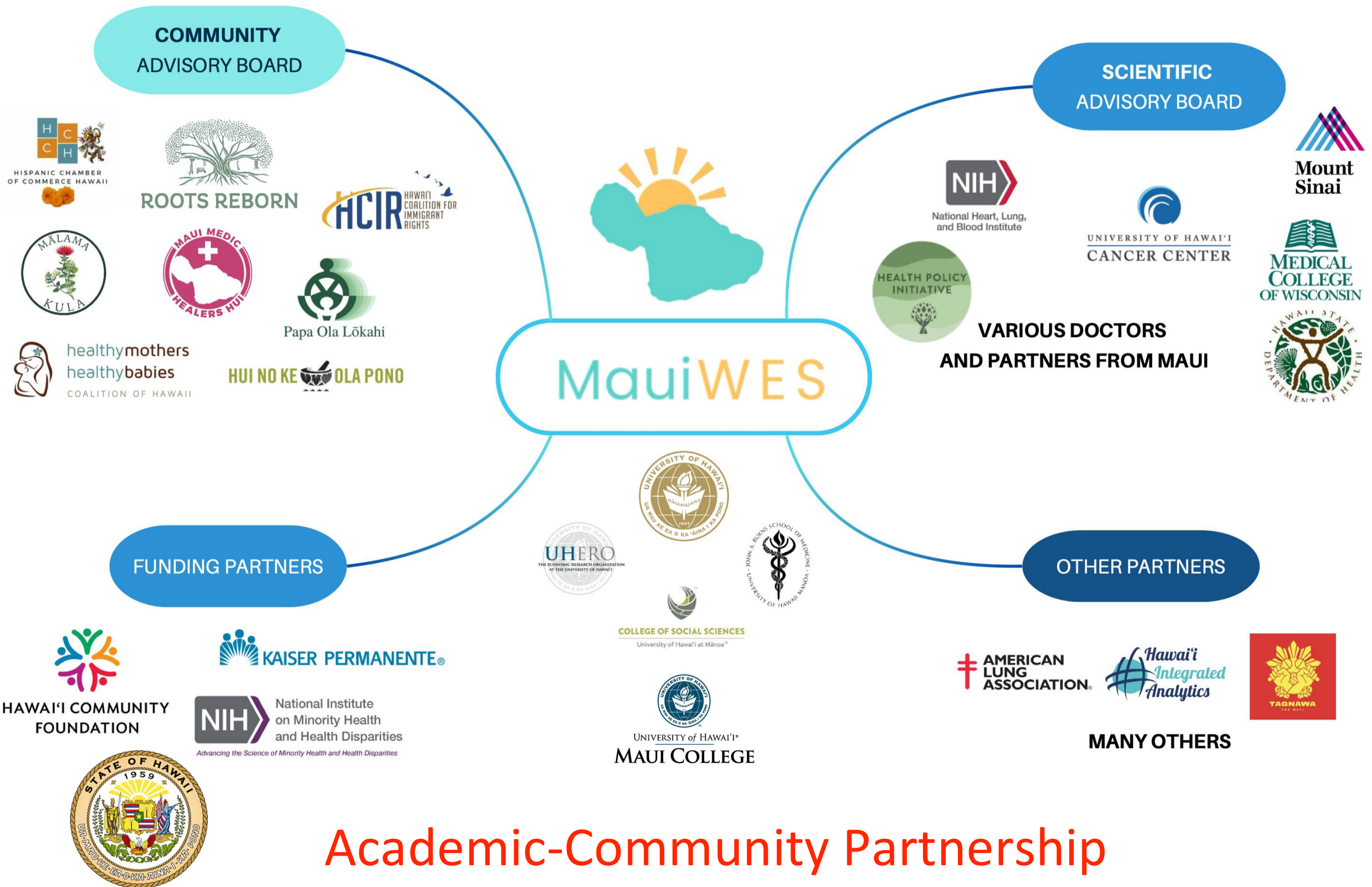
Christopher Knightsbridge, PsyD

MauiWES

State of Hawaii & NIH R61MD019793

[MauiWES.org](http://MauiWES.org)

# Maui Wildfire Exposure Study (MauiWES) - Team



Academic-Community Partnership



JOHN A. BURNS SCHOOL of MEDICINE

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# Survey, Biomonitoring, and Health Screening

## Data Components

### Questionnaires

- Demographics
- Housing Stability
- Food Security
- Employment
- Exposure
- Resiliency
- Social Support
- Health Behaviors
- Perceived Trust
- Etc...

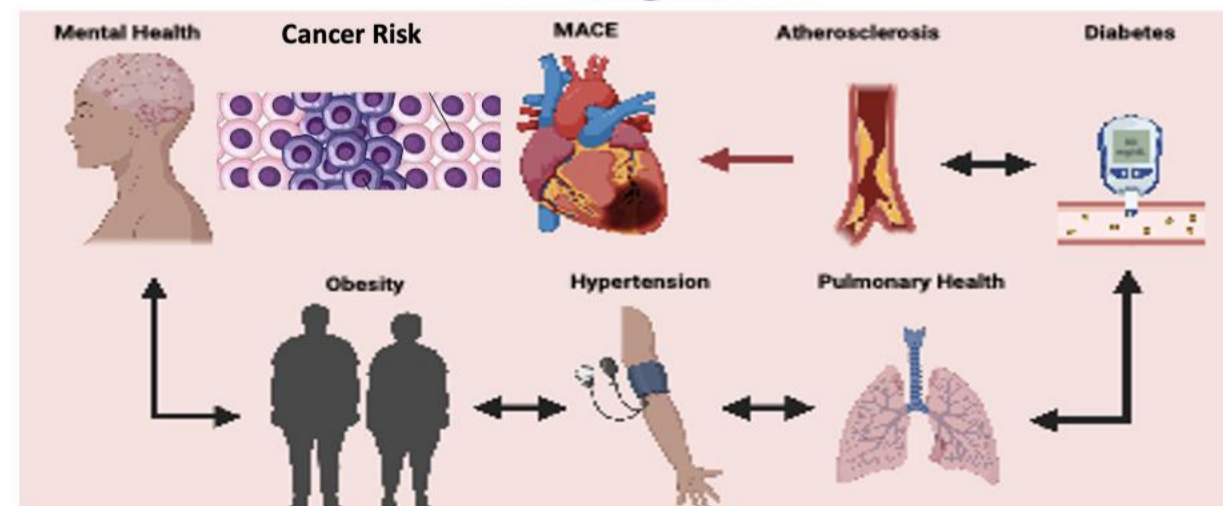
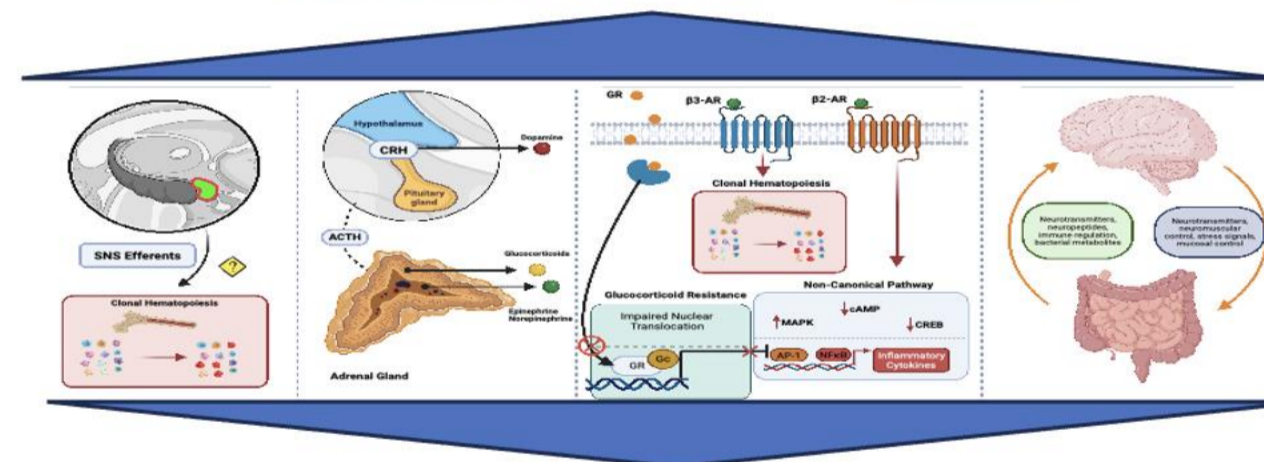
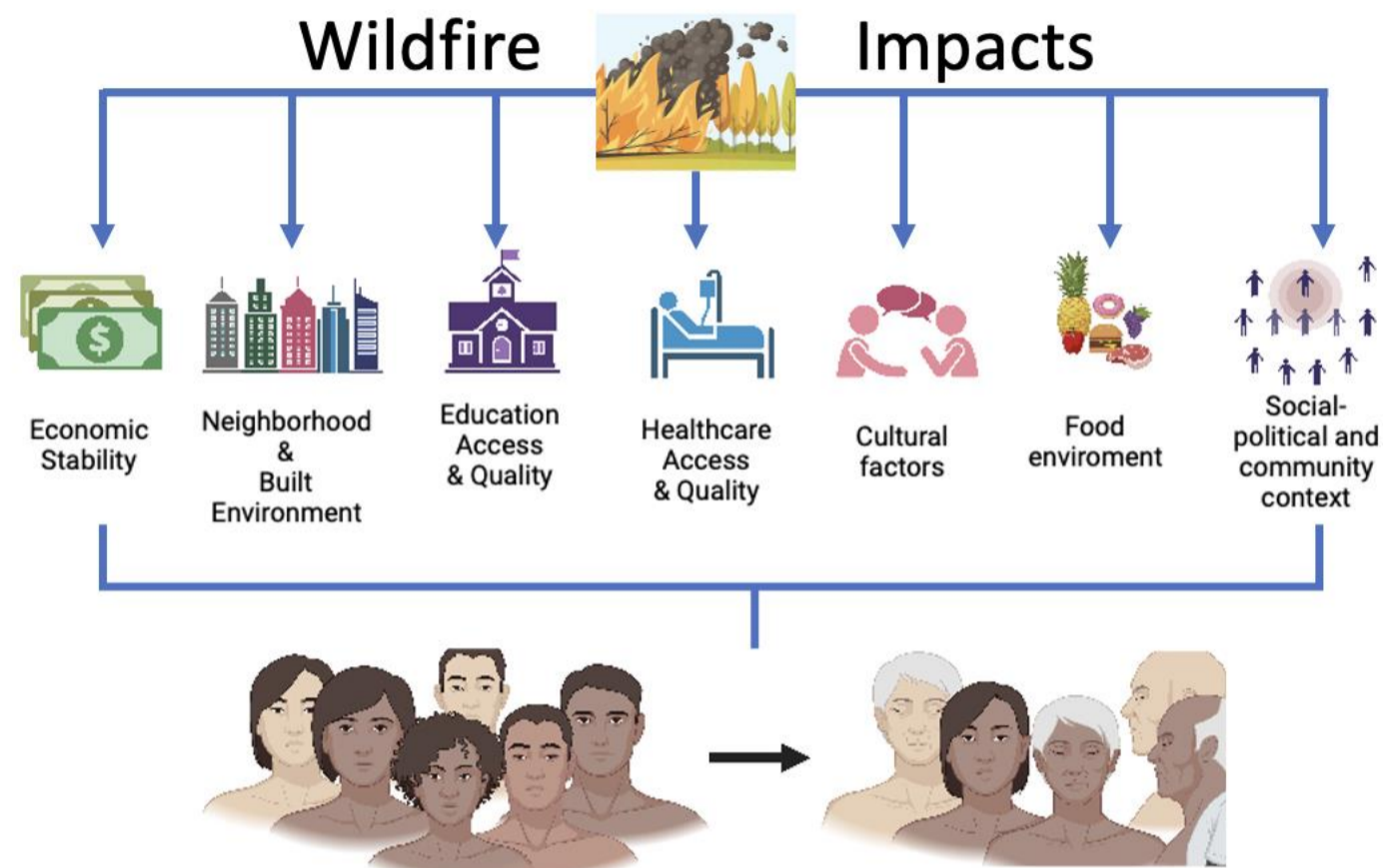
### Biospecimens

- Stress Response
- Inflammation
- Environmental Toxicants

### Health Exam

- Lung Health
- Cardiovascular Health
- Metabolic Health
- Mental Health
- Cancer Risk (EMR)

## Participant Involvement



Jan. 2024 – Jan. 2025: First health screen since fires for many.

Cohort size: 2000+ adults and children (10-17 y/o).



# Comprehensive Screening based in Lahaina, Wailuku, and had various Mobile Clinics in Kihei & Kula



# From Response to Commitment

**2,000+**

People served in Year 1

Maui residents affected by the 2023 fires

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**1,200+ Returned in Year 2**

A signal of trust, need, and sustained impact

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**Year 3 begins later this month, and we  
are seeking to expand services to 3,000 people**



# Health Impacts 6–18 Months After the Maui Wildfires



## Overall Health Decline

46% report worse health than before the fire



## Mental Health

1 in 5 PTSD • 1 in 2 depression  
• 1 in 4 anxiety



## Lung Function

25% reduced FEV<sub>1</sub>; steepest declines in burn zone



## Toxic Exposures

Antimony >10× • Mn 5× •  
Arsenic ~3× vs NHANES

**Juarez & Maunakea et al, JAMA Network Open 2025 & other reports available at MauiWES.org**

# Who Suffers the Most?

Inequity — Not Exposure Alone — Predicts Health Outcomes



## Housing Displacement

- 1.45× more likely anxiety
- 1.20× more likely depression
- >60% of harm mediated by housing + income loss



## Income Loss

- 1.6× more likely depression
- 1.8× more likely anxiety
- Major driver of long-term distress



## Poverty

- ~33% moderate/severe anxiety
  - 6% suicidal ideation
- 1.3x more likely lung issues



## Geography & Access

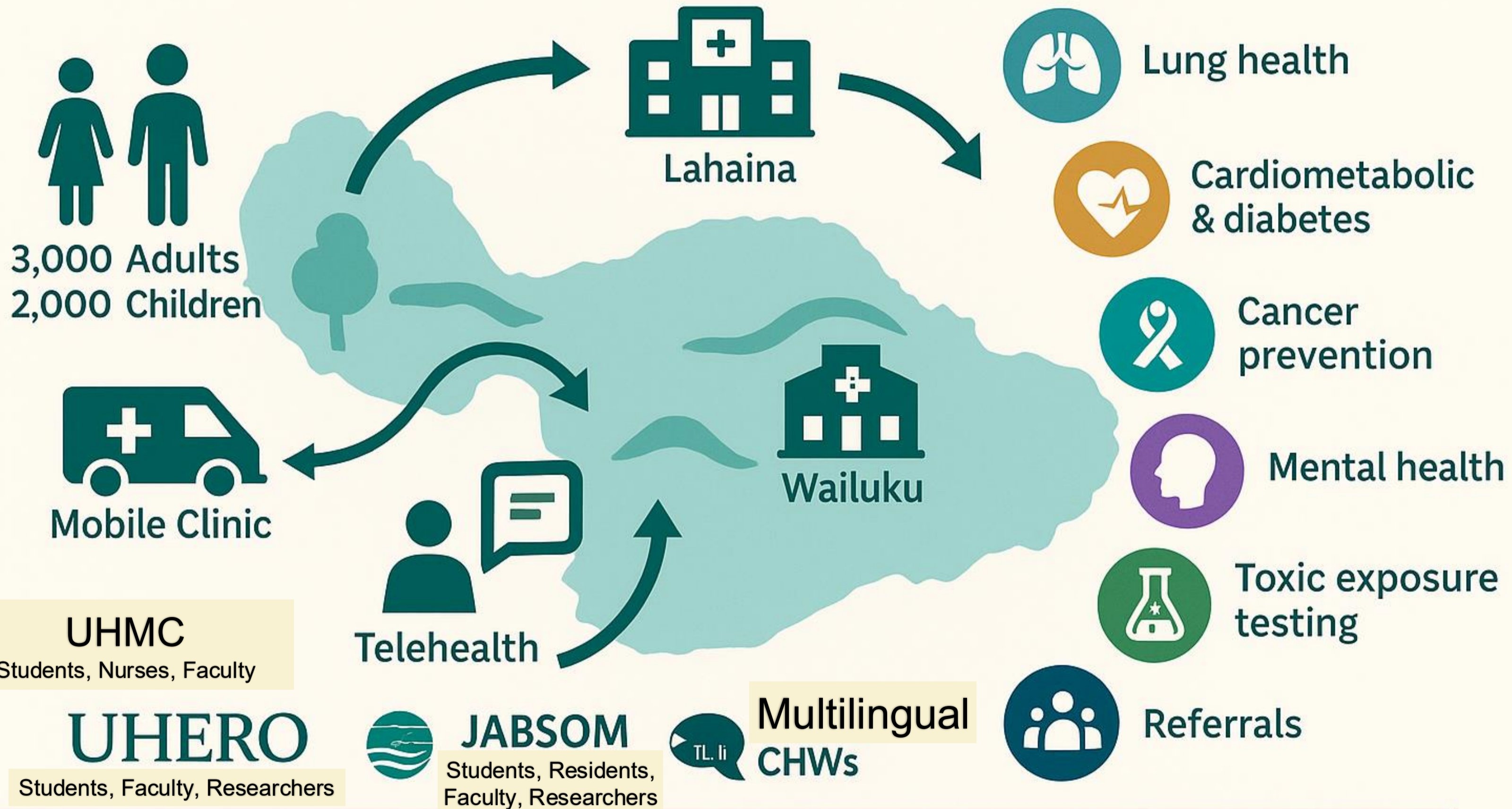
Lahaina and Kula: closest to the burn zone and farthest from care:  
10% severe depression (Maui's highest)  
14% severe anxiety (≈2× Kihei/Wailuku)  
PTSD levels about 2× higher than Kihei/Wailuku

**If we only focus on exposure, we miss half the story.  
The real disaster is the inequity that shaped every outcome.**

# Health Outreach & 'Āina-based Lifecourse Alliance (HO'ĀIA)



“Launching first on Maui to serve Lahaina and Upcountry.”



## Maui's First Permanent Rural Prevention System

Meeting urgent recovery needs while preparing for future disasters.

# Appreciate WASSP Support

## **1** Support SB2969

### **Hearing Today at 1:00 PM**

Enables the first step of the Year 3 expansion & sustains care for wildfire-impacted families

## **2** Submit Testimony & Consider Co-Funding Expansion

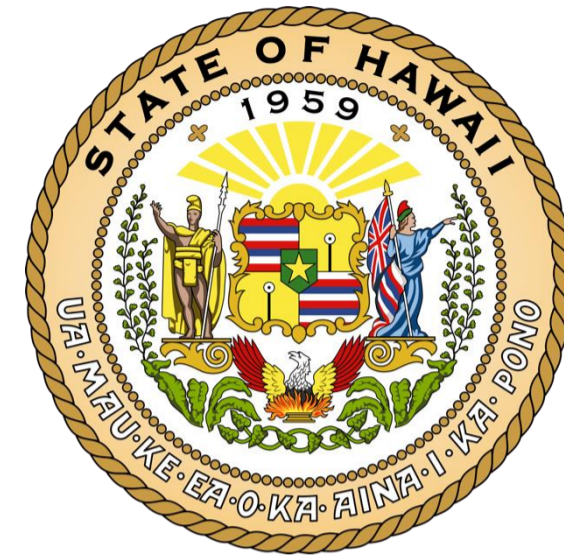
Your partnership turns a study into long-term recovery infrastructure

**This is the moment to move from response  
to sustained recovery**

*2,000+ served • 1,200+ returned • Year 3 launching this month*



# Mahalo to Our Partners and Funders



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## WASSP Committee

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**From:** Ruben Juarez <rubenj@hawaii.edu>  
**Sent:** Sunday, February 8, 2026 12:39 PM  
**To:** WASSP Committee  
**Cc:** Clarissa L. MacDonald; Christopher Knightsbridge  
**Subject:** Slides for WASSP Committee Meeting 2/9/25  
**Attachments:** MauiWES\_HOALA\_Model2025\_WASSP.pdf; MauiWES\_HOALA\_Model2025\_WASSP.pdf

Aloha,

See the slides for the meeting tomorrow (if still going online) or later.

Mahalo, Ruben

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