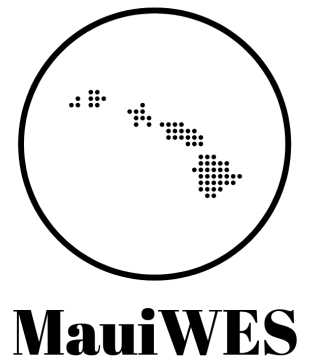




# Maui Wildfire Exposure Study

[www.MAUIWES.info](http://www.MAUIWES.info)



**Ruben Juarez, Ph.D.**  
HMSA Endowed Professor  
UHERO & Economics Dept.  
Health Policy Initiative, CSS  
UH- Manoa

**Alika Maunakea, Ph.D.**  
Professor, John A. Burns School of Medicine  
Director, Epigenomics Research Program  
Dept. Anatomy, Biochemistry, & Physiology  
UH- Manoa





Pacific Alliance Against COVID-19 recruited over 30,000 participants and performed over 50,000 COVID tests during the pandemic in partnership with several FQHCs and Schools  
[www.PAAC.info](http://www.PAAC.info)



Over 2000 state of Hawaii residents are enrolled in biannual cohort to understand social determinants of health and be ready for the next disaster  
[www.uhero.hawaii.edu](http://www.uhero.hawaii.edu)

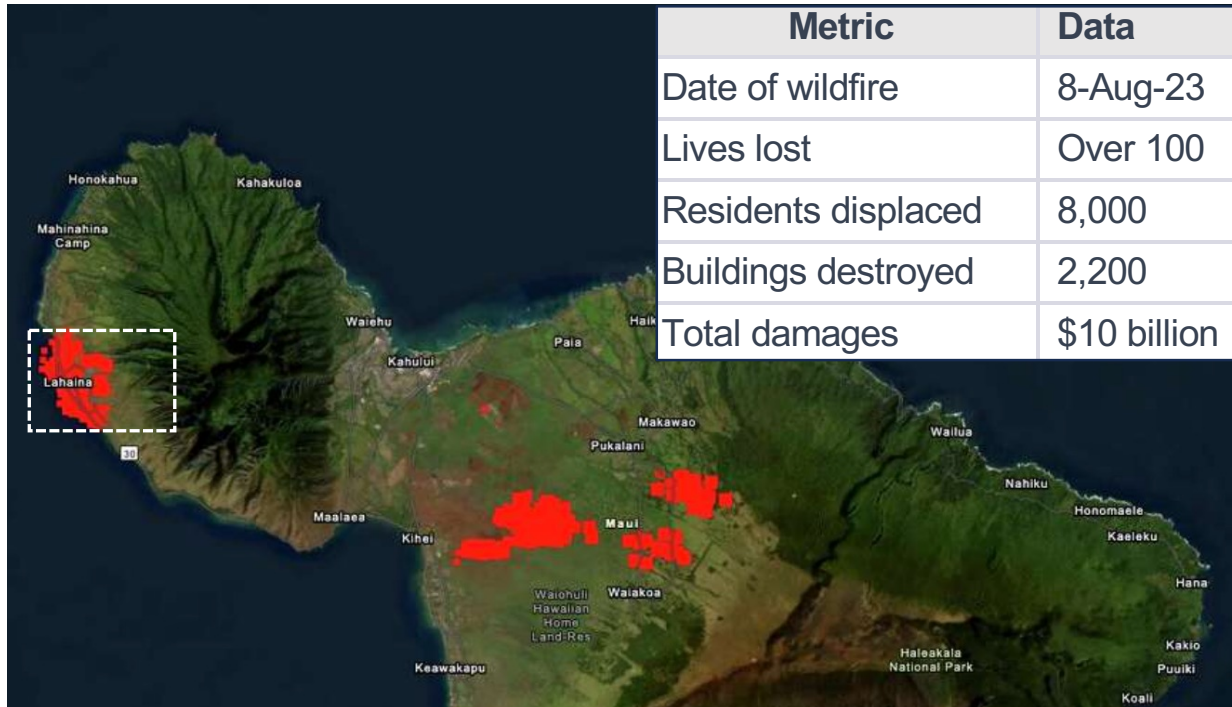


Hawai'i Social Epigenomics Early Diabetes Cohort

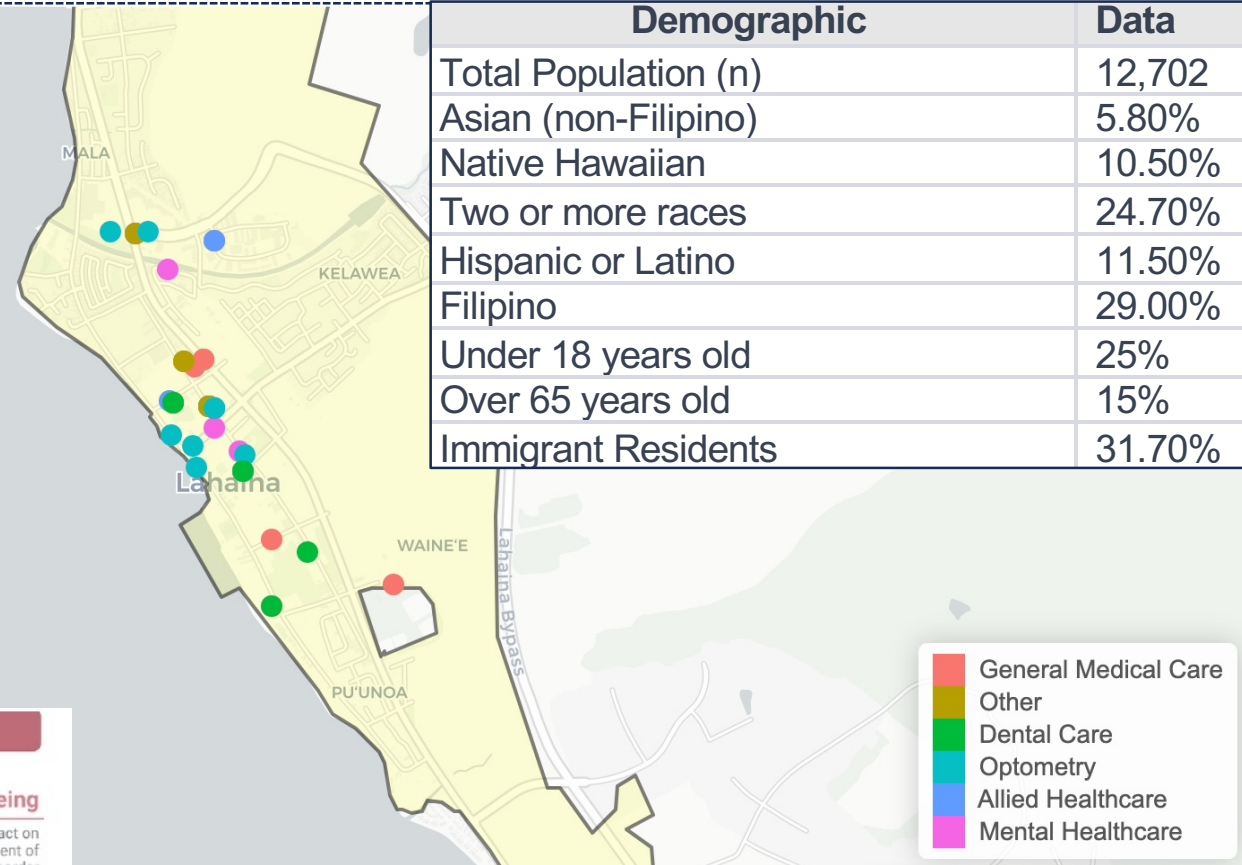
2100 residents, primarily Native Hawaiian and Pacific Islanders are enrolled to understand the early origins of diabetes  
[www.hiseed.org](http://www.hiseed.org)

*Juarez and Maunakea led several cohort studies totaling more than 50,000 participants in Hawai'i using community-based participatory research.*

# The Maui Wildfire Impacts



Metric	Data
Date of wildfire	8-Aug-23
Lives lost	Over 100
Residents displaced	8,000
Buildings destroyed	2,200
Total damages	\$10 billion



Demographic	Data
Total Population (n)	12,702
Asian (non-Filipino)	5.80%
Native Hawaiian	10.50%
Two or more races	24.70%
Hispanic or Latino	11.50%
Filipino	29.00%
Under 18 years old	25%
Over 65 years old	15%
Immigrant Residents	31.70%

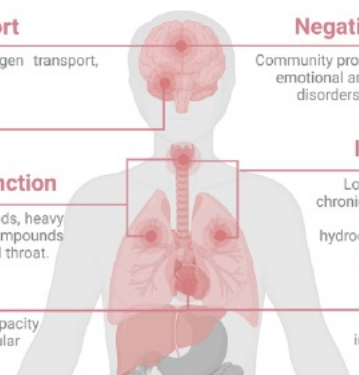
## Short to Mid-Term Effects of Exposure

**Headaches, dizziness, reduced O<sub>2</sub> transport**  
 Smoke pollutants (including CO and CO<sub>2</sub>) can reduce oxygen transport, causing symptoms of oxygen deprivation.

**Eye irritation and vision complications**  
 Fine particulate matter can directly irritate the eyes.

**Respiratory irritation and reduced lung function**  
 Fine particulate matter (PM2.5) can include inorganic compounds, heavy metals, etc, gases (CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>2</sub>, etc), volatile organic compounds (aldehydes, benzene, etc), and other pollutants irritate lungs and throat.

**Cardiovascular stress and complications**  
 Smoke pollutants (including CO) can reduce oxygen-carrying capacity of blood. Such cardiovascular stressors can lead to cardiovascular complications and exacerbate existing heart conditions.



## Long-Term Effects of Exposure

**Negative impact on psychological health and well-being**  
 Community proximity to and consequences of wildfire events can leave a lasting impact on emotional and psychological well-being. Such an impact can lead to the development of disorders including post-traumatic stress disorder (PTSD), major depressive disorder (MDD), and anxiety, among other negative experiences.

**Increased risk for cancer and respiratory illnesses**  
 Long-term exposure to fine particulate matter can lead to the development of chronic respiratory conditions like chronic obstructive pulmonary disease (COPD), asthma, and bronchitis. Such pollutants may include polycyclic aromatic hydrocarbons (PAHs), which are carcinogenic. Additional physiological stressors can lead to compromised immune functioning, increasing risk for infection.

**Increased risk for heart attack and stroke**  
 Chronic exposure to airborne pollutants can prolong irritation and inflammatory responses. Such long-term stress on cardiovascular pathways can cause hypertension and increase risk for cardiometabolic disorders.

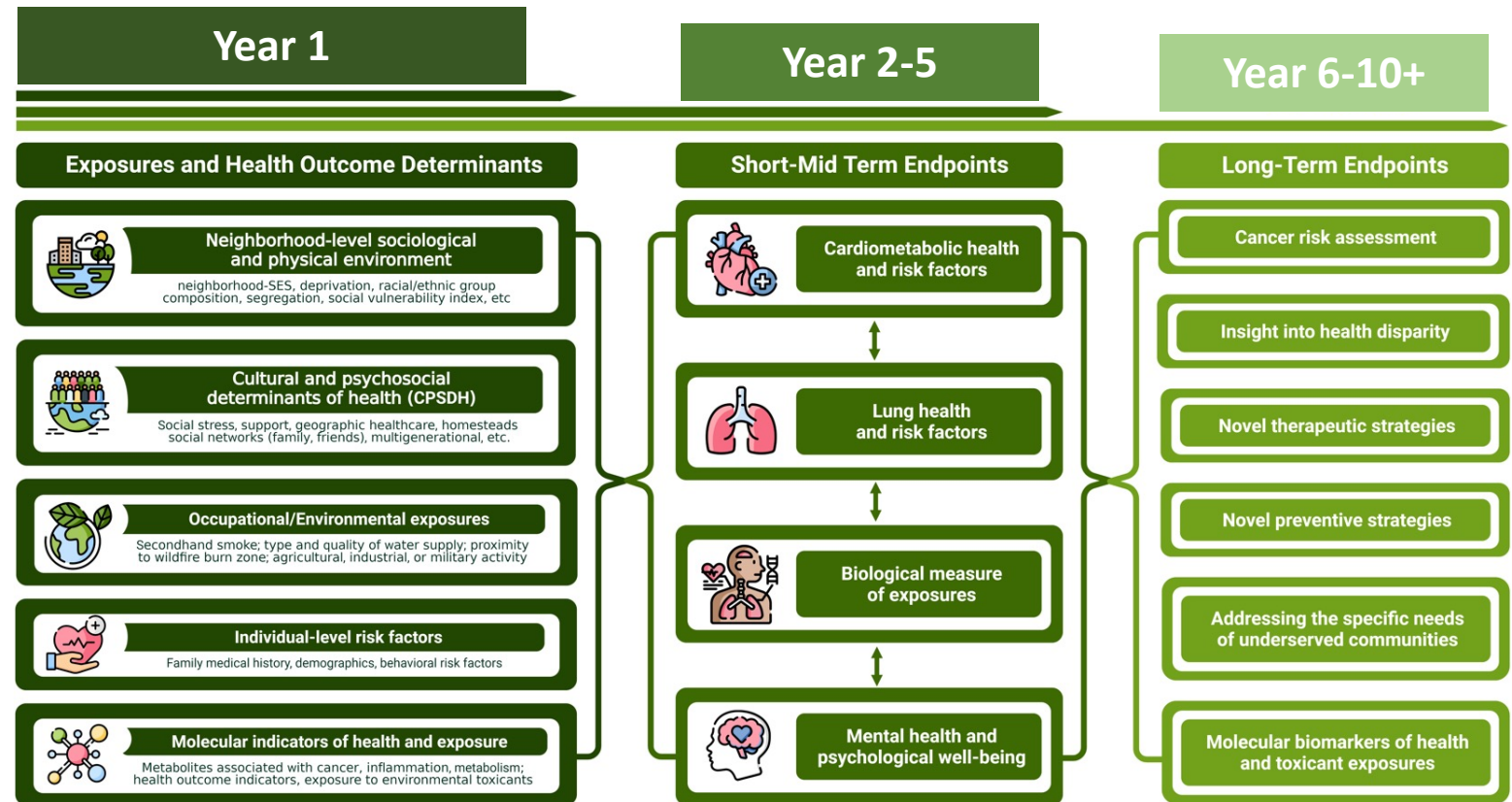


*“Aloha Lahaina”  
 – K. Maunakea  
 Kula born, Haku Mele  
 & Hawaiian Healer*





# Maui Wildfire Exposure Study Cohort



- **Objective:** Establish a cohort of 1,000 adults effected by the wildfires. Our aim is to assess the social and health impacts. This will involve collecting both social and biomedical data, with annual follow-ups with each participant. We anticipate data collection for 10+ years to evaluate long-term impacts contingent on funding.
- **Timeline:** Data gathering will start this weekend January 26-27, 2024

# Comprehensive Survey and Biomonitoring Assessments

## Data Components

### Questionnaires

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

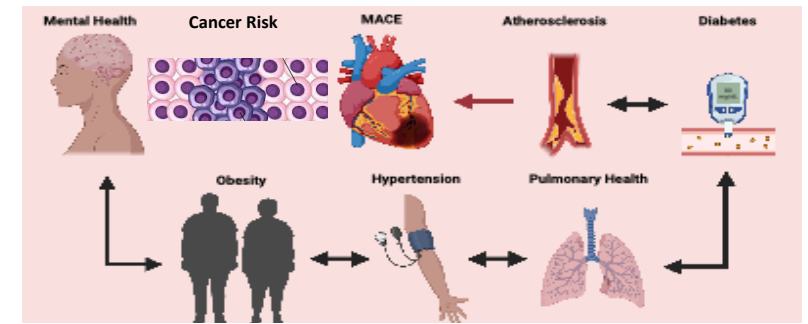
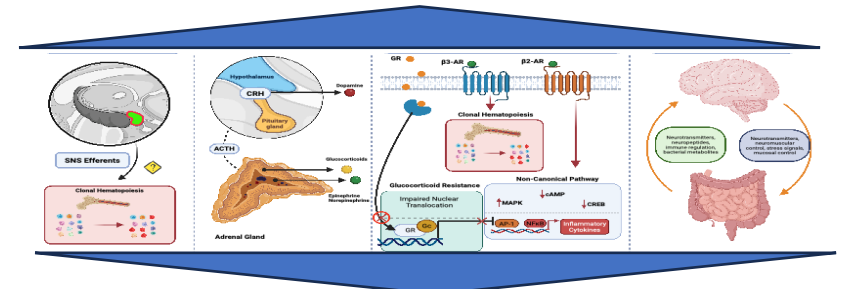
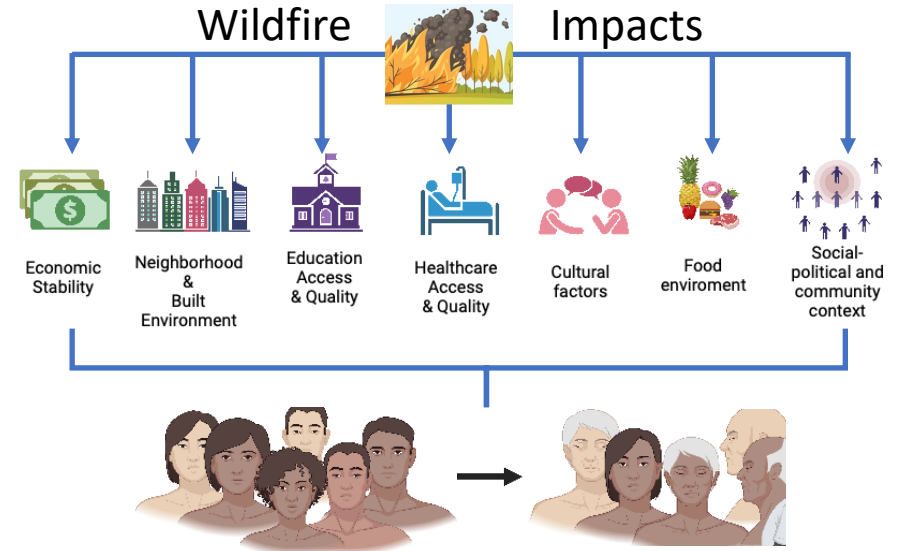
### Biospecimens

- Stress Response
- Inflammation
- Environmental Toxicants

### Health Exam

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

## Participant Involvement

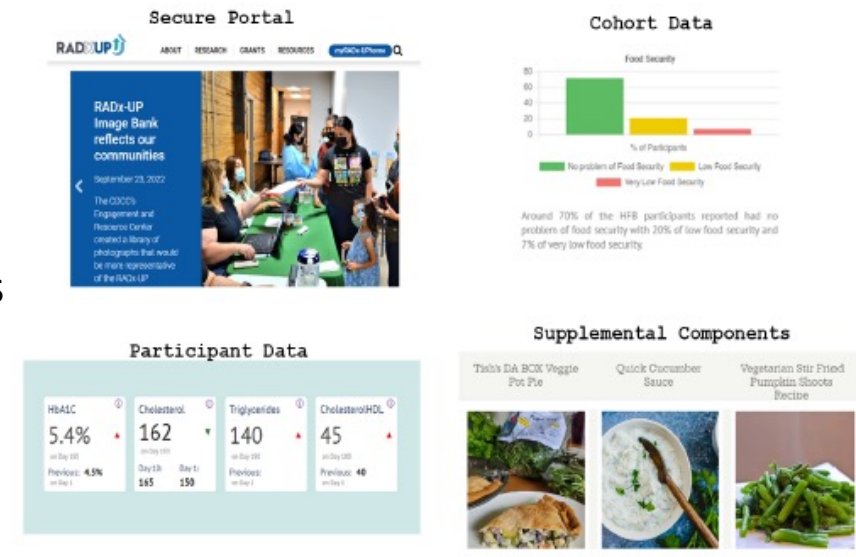


*This is the most comprehensive study to evaluate short- & long-term health to date following a natural disaster in Hawai'i.*

# Immediate Benefits for Community: Rapid Response, Feedback, Connection, Follow-up

## Participant and Community Data Sharing

- Participants are provided with RAPID results for relevant health conditions and some toxicant exposures with more comprehensive tests to be analyzed later
- We will connect participants to their results and at-risk individuals will be referred to relevant services/providers using a *de novo* **Wildfire Exposures Data Dashboard**
- Annual follow-up planned to evaluate changes and reassess community needs
- Transparent and community-engaged data collection and sharing for community
- Sharing data and communication strategies to inform state government agencies, community-based organizations on the ground, medical providers, and health insurers to establish guidelines/practices to mitigate health impacts



*Data Dashboard has been used for several community studies: see [www.hia.llc](http://www.hia.llc) for more information*

# MauiWES.info is Live

The Maui Wildfire Exposure Study

  
The University of Hawai'i

Home | The Study | About us | Contact us

EN ▾

## Monitoring Health and Wellness for Stronger Recovery

A University of Hawaii and Community Partnership to Assess and Enhance Health and Well-being in the Wake of the Maui Wildfires


### Scheduled Events:

- January 26** - J Walter Cameron Auditorium
- January 27, February 2,3** - Royal Lahaina Resort
- February 9,10** - Royal Lahaina Resort

### How can you participate?

To be eligible for the study, you need to meet the following:

1. Age: **18 years or older**
2. Must have **resided or worked** in the affected area by the **Wildfires in Maui in August 2023**
3. Expected to be in Hawaii for **at least five years** and willing to participate **every year**



Once registration opens, please select your appointment time and complete the survey online before your appointment date. Attend our recruitment event at the scheduled location and time. If you qualify and complete the health metrics, you will receive up to **\$100 for your participation.**


### Sign Up Now

Registration is now open!  
Click the link below to register and choose any appointment time available.

[Sign Up](#)

## Needs:

# Resources for Expansion and Long-Term Study

- Cost: ~**\$1,000/Participant/Year** with over 70% returned to community as medical tests, community organizations support, participant incentives
  - Seeking support for **Long-term Sustainability**
  - **Expansion** to include *First Responders* and *Children* based on community requests
- 



For more  
information:  
**MAUIWES.info**

---

Mahalo!

# Community Partners



**MauiWES**



UNIVERSITY OF HAWAII  
CANCER CENTER

Hawai'i Community Foundation

**MAUI  
STRONG  
FUND**



ROOTS REBORN



**COLLEGE OF SOCIAL SCIENCES**

University of Hawai'i at Mānoa



# UHERO

THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAI'I



**COLLEGE OF SOCIAL SCIENCES**

University of Hawai'i at Mānoa<sup>TM</sup>





**ROOTS REBORN**







