# San Francisco Climate Health Program: Indoor Extreme Heat and Wildfire Smoke Interventions

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# SFDPH Climate Health Program

Integrates health equity into Citywide climate mitigation and adaptation programs

Adapts SFDPH programs and services for current and future climate impacts

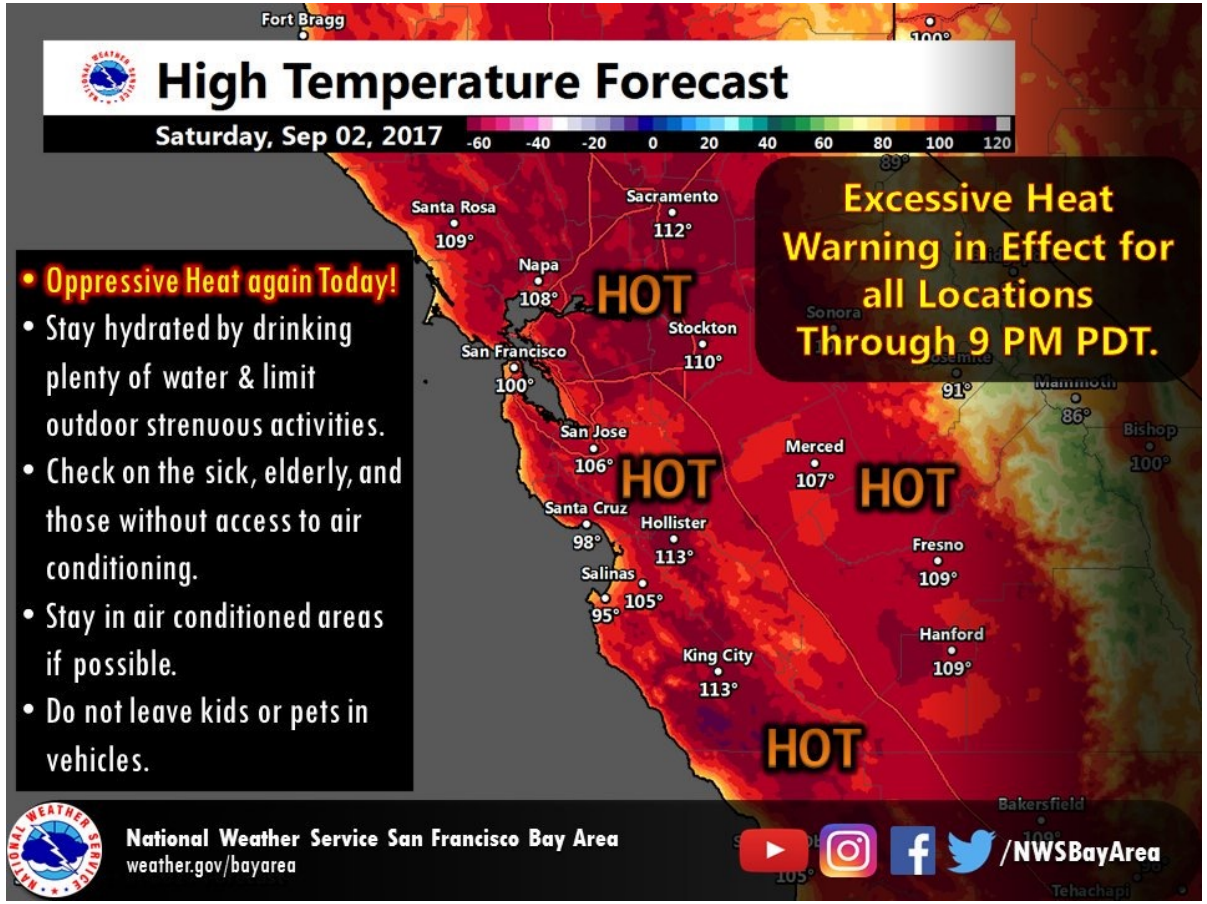
San Francisco Department of Public Health

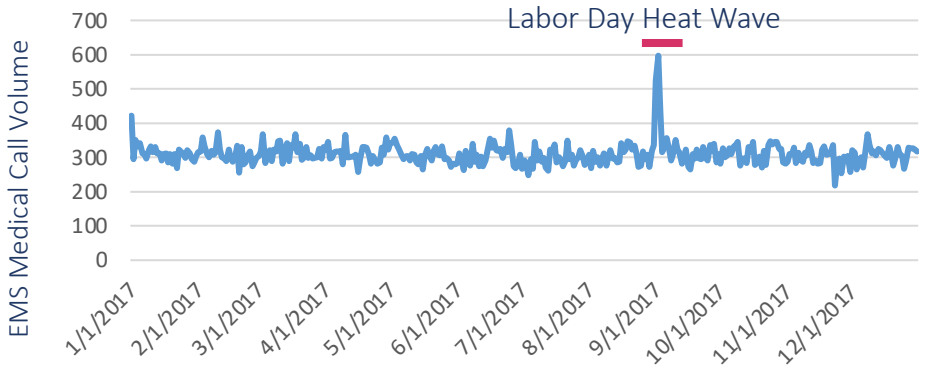
**Website:** https://sf.gov/san-francisco-climate-and-health-program

# San Francisco Heat and Air Quality Resilience Project

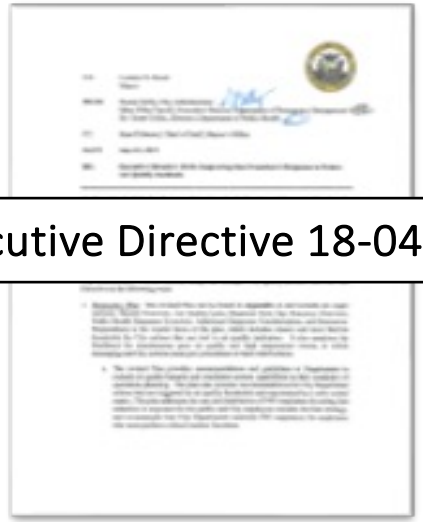
https://www.sf.gov/resource--2024--heat-and-air-quality-resilience-haqr

# 2017 Labor Day Heat Wave




2017



Executive Directive 18-04

"During the heat wave, 16,166 excess ED visits and 1,182 excess hospitalizations occurred statewide. ED visits for heat-related causes increased across the state [RR = 6.30; 95% confidence interval (CI), 5.67–7.01], especially in the Central Coast region, which includes San Francisco. Children (0–4 years of age) and the elderly (≥ 65 years of age) were at greatest risk. ED visits also showed significant increases for acute renal failure, cardiovascular diseases, diabetes, electrolyte imbalance, and nephritis."

Knowlton K, Rotkin-Ellman M, King G, et al. The 2006 California heat wave: impacts on hospitalizations and emergency department visits. *Environ Health Perspect.* 2009;117(1):61–67. doi:10.1289/ehp.11594

## All Extreme Heat Days (over 85°F)

Based on the Cal-Adapt High (RCP 8.5) modeling scenario.

| Baseline Modeled Days per Year (1961 – 1990) | Mid-Century Projected Days per Year (2035 – 2064) | End-Century Projected Days per Year (2070 – 2099) |
|---|---|---|
| Average 3 | Average 7 | Average 15 |
| Maximum 10 | Maximum 24 | Maximum 51 |

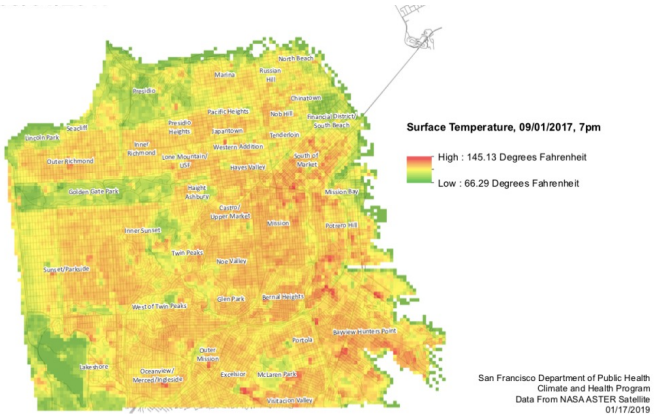
## All Extreme Heat Days (over 95°F)

Based on the Cal-Adapt High (RCP 8.5) modeling scenario.

| Baseline Modeled Days per Year (1961 – 1990) | Mid-Century Projected Days per Year (2035 – 2064) | EndEnd-Century Projected Days per Year (2070 – 2099) |
|---|---|---|
| Average 0 | Average 1 | Average 2 |
| Maximum 1 | Maximum 7 | Maximum 10 |

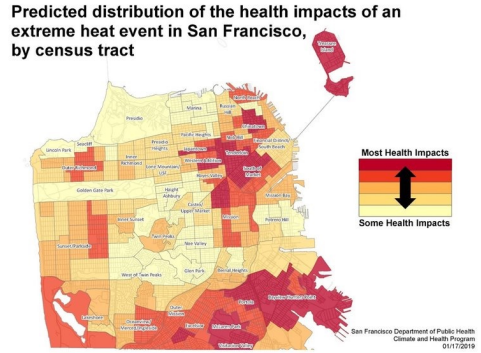
# Vulnerability

## Urban Heat Islands




## Housing Quality


## Heat Vulnerability Index




## Community Vulnerability


san francisco card

01 - Home 02 - About 03 - Services 04 - Current Projects More

### Climate Resiliency Progam

**SF CARD's Climate Resiliency program** started in 2017 with a simple idea. Empower local nonprofit and faith organizations staff to activate and operate a heat relief center for their clients. The reason for developing this program was because of lessons learned from past heat waves, like the one that devastated Chicago in 1995, where over 700 people died within 5 days. Sociological evidence from the Chicago heat wave established that the most vulnerable communities can survive an extreme heat wave event if there is a strong community-based network to lean on. So, with a strong partnership with the San Francisco Neighborhood of Empowerment Network, San Francisco Department of Emergency Management, and San Francisco Department of the Public Health, this heat relief center program was able to receive funding to pilot the program in the Bayview neighborhood. 6 years later, the program is thriving.

## Political Vulnerability

CITY ADMINISTRATOR ONESF Building Our Future

PORT OF SAN FRANCISCO

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

San Francisco Planning

CITY & COUNTY OF SAN FRANCISCO HUMAN SERVICES AGENCY

SFMTA

SF Environment

SAN FRANCISCO RECREATION & PARKS

SAN FRANCISCO PUBLIC WORKS

SAN FRANCISCO DEPARTMENT OF BUILDING INSPECTION

CLIMATE SF

SAN FRANCISCO Office of Economic and Workforce Development

Mayor's Office of Housing and Community Development

DEPARTMENT OF HOMELESSNESS AND SUPPORTIVE HOUSING

## Summary

The Heat and Air Quality Resilience Project (HAQR) is a cross-sectoral initiative to get the public, private,  community, and academic stakeholders together to identify, plan, and implement medium-to-long term extreme heat and wildfire smoke resilience strategies to support short-term emergency response actions.

## High-Level Objectives

1. Centralize extreme heat and air quality resilience planning to foster increased interdepartmental coordination and align objectives, share research, engage stakeholders, identify barriers, and discuss heat and air quality-related issues as they emerge.

2. Facilitate the technical implementation and evaluation of specific extreme heat and air quality-related strategies.

# HAQR Structure

**Oversight**

- Department of Public Health
- Office of Resilience and Capital Planning
- Department of Emergency Management
- San Francisco Environment Department

**Program Management**

- Alex Morrison, ORCP
- Matt Wolff, SFDPH

**Quarterly All Hands Meetings**

Quarterly meetings to bring together community, public, private, and academic partners to build connections, provide program updates, share resources, and identify lessons learned https://www.sf.gov/resource--2024--heat-and-air-quality-resilience-haqr

# HAQR Implementation Plan (2023)


The Heat and Air Quality Implementation Plan represents two years of the Project. This plan establishes a framework to address current local extreme heat and wildfire smoke events will preparing for future ones.

The Heat and Air Quality Implementation Plan strategies are divided into four sections based on Plan goals:

1. **San Francisco's buildings are adapted to reduce exposure to extreme heat and wildfire smoke events.**
2. San Francisco's exterior built and natural environment are adapted to reduce exposure to extreme heat and poor air quality.
3. San Francisco is made more resilient through equitable emergency preparedness, response, and resilience actions.
4. San Francisco is resilient through City services that can predict and adapt to climate-related stressors.

# Community Stakeholder Survey

https://clear.ucsf.edu/community-partnered-research-pcori

PRISE Center

UCSF
University of California
San Francisco

SF.GOV

# Climate Survey Final Results


Coalition on Homelessness

Rafiki COALITION

Leaders4E.A.R.T.H.

NICOS Chinese Health Coalition (華人健康組織聯會)

# CLIMATE SURVEY RESULTS OVERVIEW

Between **January 18** and **July 12, 2023**, four (4) organizations participated in survey recruitment in San Francisco, CA.

| Organization | Target Populations | # of surveys | % surveys fully complete |
|---|---|---|---|
| **NICOS** | Limited English-speaking adults | 252 | 99.6% |
| **Rafiki** | Older adults; persons with disabilities and/or chronic mobility issues | 38 | 88.4% |
| **Leaders4EARTH** | Youth and young adults | 142 | 94.7% |
| **COH** | Single unhoused or marginally housed adults | 110 | 96.5% |
| **TOTAL** | | **547** | **96.8%** |

# DEMOGRAPHICS - HOUSING TYPE

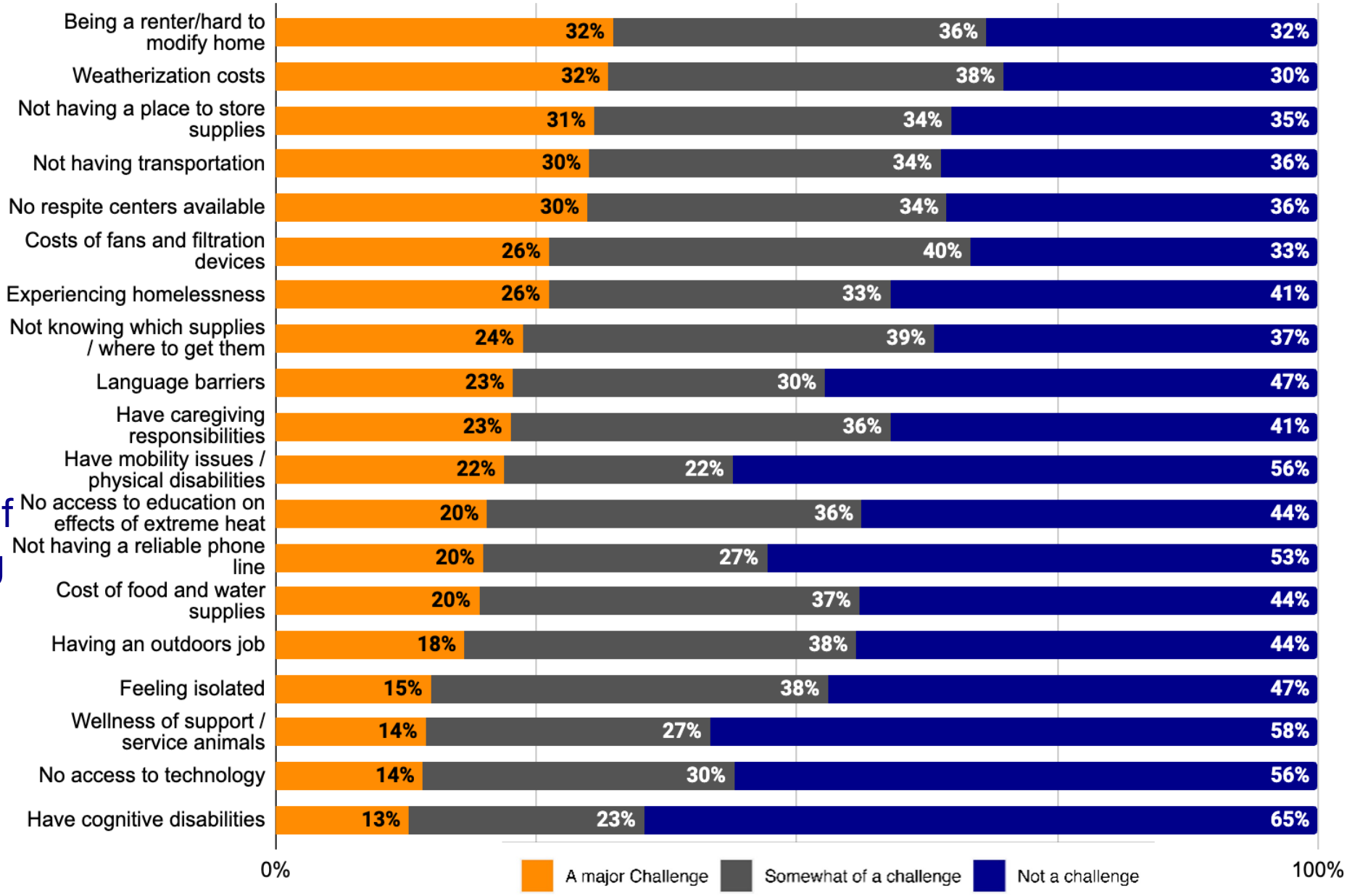
| | Housing Type | | | | | | Crowding |
|---|---|---|---|---|---|---|---|
| | Single Family Home | Condo/ Apt | Section 8/ Public Housing | Rent/ Share room | SRO/ Hotel | Experiencing homelessness | >1 person per room |
| | | | | | | | |
| **NICOS (n = 246)** | 19% | 24% | 5% | 41% | 11% | 0 | 77% |
| **Rafiki (n = 38)** | 53% | 21% | 24% | 3% | 0 | 0 | 14% |
| **Leaders4EARTH (n = 142)** | 30% | 54% | 6% | 9% | 1% | 1% | 61% |
| **COH (n = 91)** | 11% | 2% | 4% | 9% | 18% | 56% | 35% |
| | | | | | | | |
| **All participants (n = 522)** | 24% | 28% | 6% | 23% | 9% | 10% | 62% |
| **Priority neighborhoods** | 15% | * | * | * | * | * | * |

# CHALLENGES: EXTREME HEAT

## Challenges During Extreme Heat Events

(n=234)

The underlying **commonality to challenges** to preparing was **cost-driven** – whether it be the price of weatherization or buying appliances to being renters / experiencing housing instability

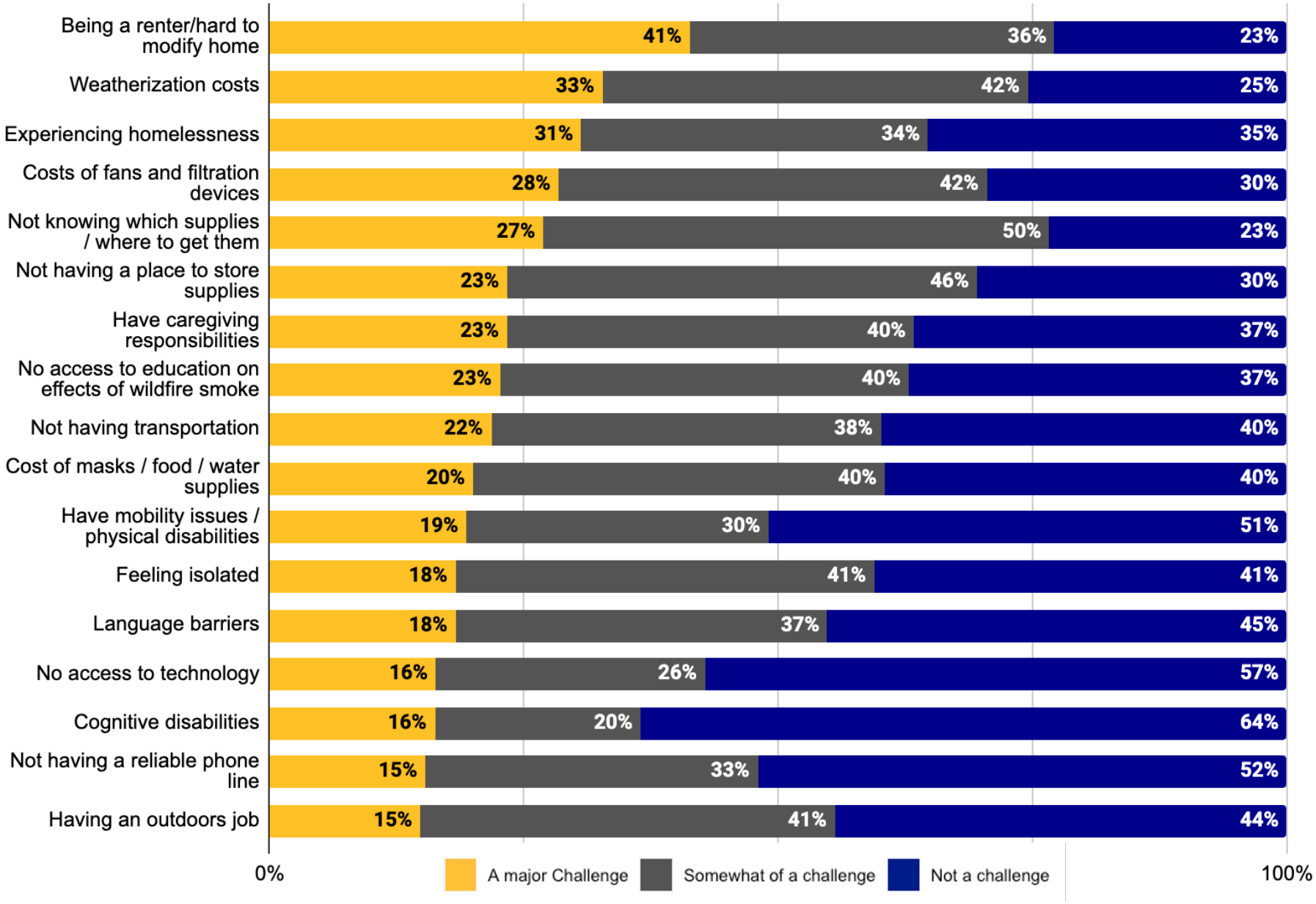


# CHALLENGES: WILDFIRE SMOKE

## Challenges During Wildfire Smoke Events

(n=232)

Participants felt that the same challenges of preparing for extreme heat events applied to wildfire smoke events – costs of home modification/weatherization/appliances ranked as the most common challenges.



# Interventions to Address Heat and Wildfire Smoke

https://clear.ucsf.edu/community-partnered-research-pcori

# How do we layer services?

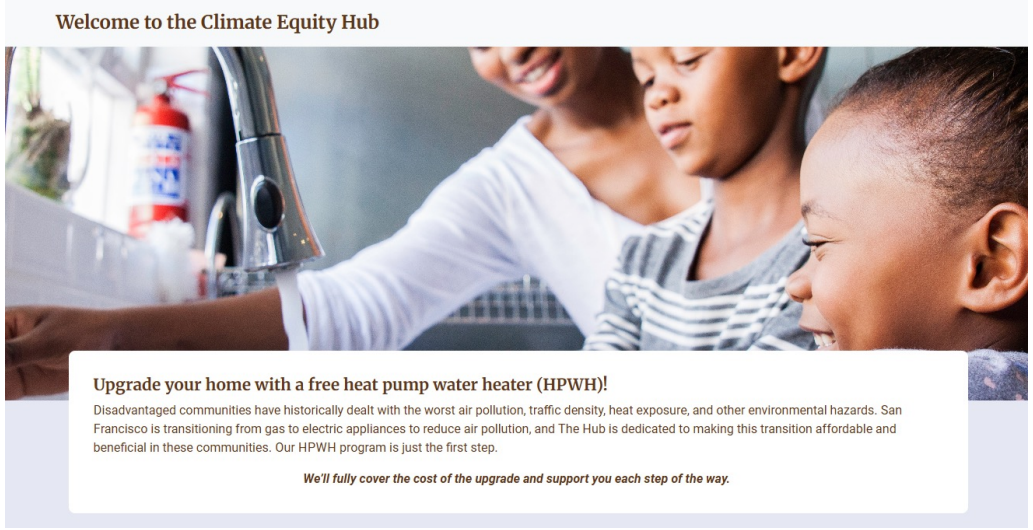
**Potential Applicable Weatherization Retrofits**

- Duct Sealing or Replacement
- Air Sealing
- Air Conditioning
- Insulation
- Fixing or replacing windows
- Installing, replacing, or repairing heating and air conditioning

**Examples of Asthma Remediation Services**

- **Ventilation improvements**
- **Air Purifier**
- De-humidifier
- HEPA filtered vacuums
- Pest control
- Minor mold removal and remediation services
- Asthma-friendly cleaning products/supplies
- Mattress covers/dust covers
- Carpet replacement
- Other moisture-controlling interventions

# How do we layer services?




UCSF Pediatrics at ZSFG
Department of Pediatrics

Pediatric Asthma and Allergy Clinic

# Home Health Adaptation Project

## Description

The Home Health Adaptation Project is a research and facilitation initiative to (1) better understand the San Francisco programs that provide home health adaptation services, and (2) identify opportunities to increase collaboration between these programs.

## Objectives

Improve how existing healthy home adaptation services address climate-related health impacts by:

- **Increasing collaboration** between the different City departments planning, funding, or implementing healthy home adaptation services.
- Exploring opportunities to **increase efficiency** in the provision of these services through building referral pathways between departments, aligning intake and case management systems, layering resources, and collaboratively applying for grants and other funding sources to scale programs.

# Deliverables

- **Background Research 'Needs Document'** – covering (1) health benefits of home health adaptations, (2) climate adaptation benefits of home health adaptations, (3) political support for these home health adaptations in Citywide plans and policy documents, (4) community feedback about accessing services in San Francisco.

- **Best Practices Memo** – a review of local and national best practices for coordinating between in-home adaptation services.

- **Cross-Departmental Workflow Diagram** – mapping the different City and community agencies responsible for funding, outreach and intake, case management, assessment, and interventions, including documenting each program's requirements and restrictions.

- **Policy Proposal** – following a facilitated conversation among stakeholders' recommendations.

- **Draft Grant Application** – Seek funding sources and draft a grant application for pilot funding.

# Thank you!

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