

# Using Systems Science to Advance Health Equity in Tobacco Control

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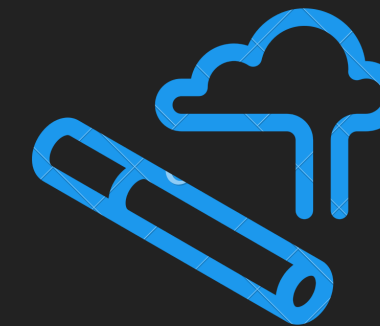
# Tobacco use is the leading cause of preventable death in the United States



**34 million**  
US adults smoke  
cigarettes



**3.6 million**  
US middle and  
high school  
students use  
tobacco products



**58 million**  
nonsmoking  
Americans are  
exposed to  
secondhand smoke



**\$170 billion**  
is spent each year  
to treat smoking-  
related diseases

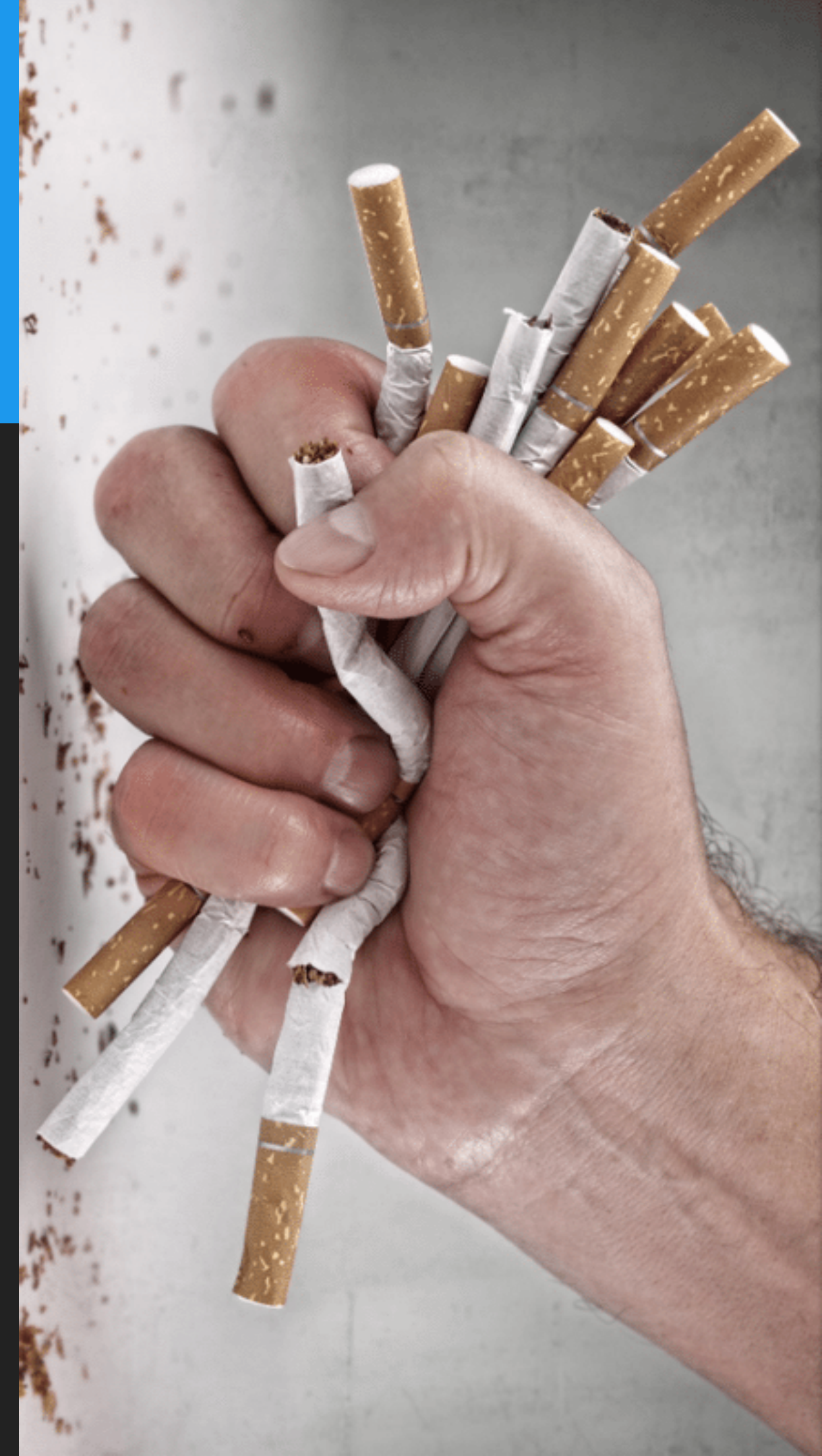


At a population level, smoking  
in the United States is  
declining

SMOKING PREVALENCE  
DECLINED BY

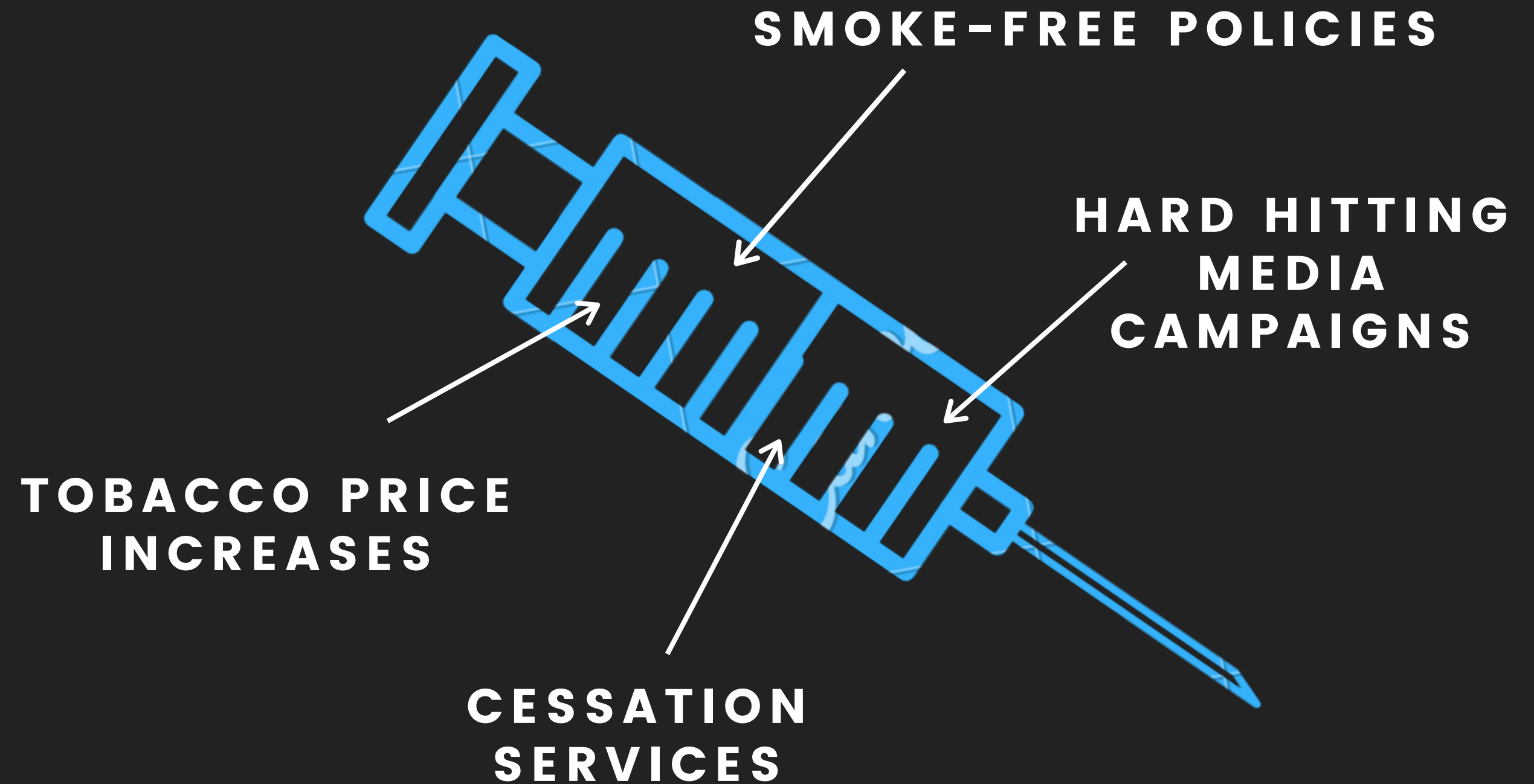
**50%**

FROM 1965 TO 2015



# The Tobacco Control Vaccine

There are evidence-based tobacco control interventions that are effective in reducing population-level smoking rates



# However, stark disparities continue to exist across segments of the population

SMOKING RATES ARE

**2x**

HIGHER FOR PEOPLE LIVING BELOW THE  
POVERTY LINE

**43% vs. 27%**

PREVALENCE OF TOBACCO USE IN  
AMERICAN INDIAN/ALASKA NATIVES VS.  
OTHER RACES/ETHNICITIES

**75 vs. 64**

PER 100,000

PER 100,000

LUNG CANCER INCIDENT RATES IN  
AFRICAN AMERICANS VS. WHITES

SECONDHAND SMOKE EXPOSURE  
IS HIGHER AMONG

**NON-HISPANIC BLACKS: 47%**

**PEOPLE LIVING BELOW FPL: 43%**

**RENTERS: 37%**

COMPARED TO **NATIONAL AVERAGE: 25%**

# Iceberg Model

## PROBLEM

Tobacco use disparities result in health inequities

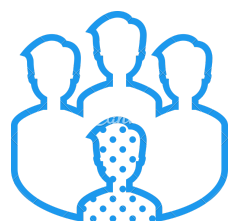
## PATTERNS

Tobacco initiation, use, and cessation differ by race, ethnicity, and socioeconomic status

## UNDERLYING STRUCTURES



Resources &  
Power

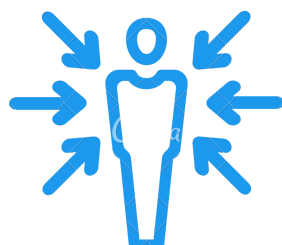


Discrimination &  
Marginalization

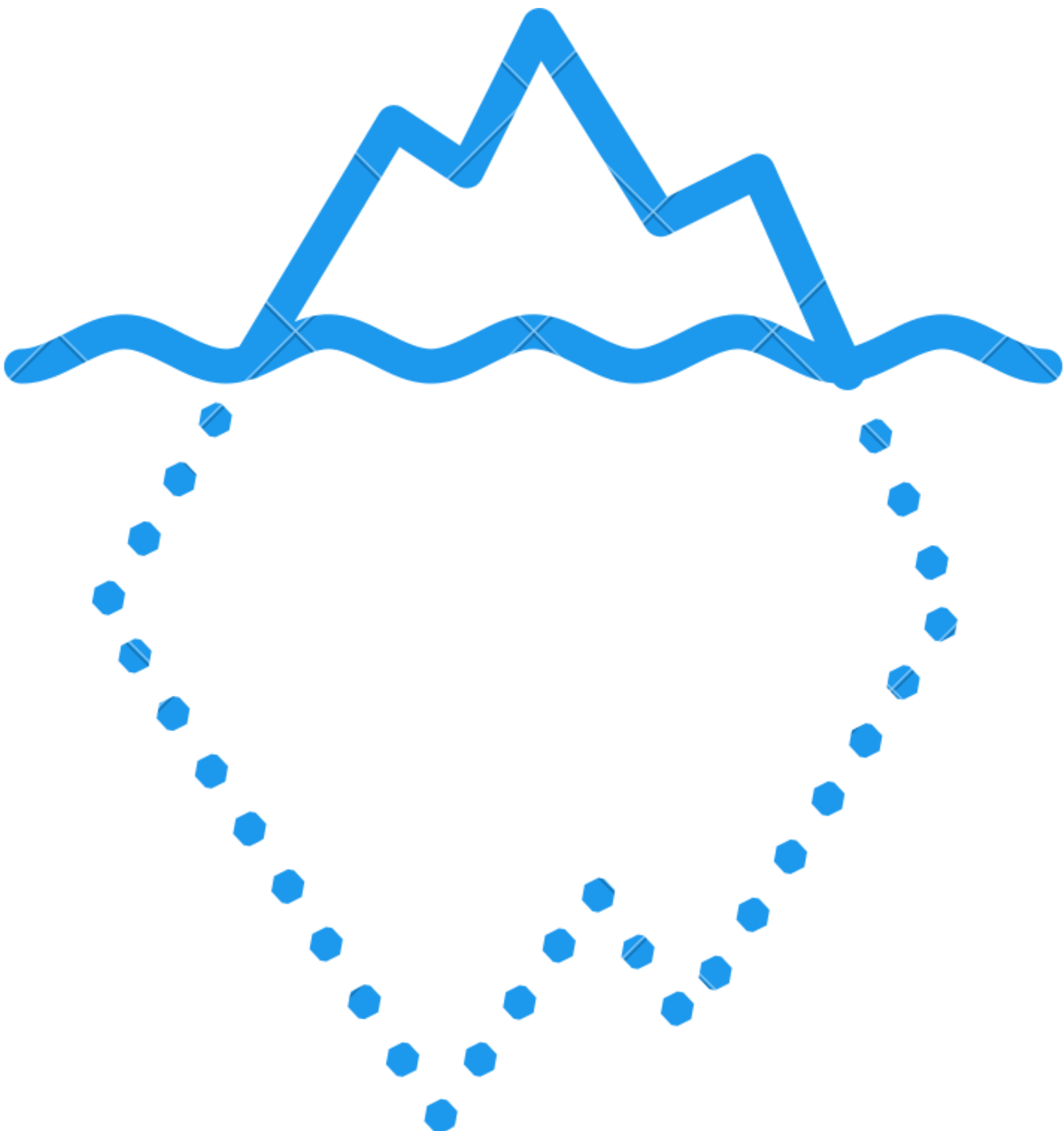
## MENTAL MODELS



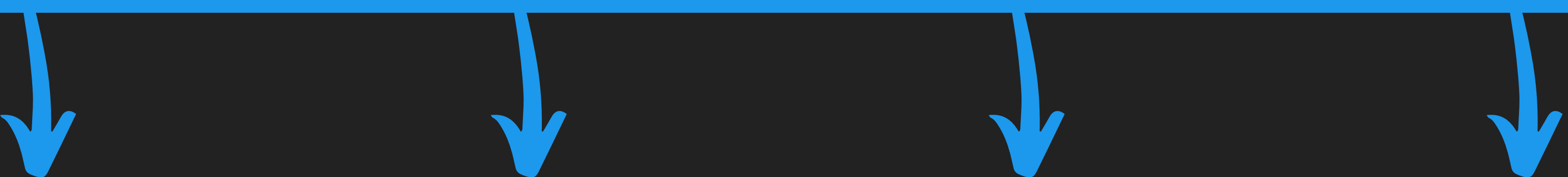
Prioritization of  
Population-Level  
Change



Focus on  
Individual-Level  
Risk Behaviors



# Conventional Mental Models in Tobacco Control



**APPROACH**

**AIMS TO**

**BY**

**THROUGH**

**HIGH RISK**

change behavior of those  
at highest risk

altering measurable  
individual risk  
factors for smoking  
(beliefs, stress, cravings)

counseling and targeted  
education

**POPULATION**

change norms and  
expectations about  
smoking throughout entire  
population

altering aspects of the  
environment that impact  
smoking  
(product availability, price,  
smoke free spaces)

smoke free air laws,  
tobacco taxes, and  
product regulation

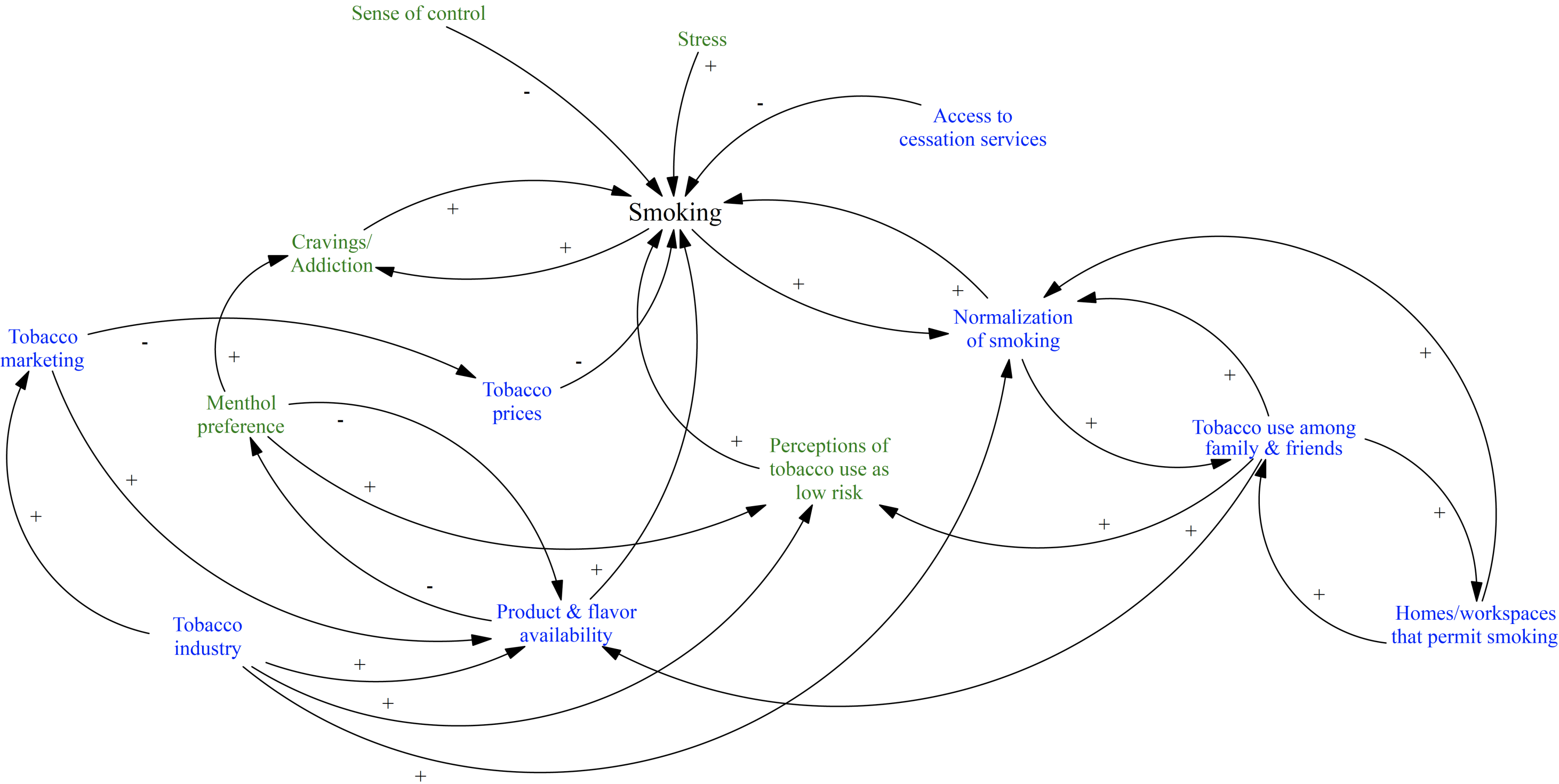


# Conventional Systems Map of Smoking

**Legend**

Individual factors

Environmental Factors





# Shifting Mental Models

Due to shared social circumstances, certain populations face cumulative and concentrated environmental hazards. A priority population approach attempts to reduce social vulnerability.



**APPROACH**

**PRIORITY  
POPULATION**



**AIMS TO**

**change conditions  
for groups at  
highest risk of  
multiple health  
outcomes**



**BY**

**altering  
distributions of  
resources and  
power**



**THROUGH**

**social welfare  
policies, urban  
planning, and  
anti-racism work**

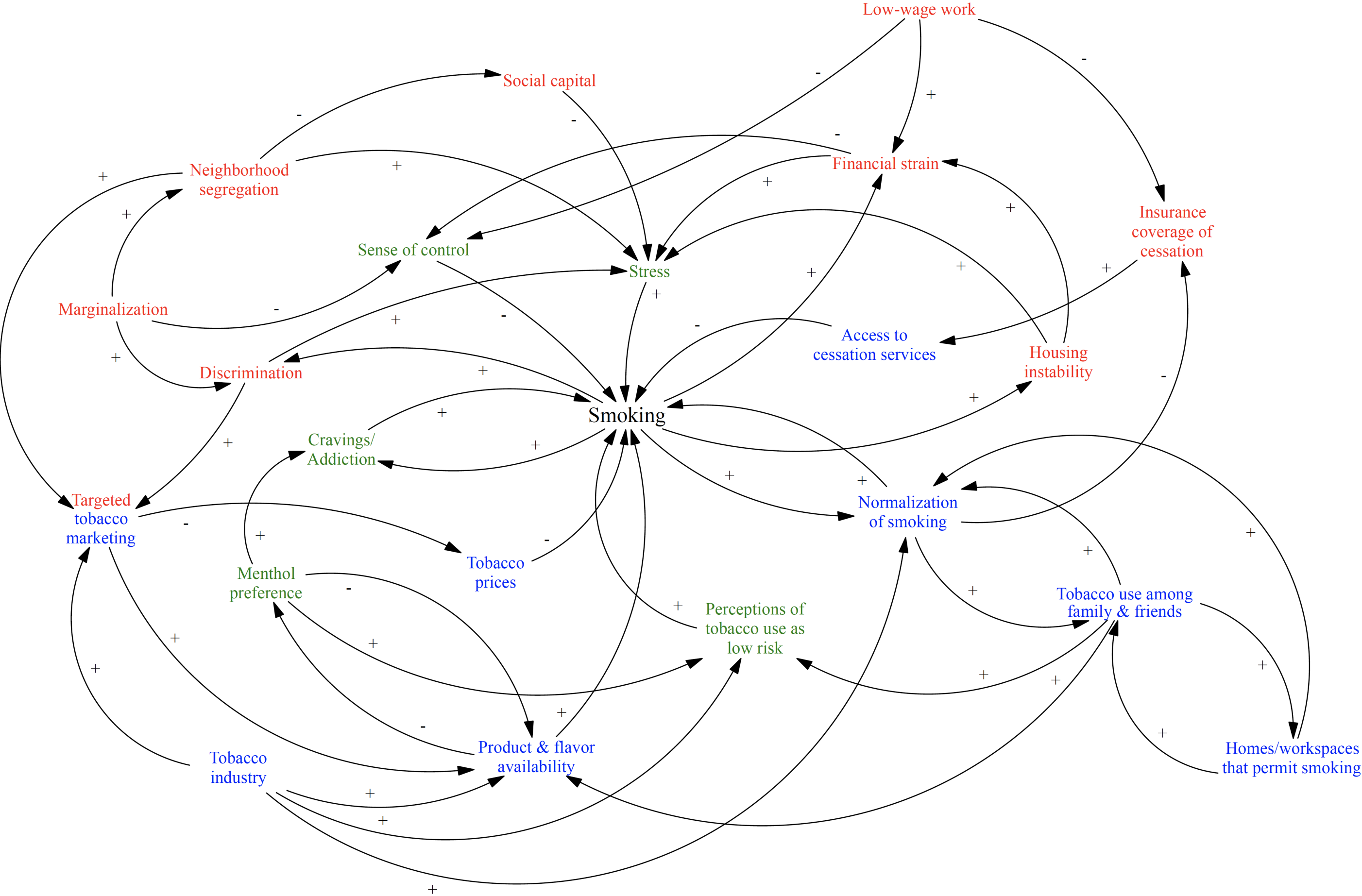
# Updated Systems Map: Smoking in Priority Populations

**Legend**

Individual factors

Environmental Factors

Disparity Factors



# Impact Gap Canvas: Smoke-Free Public Housing

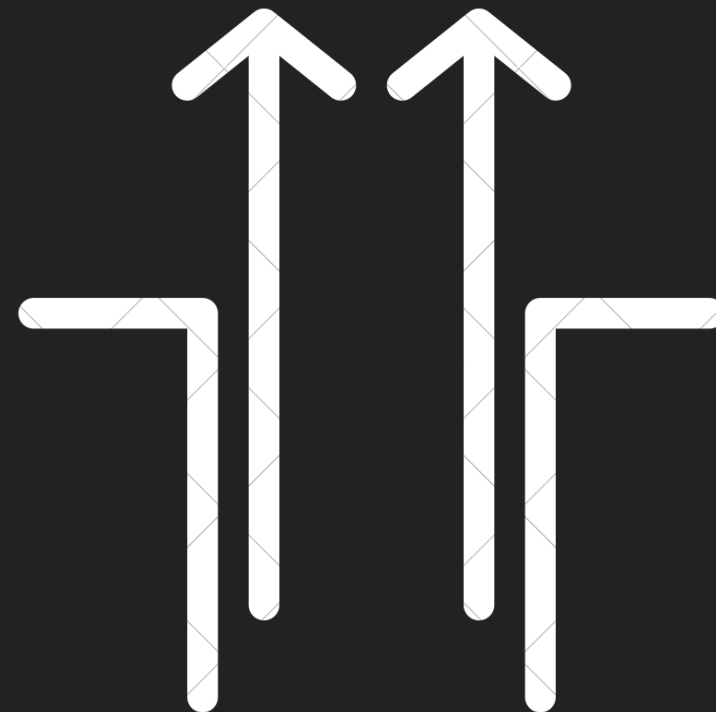
## CHALLENGE

Compared to 15% of the general population, 1/3 of adults living in public housing smoke

- 1/3 of public housing residents report poor health
- Half of non-smoking residents in public housing are exposed to secondhand smoke (SHS)

## GAP

**UNADDRESSED  
ROOT CAUSES**



## SOLUTION

In July 2018, HUD required public housing programs to implement a smoke-free policy

### What's Working

- Self-reported quit rates increased five-fold
- Half as many residents now report exposure to SHS

### What's Not Working

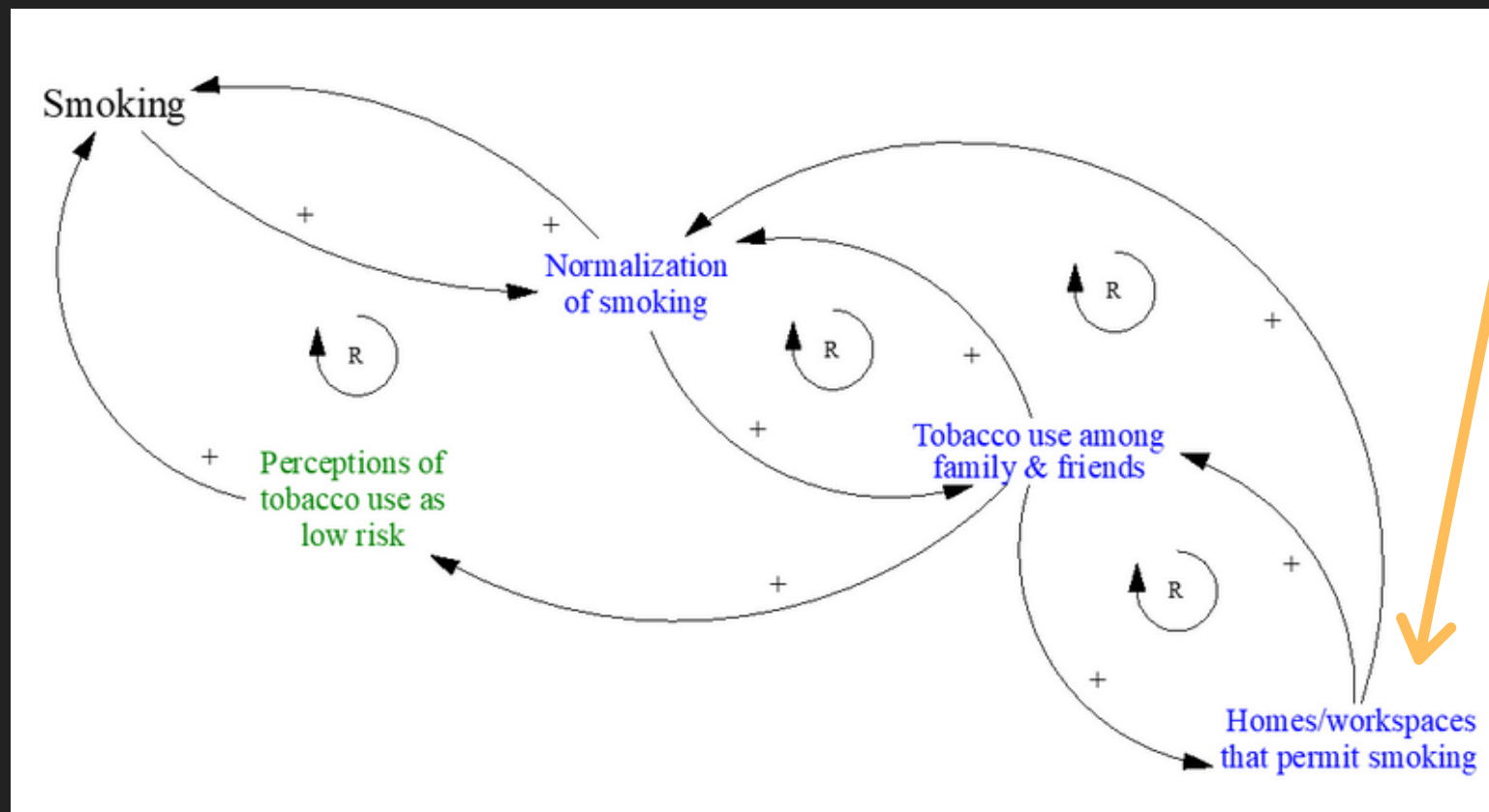
- Half of residents and guests violated policy
- No standardized enforcement policy

## Expected Mechanisms of Change & Unintended Impacts



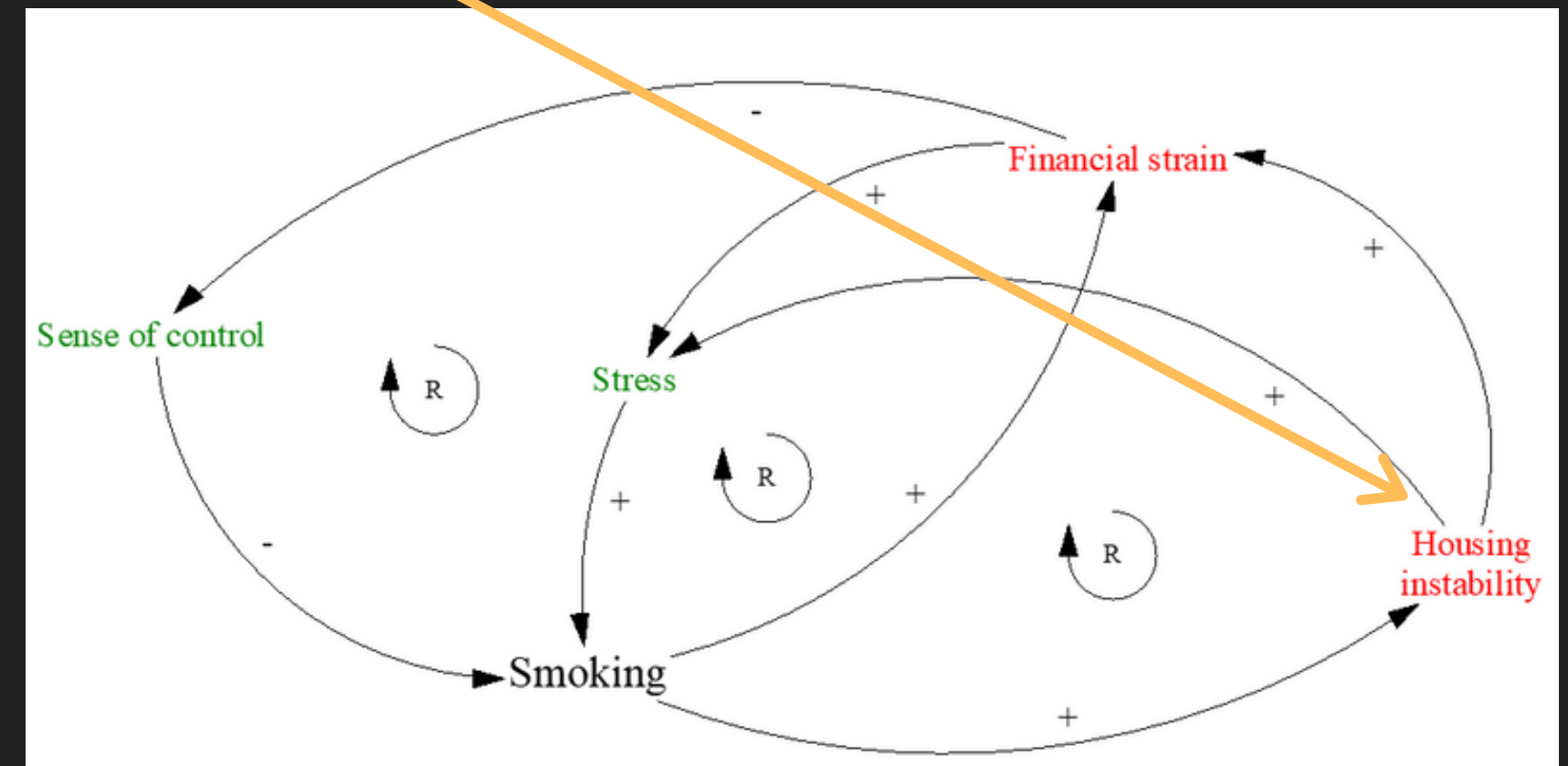
# SMOKE-FREE PUBLIC HOUSING

Prohibits the use of tobacco products inside public housing  
and 25 feet from all buildings



## Mechanisms of Change

## Reduces household tobacco use among public housing residents and de-normalizes smoking



## Unintended Impacts

**Violations of SF policy leads to housing instability, increasing financial strain and stress while reducing feelings of control, thus increasing smoking**



# Application to Other Tobacco Control Policies



## MENTHOL CIGARETTE BAN

Prohibits the sale of menthol cigarettes

### Mechanisms of Change

Removing menthol cigarettes from the market decreases smoking among menthol users and prevents future smokers from becoming addicted to menthol cigarettes

### Unintended Impacts

Segregation and discrimination allows for continued targeted marketing of other tobacco products



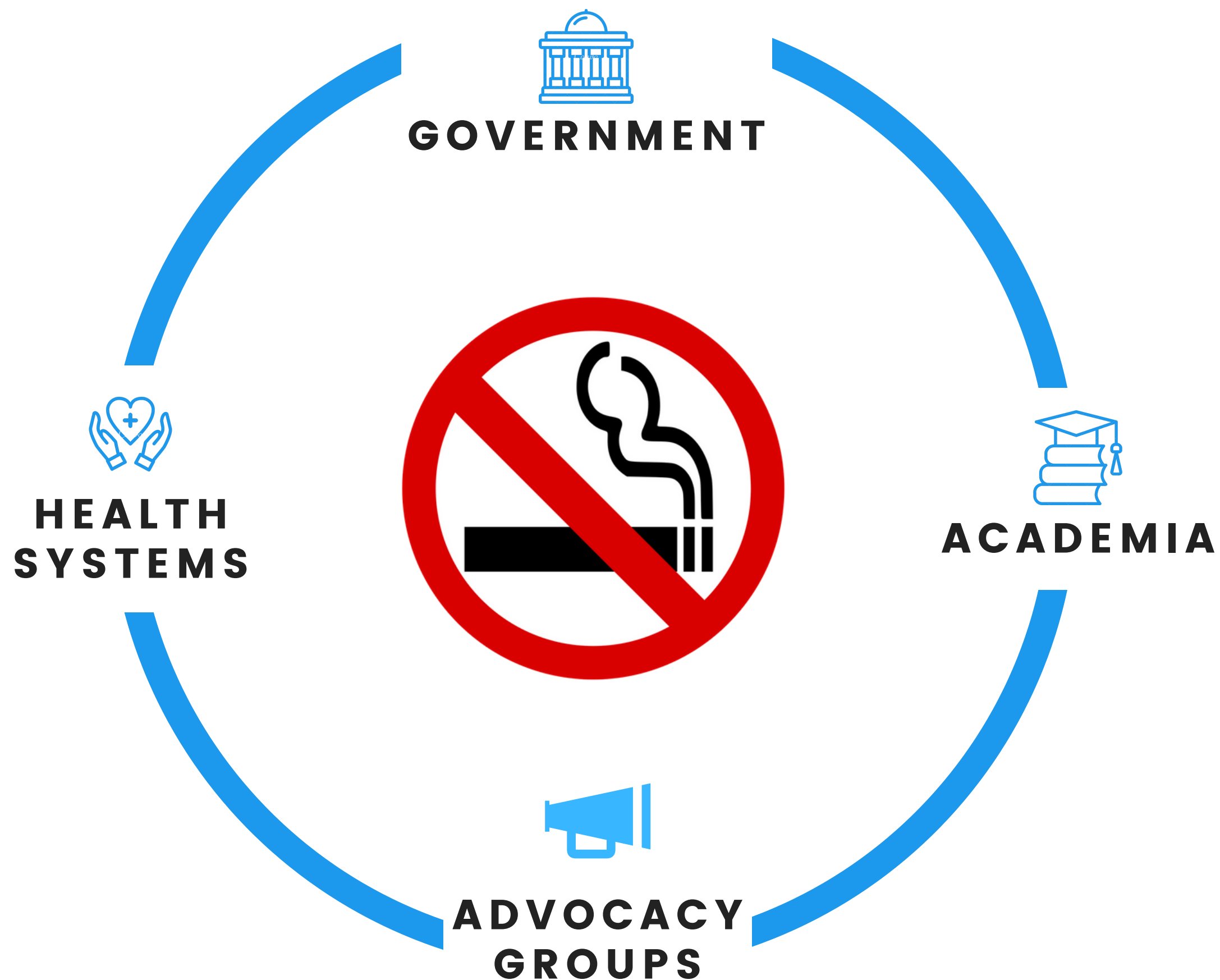
## MINIMUM PRICE LAWS

Sets a price below which tobacco products cannot be sold

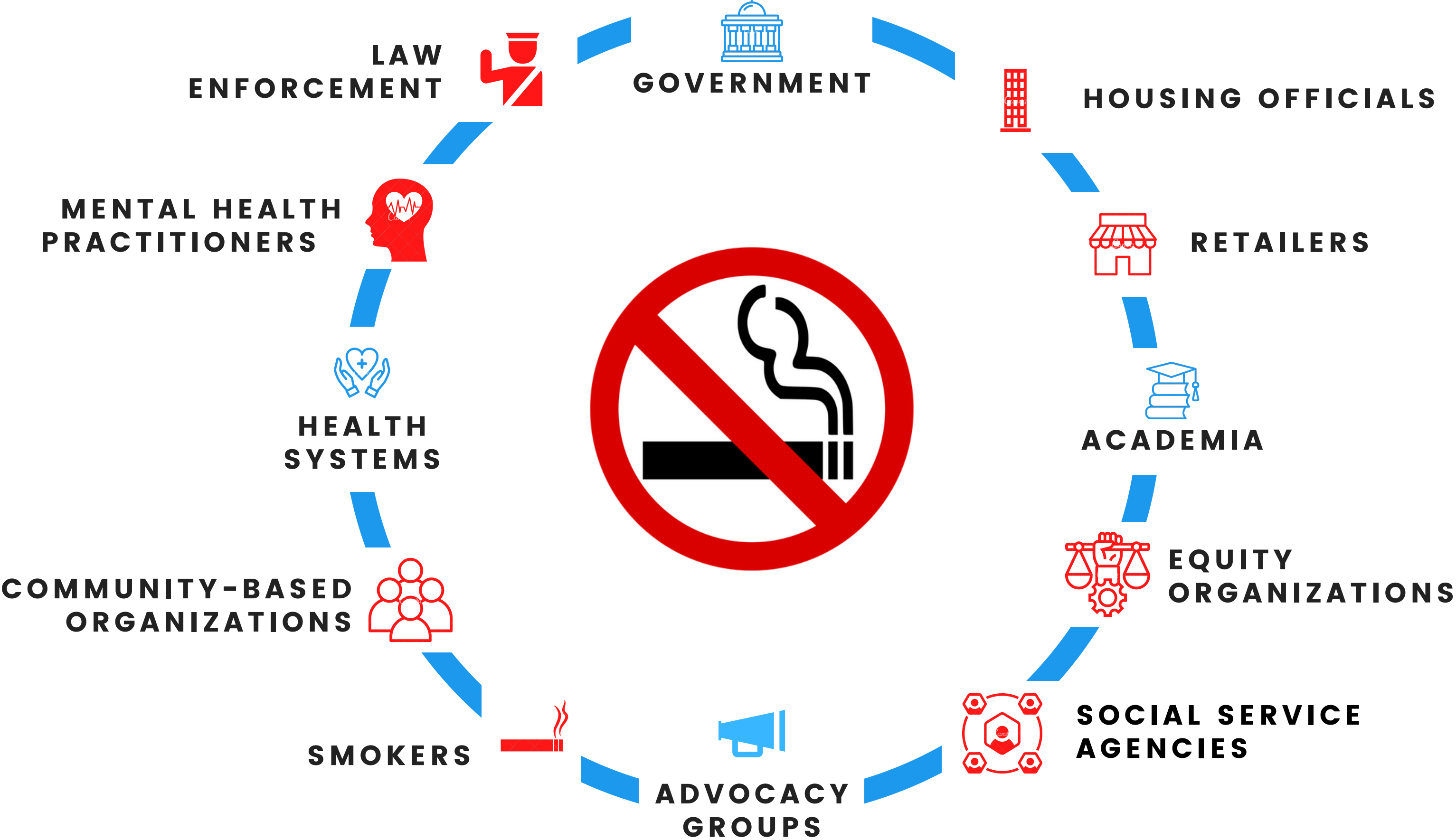
Raising prices in neighborhoods where tobacco is particularly cheap reduces demand for tobacco among neighborhood residents

Higher prices produce financial strain for smokers who do not reduce use, reducing feelings of control and increasing stress, thus increasing smoking

# Who is currently involved in tobacco control efforts?



# Who else needs to be involved?



# Perspectives From Non-Traditional Stakeholders

“I started using chewing tobacco around 11 or 12 and a few years after I tried my first cigarette...Older friends and other kids in the community that I looked up to [chewed tobacco]...I had a blue-collar job when out of school and was around a lot of people who smoked and was encouraged to go on smoke breaks. Now I am the lone soldier going on smoke breaks... I definitely feel the impact of the price...and that is another one of the ...cons.”

– smoker

“me, as a psychologist, focuses on the green [individual factors] first. Being able to take a step back and think about all the other factors...it could broaden people’s perspectives in terms of thinking about where we can intervene.”

– mental health professional

“To me this is a commitment to long-term and making some changes that will be ongoing...” it also helps to identify who partners may be...you're going to need to work with folks who are working on housing issues, you're going to need to work with folks who are trying to increase access to healthcare, all these different partners are going to be involved.”

– equity organization advocate



# Lessons Learned

**1**

**For priority populations, smoking is a product of inequity of power and resources in addition to traditional risk factors**

**2**

**A comprehensive systems map can illustrate unexpected consequences of policies designed to promote equity**

**3**

**To effectively advance equity in tobacco control, a wider range of stakeholder perspectives should inform and lead interventions**