# Smoking cessation among populations with lower socioeconomic status

**A mixed-methods narrative synthesis**

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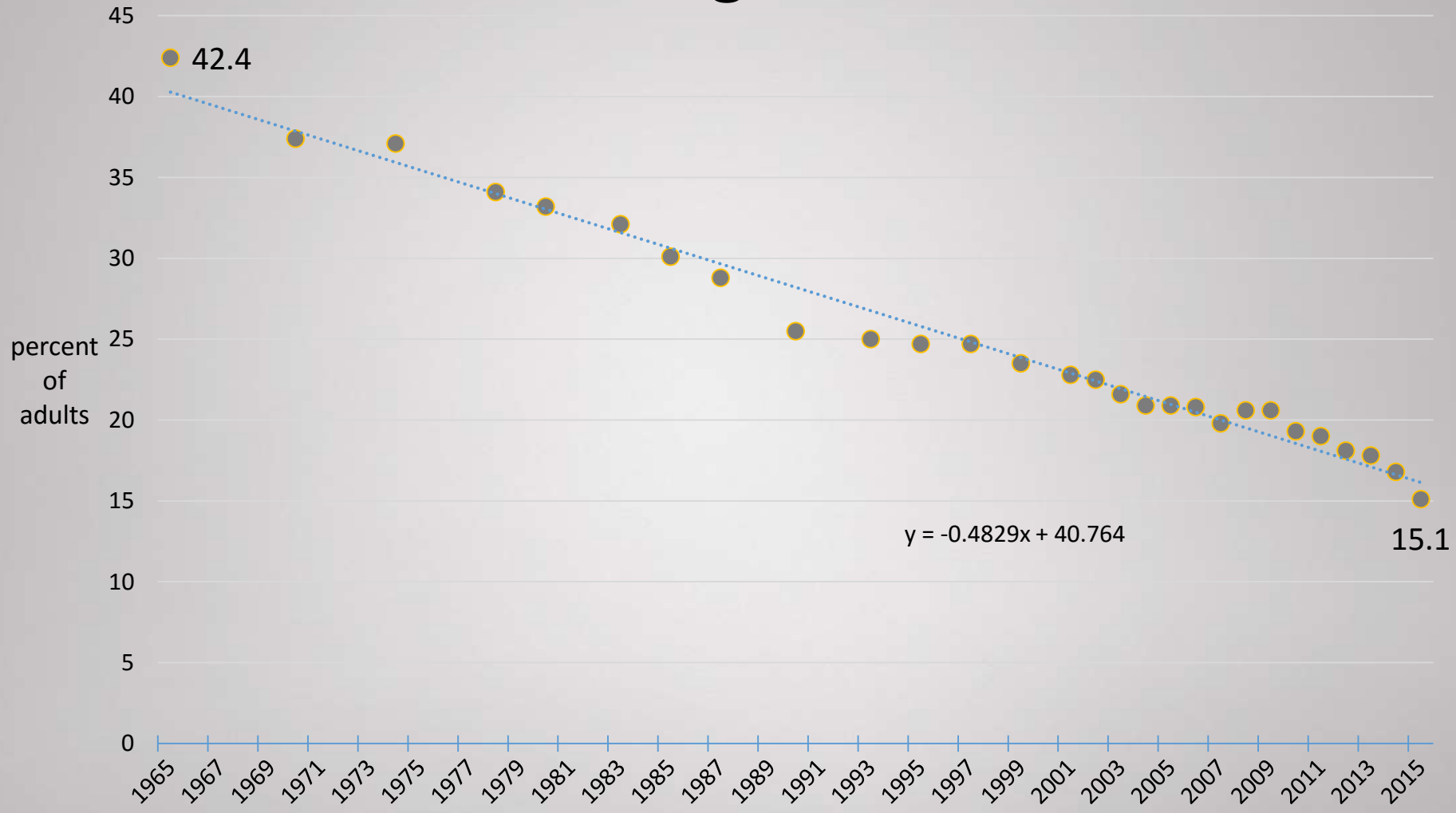
# Tobacco control – a half-century of success

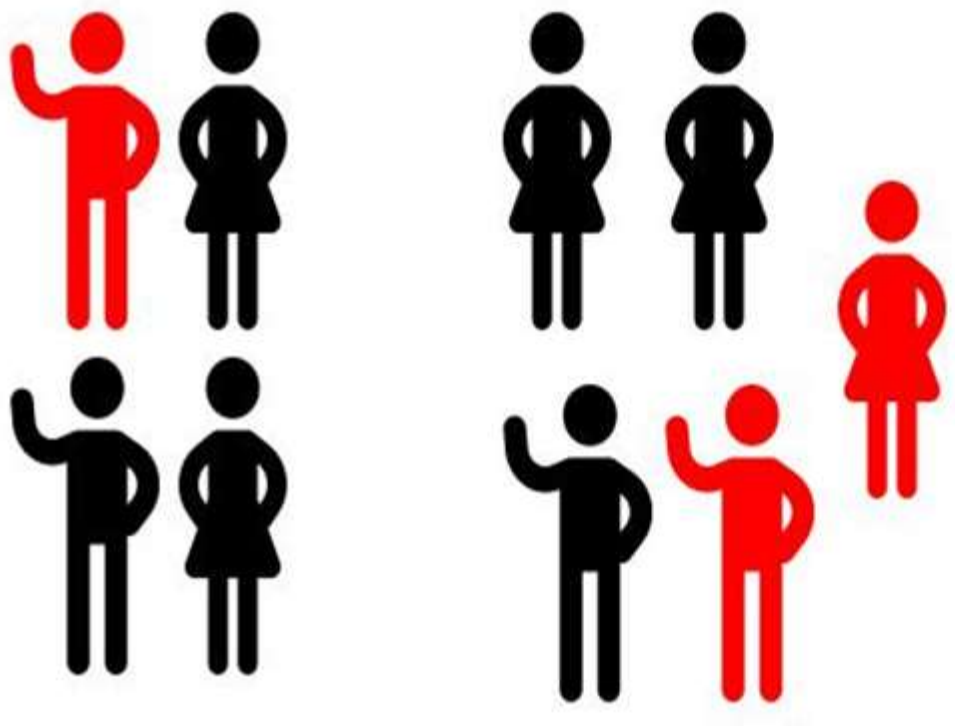
## U.S. Smoking Prevalence




Sources: CDC. Trends in Current Cigarette Smoking Among High School Students and Adults, United States, 1965–2014. http://www.cdc.gov/tobacco/data_statistics/tables/trends/cig_smoking/

Ward BW, Clarke TC, Nugent CN, Schiller JS. Early release of selected estimates based on data from the 2015 National Health Interview Survey. National Center for Health Statistics. May 2016. Available from: http://www.cdc.gov/nchs/nhis.htm

# Among lower socioeconomic populations, a different story



# Who are LSES populations?

- Low income
- Low educational attainment
- Disability/unemployment
- Medicaid/no insurance
- Blue-collar or service work
- Mental illness

## Estimated smoking prevalence, US 2012, spotlight on lower SES

# Highest rates

| | % (95% CI) |
|---|---|
| **Total** | 19.7 (17.6, 21.9) |
| **Income (% FPL)** | |
| <100 | **29.7 (22.6, 36.8)** |
| 100-199 | 25.4 (19.3, 31.4) |
| 200+ | 13.6 (11.1, 16.1) |
| **Health insurance status** | |
| Medicaid | **42.6 (29.4, 55.8)** |
| uninsured | 29.0 (22.5, 35.5) |
| private | 16.6 (14.1, 19.2) |
| Medicare | 12.3 (8.5, 16.2) |
| **Employment status** | |
| disabled | **40.1 (30.5, 49.6)** |
| unemployed | 24.7 (15.7, 33.7) |
| employee | 20.4 (16.8, 24.1) |
| other | 15.1 (12.4, 17.7) |
| **Education** | |
| <9 years | 24.3 (12.6, 36.1) |
| 9-12 years, no diploma | **34.5 (24.3, 44.8)** |
| GED | 20.3 (8.8, 31.8) |
| HS diploma | 25.4 (20.6, 30.3) |
| some college or post-HS | 17.8 (14.4, 21.2) |
| college graduate | 12.4 (9.1, 15.8) |
| postgraduate degree | 4.5 (2.2, 6.7) |

**Table embargoed until publication.**

Levinson AH. Where the U.S. tobacco epidemic still rages: Most remaining smokers have lower socioeconomic status. *J Health Care Poor Underserved* (in press for February 2017 issue).

## Estimated smoking prevalence, US 2012, spotlight on lower SES

# Combined highest rates

| | % | (95% CI) |
|---|---|---|
| **Total** | 19.7 | (17.6, 21.9) |
| **Income (% FPL)** | | |
| **<100** | 29.7 | (22.6, 36.8) |
| 100-199 | 25.4 | (19.3, 31.4) |
| 200+ | 13.6 | (11.1, 16.1) |
| **Health insurance status** | | |
| **Medicaid** | 42.6 | (29.4, 55.8) |
| uninsured | 29.0 | (22.5, 35.5) |
| private | 16.6 | (14.1, 19.2) |
| Medicare | 12.3 | (8.5, 16.2) |
| **Employment status** | | |
| **disabled** | 40.1 | (30.5, 49.6) |
| unemployed | 24.7 | (15.7, 33.7) |
| employee | 20.4 | (16.8, 24.1) |
| other | 15.1 | (12.4, 17.7) |
| **Education** | | |
| <9 years | 24.3 | (12.6, 36.1) |
| **9-12 years, no diploma** | 34.5 | (24.3, 44.8) |
| GED | 20.3 | (8.8, 31.8) |
| HS diploma | 25.4 | (20.6, 30.3) |
| some college or post-HS | 17.8 | (14.4, 21.2) |
| college graduate | 12.4 | (9.1, 15.8) |
| postgraduate degree | 4.5 | (2.2, 6.7) |

| | % | (95% CI) |
|---|---|---|
| **Highest prevalence categories combined** | **31.7** | **(26.1, 37.4)** |
| all others combined | 14.3 | (12.1, 16.5) |

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## Estimated smoking prevalence, US 2012, spotlight on lower SES

# Highest rates combined with near-poor and uninsured

| | % | (95% CI) |
|---|---|---|
| **Total** | 19.7 | (17.6, 21.9) |
| **Income (% FPL)** | | |
| **<100** | 29.7 | (22.6, 36.8) |
| **100-199** | 25.4 | (19.3, 31.4) |
| 200+ | 13.6 | (11.1, 16.1) |
| **Health insurance status** | | |
| **Medicaid** | 42.6 | (29.4, 55.8) |
| **uninsured** | 29.0 | (22.5, 35.5) |
| private | 16.6 | (14.1, 19.2) |
| Medicare | 12.3 | (8.5, 16.2) |
| **Employment status** | | |
| **disabled** | 40.1 | (30.5, 49.6) |
| unemployed | 24.7 | (15.7, 33.7) |
| employee | 20.4 | (16.8, 24.1) |
| other | 15.1 | (12.4, 17.7) |
| **Education** | | |
| <9 years | 24.3 | (12.6, 36.1) |
| **9-12 years, no diploma** | 34.5 | (24.3, 44.8) |
| GED | 20.3 | (8.8, 31.8) |
| HS diploma | 25.4 | (20.6, 30.3) |
| some college or post-HS | 17.8 | (14.4, 21.2) |
| college graduate | 12.4 | (9.1, 15.8) |
| postgraduate degree | 4.5 | (2.2, 6.7) |

| | % | (95% CI) |
|---|---|---|
| **Highest-prevalence, near-poor, uninsured** | **26.7** | **(23.0, 30.5)** |
| all others combined | 11.8 | (9.4, 14.1) |

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# Social justice vs. greatest good

- Populations with elevated health problems deserve public health attention.
  - Social justice ethics: Secure a sufficient level of health for all, narrow unjust inequalities.
- At the same time, public health **impact** doesn't come directly from reaching unjustly burdened groups – it requires succeeding with **the greatest number of people**.
- Social justice and greatest good compete for resources unless a population with an unfairly high health burden also has most of the people who bear the burden.

## Smokers and lower SES populations, US 2012, comparing proportions:

# SES categories

| | smokers | | | adults | |
|---|---|---|---|---|---|
| | N | % | (95% CI) | % | (95% CI) |
| **Total** | 48.37 | 100.0 | — | 100.0 | — |
| **Income (% FPL)** | | | | | |
| <100 | 15.39 | **31.9 (24.0, 39.7)** | | 21.1 (18.3, 23.9) | |
| 100-199 | 14.36 | 29.7 (21.9, 37.5) | | 23.1 (20.5, 25.7) | |
| 200+ | 18.62 | **38.4 (31.8, 45.0)** | | 55.8 (52.8, 58.7) | |
| **Health insurance status** | | | | | |
| Medicaid | 5.00 | **10.3 (6.1, 14.5)** | | 4.8 (3.5, 6.1) | |
| uninsured | 14.01 | **29.0 (22.8, 35.2)** | | 19.7 (17.2, 22.2) | |
| private | 25.35 | **52.4 (45.8, 59.0)** | | 62.3 (59.5, 65.0) | |
| Medicare | 4.01 | **8.3 (5.5, 11.1)** | | 13.2 (11.7, 14.8) | |
| **Employment status** | | | | | |
| disabled | 7.50 | **15.6 (10.8, 20.3)** | | 7.7 (6.3, 9.0) | |
| unemployed | 3.32 | 6.9 (4.2, 9.6) | | 5.5 (4.3, 6.7) | |
| employee | 20.89 | 43.3 (37.0, 49.6) | | 41.9 (39.4, 44.4) | |
| other | 16.52 | **34.3 (28.6, 39.9)** | | 44.9 (42.4, 47.4) | |
| **Education** | | | | | |
| <9 years | 3.08 | 6.4 (3.0, 9.8) | | 5.1 (3.7, 6.5) | |
| 9-12 years, no diploma | 8.31 | 17.2 (11.5, 22.9) | | 9.8 (8.0, 11.7) | |
| GED | 1.66 | 3.4 (1.4, 5.5) | | 3.3 (2.3, 4.4) | |
| HS diploma | 15.95 | 33.0 (27.0, 39.1) | | 25.6 (23.2, 27.9) | |
| some college or post-HS | 13.20 | 27.3 (22.1, 32.4) | | 30.3 (28.0, 32.6) | |
| college graduate | 5.21 | **10.8 (7.6, 13.9)** | | 17.1 (15.6, 18.7) | |
| postgraduate degree | 0.95 | **1.9 (0.9, 3.0)** | | 8.7 (7.6, 9.8) | |

**Table embargoed until publication.**
Levinson AH. Where the U.S. tobacco epidemic still rages: Most remaining smokers have lower socioeconomic status. *J Health Care Poor Underserved* (in press for February 2017 issue).

## Smokers and lower SES populations, US 2012, comparing proportions:

# Combinations of categories

| | smokers | | | adults | |
|---|---|---|---|---|---|
| | N | % | (95% CI) | % | (95% CI) |
| **Total** | 48.37 | 100.0 | — | 100.0 | — |
| **Highest prevalence categories combined** | | | | | |
| yes | 24.21 | **50.1 (43.2, 57.1)** | | 31.1 (28.3, 34.0) | |
| no | 24.16 | **49.9 (42.9, 56.8)** | | 68.9 (66.0, 71.7) | |
| **Highest prevalence categories combined with near-poor and uninsured** | | | | | |
| yes | 34.91 | **72.2 (60.8, 83.5)** | | 53.3 (49.4, 57.1) | |
| no | 13.46 | **27.8 (21.9, 33.7)** | | 46.7 (44.1, 49.3) | |
| **Low-income employed ("working poor")** | | | | | |
| yes | 11.38 | **23.5 (17.0, 30.0)** | | 14.1 (11.9, 16.3) | |
| no | 37.98 | **76.5 (70.0, 83.0)** | | 85.9 (83.7, 88.1) | |

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# The ethics are aligned

- Lower SES populations have the highest smoking rates **and** the largest number of smokers.

- For social justice **and** the greatest good, public health needs to focus research and programs on smoking cessation among lower SES populations.

# Quick poll

- Does your agency identify lower SES smokers as a priority population?
  - yes, no, not sure
- Does your agency have tobacco control programs or strategies targeted specifically to LSES smokers?
  - yes, no, not sure

# The current project

- Colorado tobacco control program designates LSES smokers a priority population
- They asked: What are effective strategies for reducing LSES tobacco burdens?

# Project aims

1. **Summarize the state of knowledge**

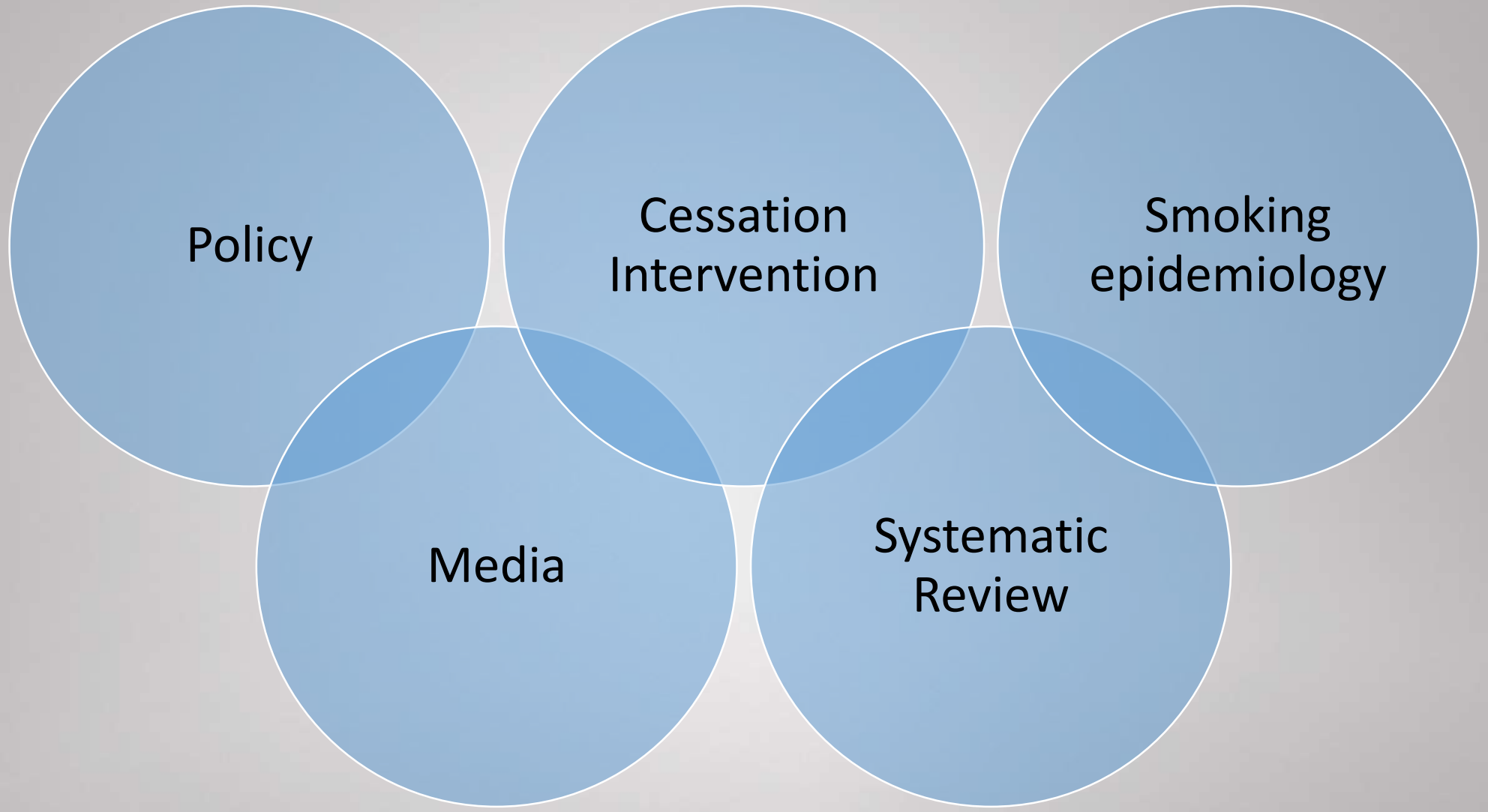
2. **Identify effective strategies for LSES smoking cessation that are feasible for public health to adapt and implement**

# LSES and smoking knowledge review


1. Systematic search and narrative summary of published literature

2. Key informant (expert) interviews with qualitative analysis of experience-based perspectives, beliefs and suggestions

# Literature categories for review




**2495 titles/abstracts ➔ 710 full articles ➔ 262 relevant articles abstracted to REDCap database**

## Key informant interviews

# Finding experts

- Authors from systematic search
- LSES tobacco scientists (NCI list)
- Professional network
- Colorado STEPP staff

**56 experts invited**

↓

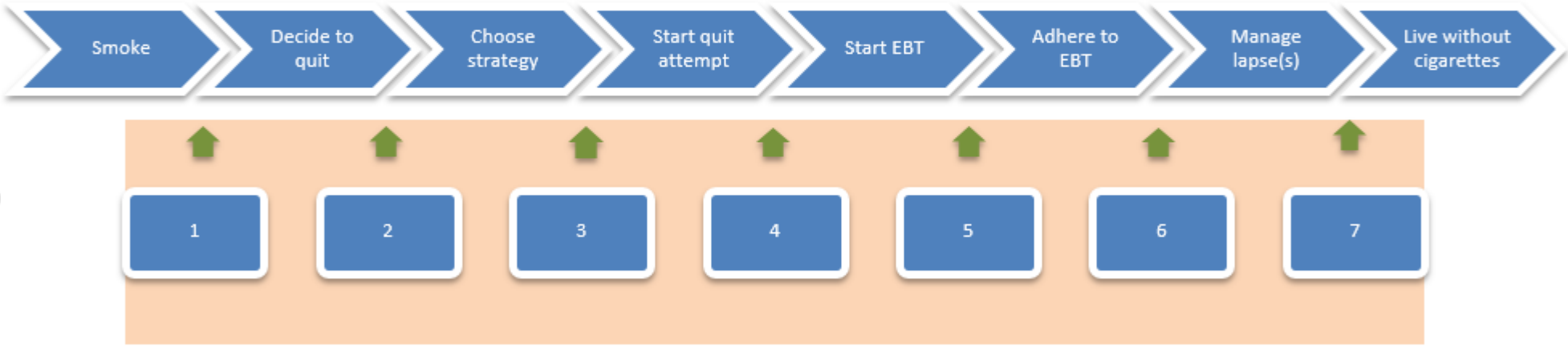
**16 participated**

# Key informant interview topics

## Where and how to intervene in the cessation process for LSES smokers

Figure 2. Schematic depiction of smoking cessation intervention spaces

Smoking cessation behavioral steps can include (1) planning to quit, (2) choosing a quit strategy, (3) attempting to quit, (4) initiating an evidence-based treatment (EBT), (5) adhering to EBT, (6) getting past lapse(s), and (7) adjusting to life without cigarettes. The diagram depicts these steps in chevrons; the green arrows




point to transition spaces where interventions [*to be identified by informants*] may increase the likelihood that a population of smokers initiates the next behavior in the sequence. What public health intervention strategies in the numbered boxes can increase lower-SES smoking cessation at the population level?

# Key informant interview topics

## How to adapt current strategies for LSES populations

## Overall emergent themes

## Media Results: Literature

- Use media to promote quitline engagement, not generic cessation
- Use emotionally evocative graphics
- Portray work, family life, personalized stories
- Awareness is key

## Media Results: Experts

- Target the message to LSES audiences
- Identify cross-cutting themes to reach broad LSES audiences
- Support acceptance of relapse
- Use emotionally evocative graphics
- Use LSES media modes
- Catch up with technology

## Policy Results: Literature

- **Higher cigarette taxes consistently increase cessation among LSES smokers.**
  - **Concerns about bigger impact on LSES income.**
  - **But cigarette taxes have the strongest equity impact, i.e., reduce SES smoking disparity (Brown 2014)**

## Policy Results: Literature

- **SHS policies: almost no study of effect on LSES cessation**
  - **One study: housing policy associated with smoking reduction, increased quit attempts**
  - **Voluntary SHS policies have negative equity impact on SHS exposure, mandatory policies have neutral equity impact on SHS exposure**
  - **Challenges: housing policy acceptability / adherence**

## Policy Results: Literature

- Medicaid coverage of NRT
  - Necessary but not sufficient
  - Remove barriers
    - Pre-authorization, co-pay, limit on duration, annual limit on quit attempts, lack of benefit awareness

## Policy Results: Experts

- Cigarette tax increase
- Policies need to make community environment smoke-free (not just housing)
  - Cars, workplaces, public open spaces

# Quick poll

- Does your agency have staff who know how to design and implement media and policy initiatives for LSES smokers?
  - Media: yes, no, unsure
  - Policy: yes, no, unsure
- Does your agency have resources to conduct policy initiatives for LSES smokers?
  - Media: yes, no, unsure
  - Policy: yes, no, unsure
- Would your agency use technical assistance on policy initiatives for LSES smokers if it were offered?
  - Media: yes, no, unsure
  - Policy: yes, no, unsure

## Community Initiatives Results: Literature

- **Community- and group-tailored strategies show promise**
  - Community involvement from start to finish
  - Tailor mobilization and cessation support to community's cultural, linguistic, and local needs
  - Address multiple levels (policy, social norms, individual cessation support)

## Community Initiatives Results: Experts

- Create community systems of support
- Establish interventions in community settings: where people work, live, receive services
- Conduct research to improve long-term cessation outcomes (living life without cigarettes)

# Quick poll

- Does your agency have who know how to design and implement community initiatives for LSES smokers?
  - yes, no, unsure
- Does your agency have resources to conduct community initiatives for LSES smokers?
  - yes, no, unsure
- Would your agency use technical assistance on community initiatives for LSES smokers if it were offered?
  - yes, no, unsure

## Individual Cessation Support Results: Literature

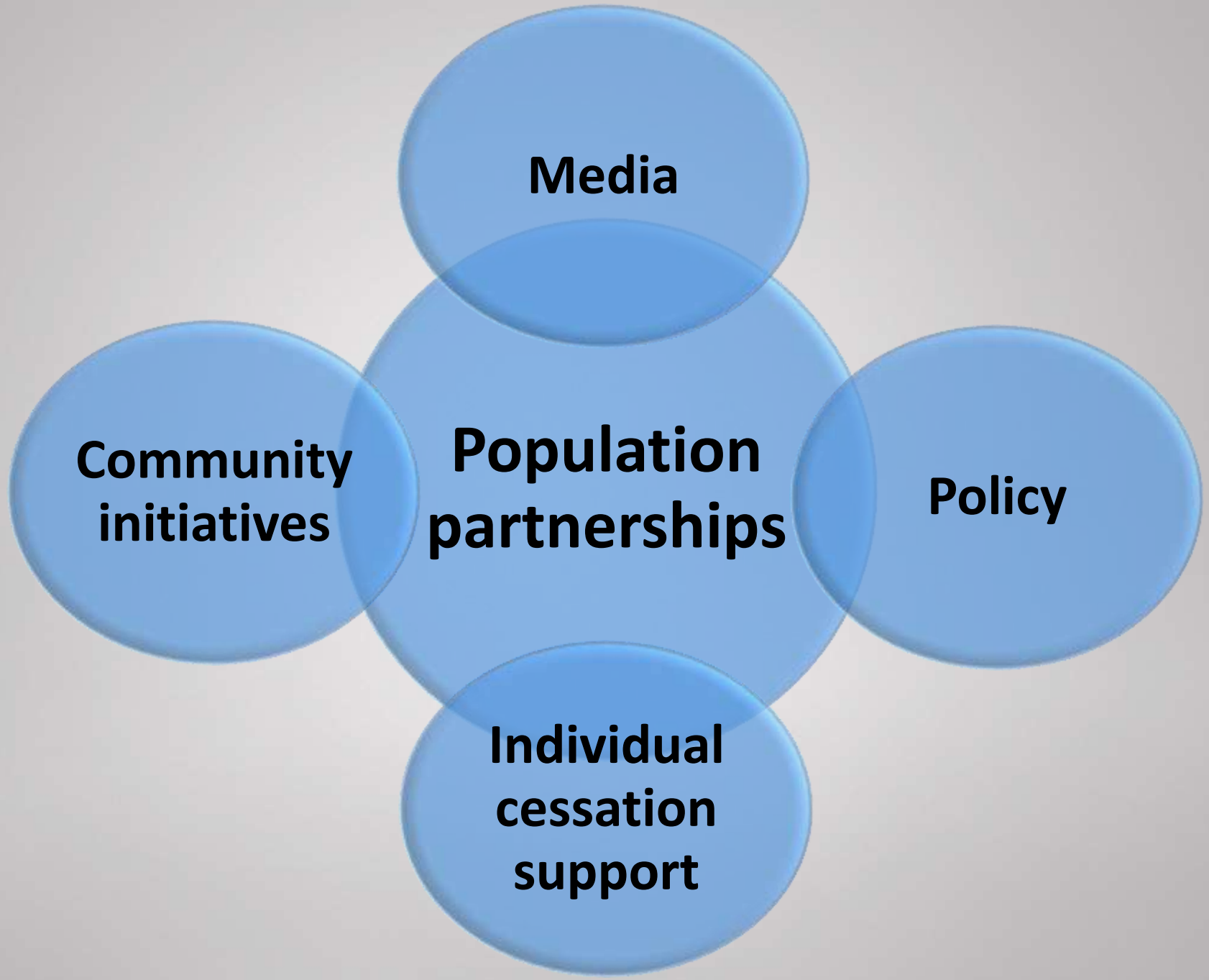
- Helpers (PNs, CHWs) can increase adherence
- Reward-based programs may have promise
- Promote and support recycling so relapsed smokers can easily restart / resume cessation and treatment
- Research to prevent post-partum relapse among LSES women
- Quitline

## Individual Cessation Support Results: Experts

- Improve clinical systems to use every opportunity to treat smokers ready to try quitting
- Improve access to evidence-based treatment
- Improve patient engagement by including personal touch, family involvement, cultural relevance of services from providers, helpers (PNs/CHWs), technology

## Overarching adaptation: Community partnership

- **Partner with LSES population leaders and representatives when planning, implementing & evaluating targeted smoking cessation programs**
- **Without community involvement & support, promising strategies are unsustainable**
- **Mobilize the community**


Media
Community initiatives
Population partnerships
Policy
Individual cessation support

# Take home messages

- **Lower SES smokers represent the majority of remaining smokers**
- **We need to partner with LSES communities in designing and delivering tobacco control strategies**
- **We need to promote and support cessation where LSES smokers live, work, play**

# Take home messages

- **We need to consider more than minimal support through the cessation process LSES smokers**
- **We need to develop multi-level community-based interventions for LSES smoking cessation**
- **We need to learn how to normalize relapse, recycle relapsers, and support transition to life without cigarettes**