

# Framing Thirdhand Smoke as a Social Justice Issue

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**THIRDHAND**  
SMOKE Resource Center



Funded by CA Tobacco Related Disease Research Program (tobacco taxes). We are part of the Thirdhand Smoke Research Consortium, an interdisciplinary group of thirdhand smoke researchers, now in 11<sup>th</sup> year. We are a unique project of the Research Consortium—not “bench” science, but to disseminate thirdhand smoke research findings. Our mission is to share information, resources, and technical support with California’s residents, communities, businesses, health care professionals, and policymakers about the toxic legacy of tobacco smoke residue and to achieve indoor environments that are 100% free of tobacco smoke toxicants. [www.thirdhandsmoke.org](http://www.thirdhandsmoke.org)

# Leadership Team

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To learn more about the Resource Center team:  
<https://thirdhandsmoke.org/research/consortium-researchers/>  
<https://thirdhandsmoke.org/about/policy-advisory-council/>

## Learning Objectives

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- Identify factors that increase risk of exposure to thirdhand smoke.
- Describe effective community engagement to reduce exposure to thirdhand smoke.
- Discuss promising prevention strategies to reduce exposure to thirdhand smoke.



**1<sup>ST</sup>** Inhaled by a smoker.

**2<sup>ND</sup>** Exhaled by a smoker or released from the end of a burning cigarette.

**3<sup>RD</sup>** Toxic residue that sticks to surfaces and dust after the smoke clears.

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

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What is thirdhand smoke?

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## Secondhand Smoke is the Precursor of Thirdhand Smoke

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- Secondhand smoke
  - Generated by burning and smoldering tobacco plant materials, additives (e.g., ammonia), and paper
  - Composed of exhaled main-stream smoke (15%) and side-stream smoke (85%)
  - Mixture of 6,000+ chemicals including gases and ultrafine particles harmful to human health
  - Quickly travels throughout a room, home, between adjoining units in apartment and condo buildings, outdoor spaces
  - Remains in the air while smoking takes place and for up to three hours depending on air exchanges/ventilation

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## Secondhand Smoke Spreads and *Transforms* into Thirdhand Smoke

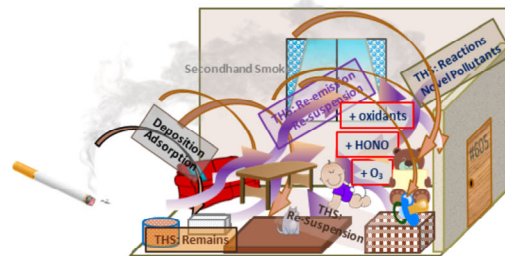
- Transformation begins with seconds of lighting a cigarette
- Gases stick on surfaces and are soaked up by materials
- Particles deposit, accumulate as settled house dust
- Gases and particles become embedded in materials
- Further chemical reactions create new chemical compounds and form new particles



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# How Thirdhand Smoke Pollutes Indoor Environments

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## Thirdhand Smoke: A Persistent Mixture of Toxic Gases and Particles

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- **Re-mains** on surfaces, in dust, and embedded in objects: carpets, blankets, furniture, wall board, ceiling tiles, insulation materials
- **Re-emitted** back into the gas phase from reservoirs: some compounds that off-gas are odorant: stale tobacco smoke
- **Re-suspended** from accumulated fine and ultrafine dust deposits: dust deposit can be resuspended in the air
- **Re-acts** with oxidants and other compounds in the environment to creating novel highly toxic compounds and fine particles.

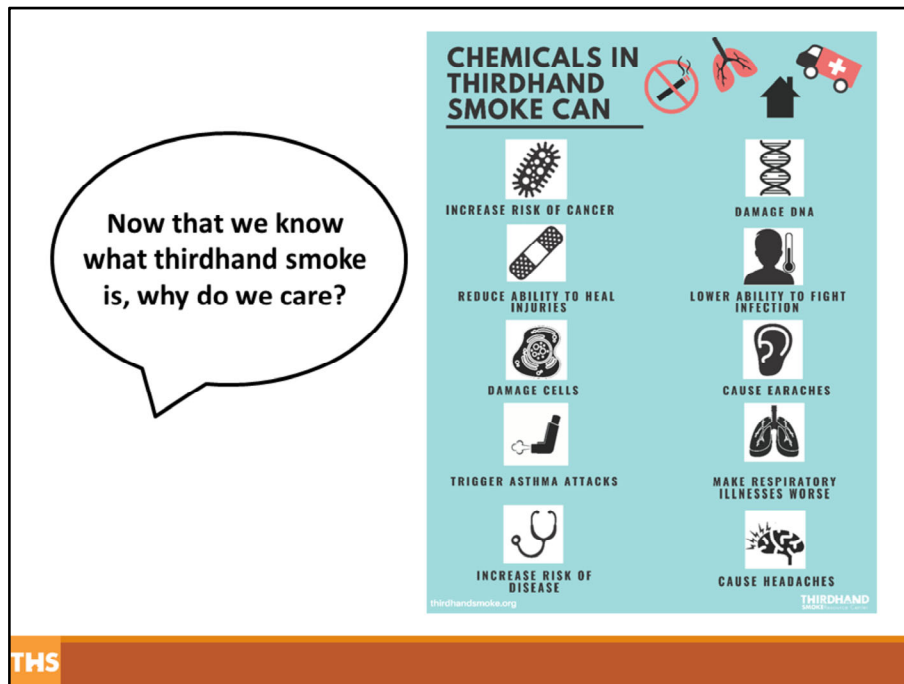
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Research Studies:

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<https://pubmed.ncbi.nlm.nih.gov/31516480/>





















