Supplementary Materials

Sociodemographic disparities in thirdhand smoke exposure among children in the United States: a narrative review

Laila Hamzai¹, Penelope JE Quintana¹, Georg E. Matt², Thomas E. Novotny¹, E. Melinda Mahabee-Gittens^{3,4}, Ashley L. Merianos⁵, Nathan G. Dodder¹, Nicolas Lopez-Galvez¹, Eunha Hoh¹

¹School of Public Health, San Diego State University, San Diego, CA 92182, USA.

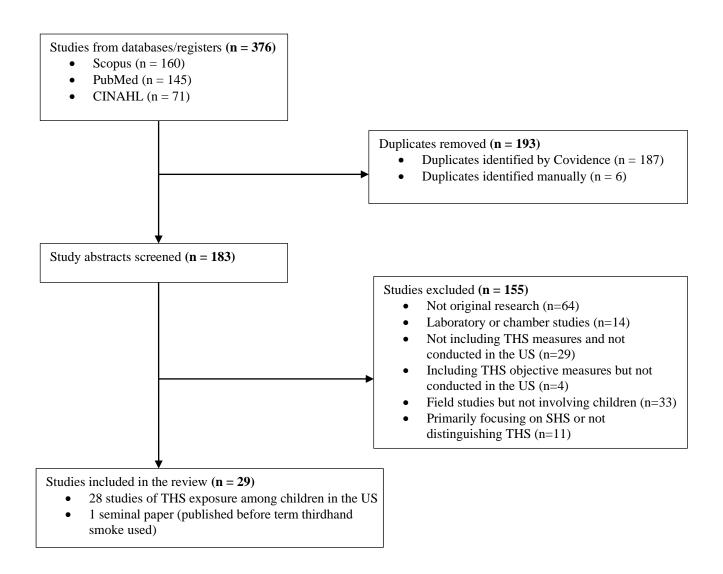
²Department of Psychology, San Diego State University, San Diego, CA 92182, USA.

³Division of Emergency Medicine, Cincinnati Children's Hospital Medical Center, Cincinnati, OH 45229, USA.

⁴Department of Pediatrics, University of Cincinnati College of Medicine, Cincinnati, OH 45267, USA.

⁵School of Human Services, University of Cincinnati, Cincinnati, OH 45221, USA.

Correspondence to: Laila Hamzai, School of Public Health, San Diego State University, 5500 Campanile Dr, San Diego, CA 92182, USA. E-mail: lhamzai9749@sdsu.edu



Supplementary Figure 1. Study screening and selection process.

Supplementary Table 1. Thirdhand smoke studies among children in the United States

| First Author | Publication year | Title |
|-----------------|------------------|---|
| Kassem | 2014 | Children's exposure to secondhand and thirdhand smoke carcinogens and toxicants in homes of hookah smokers. |
| Kelley | 2021 | Altered microbiomes in thirdhand smoke-exposed children and their home environments. |
| Mahabee-Gittens | 2022 | Disparities in dental health issues and oral health care visits in US children with tobacco smoke exposure. |
| Mahabee-Gittens | 2019 | Nicotine on children's hands: limited protection of smoking bans and initial clinical findings. |
| Mahabee-Gittens | 2022 | High levels of the carcinogenic tobacco-specific nitrosamine NNAL and associated findings in children of smokers: a case series. |
| Mahabee-Gittens | 2022 | Disparities in neighborhood characteristics among US children with secondhand and thirdhand tobacco smoke exposure. |
| Mahabee-Gittens | 2021 | Comparison of levels of three tobacco smoke exposure biomarkers in children of smokers. |
| Mahabee-Gittens | 2022 | Hand nicotine as an independent marker of thirdhand smoke pollution in children's environments. |
| Mahabee-Gittens | 2021 | Differential associations of hand nicotine and urinary cotinine with children's exposure to tobacco smoke and clinical outcomes. |
| Mahabee-Gittens | 2022 | Financial insecurity and food insecurity among US children with secondhand and thirdhand smoke exposure. |
| Mahabee-Gittens | 2022 | Child tobacco smoke exposure, indoor home characteristics, and housing stability among a national sample of US children. |
| Mahabee-Gittens | 2018 | Preliminary evidence that high levels of nicotine on children's hands may contribute to overall tobacco smoke exposure. |
| Matt | 2023 | Changes and stability of hand nicotine levels in children of smokers: associations with urinary biomarkers, reported child tobacco smoke exposure, and home smoking bans. |
| Matt | 2022 | Prevalence and income-related disparities in thirdhand smoke exposure to children. |
| Matt | 2011 | When smokers move out and nonsmokers move in: residential thirdhand smoke pollution and exposure. |
| Matt* | 2004 | Households contaminated by environmental tobacco smoke: sources of infant exposures. |
| Merianos | 2023 | Tobacco smoke exposure and gastrointestinal problems among US children. |
| Merianos | 2023 | Tobacco smoke exposure and sleep duration among US adolescents. |
| Merianos | 2021 | Tobacco smoke exposure and inadequate sleep among US school-aged children. |
| Merianos | 2023 | Distinguishing exposure to secondhand and thirdhand tobacco smoke among US children using machine learning: NHANES 2013-2016. |
| Merianos | 2023 | Sources of tobacco smoke exposure and their associations with serum cotinine levels among US children and adolescents. |
| Merianos | 2023 | Contamination of surfaces in children's homes with nicotine and the potent carcinogenic tobacco-specific nitrosamine NNK. |
| Merianos | 2022 | Tobacco smoke exposure, school engagement, school success, and afterschool activity participation among US children. |
| Northrup | 2016 | Thirdhand smoke in the homes of medically fragile children: assessing the impact of indoor smoking levels and smoking bans. |
| Northrup | 2021 | Thirdhand smoke associations with the gut microbiomes of infants admitted to a neonatal intensive care unit: an observational study. |
| Northrup | 2021 | Thirdhand smoke contamination and infant nicotine exposure in a neonatal intensive care unit: an observational study. |

| Northrup | 2016 | Thirdhand smoke contamination in hospital settings: assessing exposure risk for vulnerable pediatric patients. |
|----------|------|--|
| Quintana | 2024 | Cotton pillow samplers for assessment of thirdhand smoke in homes of smokers and nonsmokers with children. |
| Thomas | 2011 | Metabolites of a tobacco-specific lung carcinogen in children exposed to secondhand or thirdhand tobacco smoke in their homes. |

^{*}Seminal paper (published before the term thirdhand smoke used)