

# Promoting Environmental Justice in Nail and Hair Salons in California



Liên Hiệp Ngành Móng Tay Lành Mạnh

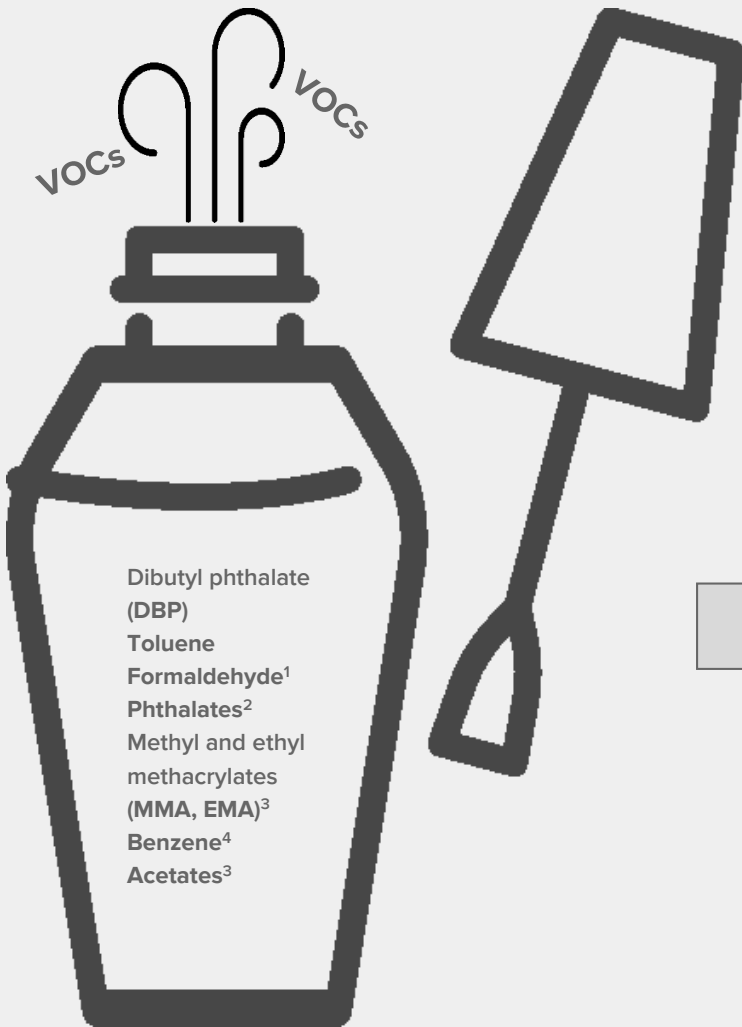


**UCLA** Labor Occupational  
Safety & Health Program

Tomas Pramod  
University of Arizona  
BScE '17, MPH-EOH IH Candidate

# Introduction

- **EPA project:** *Promoting Environmental Justice in Nail and Hair Salons in California through Safer and More Sustainable Products*
- Goal: reduce toxic products used in nail and **Black hair salons**
- **Indoor air sampling** in salons, shadowing the project's CIH
- OHIP intern for the **California Healthy Nail Salon Collaborative (CHNSC)**



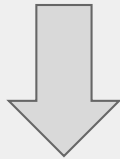
## Nail salon hazards

Skin, eye, and respiratory irritants<sup>1</sup>; developmental effects in animal studies<sup>5, 6</sup>; nail and skin ailments<sup>7</sup>; carcinogenicity<sup>8</sup>

# Black hair salon hazards



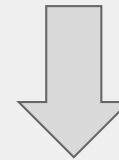
Photo from Adobe Stock



**Skin and eye damage<sup>1</sup>, increased risk of uterine fibroids<sup>2</sup>**

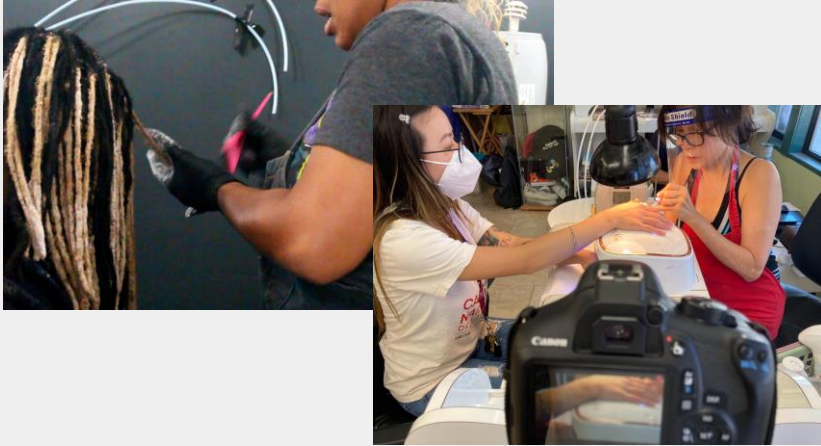


Photo credit: Steven Depolo [CC 2.0](https://api.flickr.com/photos/stevendepolo/4886397967/in/album-72157624588625977/)  
<https://api.flickr.com/photos/stevendepolo/4886397967/in/album-72157624588625977/>



**Musculoskeletal disorders<sup>3</sup>**

# One aspect of environmental injustice in salon work



Salon customers may spend an hour (or several)<sup>1, 2</sup> inside a salon once every few weeks

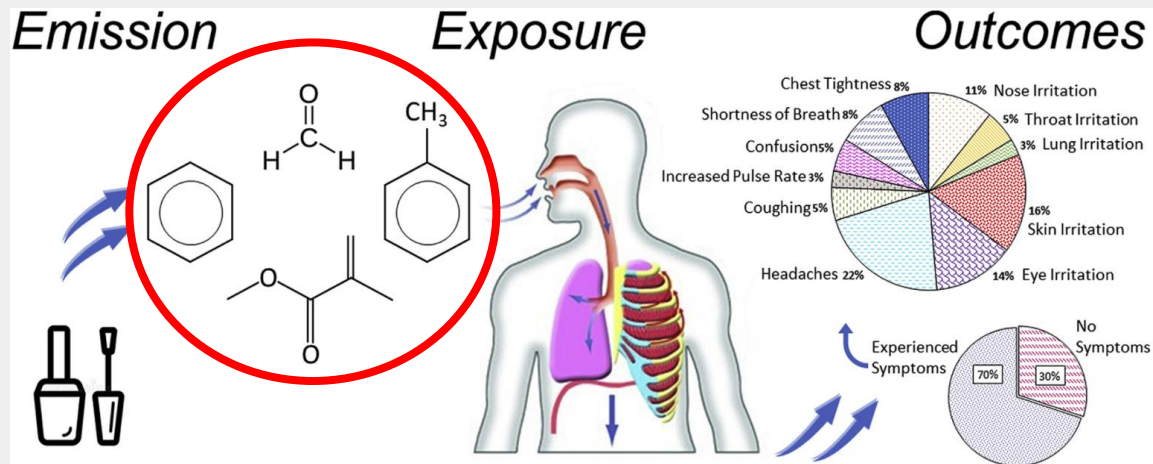
but  
...



Nail salon employees may spend between 20 to 60 hours per week<sup>3</sup> in salons

Black hair salon procedures can take as long as 12 hours per session<sup>2</sup>

# Objectives



Graphical abstract of Occupational exposure to volatile organic compounds and health risks in Colorado nail salons, Lamplugh et al., 2019

- Walk through nail salons and Black hair salons
- Quantitatively measure airborne contaminants generated during nail and Black hair salon processes
- Research less harmful nail products, visit nail salon supply stores

# Quantitative methods



- Real time measurements of total volatile organic compound (TVOC) and particulate matter (PM) emissions [TSI EVM 7]

- Air samples to identify VOCs and determine their concentration in the air [summa passivated canister]

- Video exposure monitoring (VEM) visually links work activities to airborne contaminant levels





# Walkthrough methods

- Using checklist, asked workers and owners questions about:
  - Products used
  - Workplace practices
  - General health concerns
  - Building and ventilation system characteristics
- Worker feedback supplemented quantitative data collection

The image displays two overlapping survey checklists. The top one is titled 'NAIL SALON WALKTHROUGH SURVEY CHECKLIST' and the bottom one is 'HAIR SALON WALKTHROUGH SURVEY CHECKLIST'. Both forms are divided into sections for general information, reported symptoms or complaints, and chemicals used.

**NAIL SALON WALKTHROUGH SURVEY CHECKLIST**

**SECTION I - GENERAL INFORMATION**

Company \_\_\_\_\_ Title \_\_\_\_\_  
Contact name \_\_\_\_\_ Cell \_\_\_\_\_  
Phone Number \_\_\_\_\_  
Address \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Other \_\_\_\_\_  
 Solid gold nails  Wraps  
Work Hours \_\_\_\_\_

**DAY'S/WEEK**

**PLAINTS**

irritation \_\_\_\_\_  
lache \_\_\_\_\_  
sie, DND, Gelli) \_\_\_\_\_

**HAIR SALON WALKTHROUGH SURVEY CHECKLIST**

**SECTION I - GENERAL INFORMATION**

Company \_\_\_\_\_ Title \_\_\_\_\_  
Contact name \_\_\_\_\_ Cell \_\_\_\_\_  
Phone Number \_\_\_\_\_  
Address \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

City \_\_\_\_\_

Services Provided  Nail  Hair  Other \_\_\_\_\_

Hair care specialties  \_\_\_\_\_  \_\_\_\_\_

Total no. of stations Hair \_\_\_\_\_ Nail \_\_\_\_\_ Work Hours \_\_\_\_\_

JOB TYPES	NO. OF WORKERS	HOURS/DAY	DAY'S/WEEK
Receptionist			
Station renters			
Commission Operators			

**SECTION II - REPORTED SYMPTOMS OR COMPLAINTS**

Dusty/hair  Asthma  Eye irritation  
 Respiratory irritation  Allergic reactions  Headache  
 Skin irritation  Other health complaints

**ODOR PERCEPTION**

Strong  Mild  Low  None detected or similar to: \_\_\_\_\_

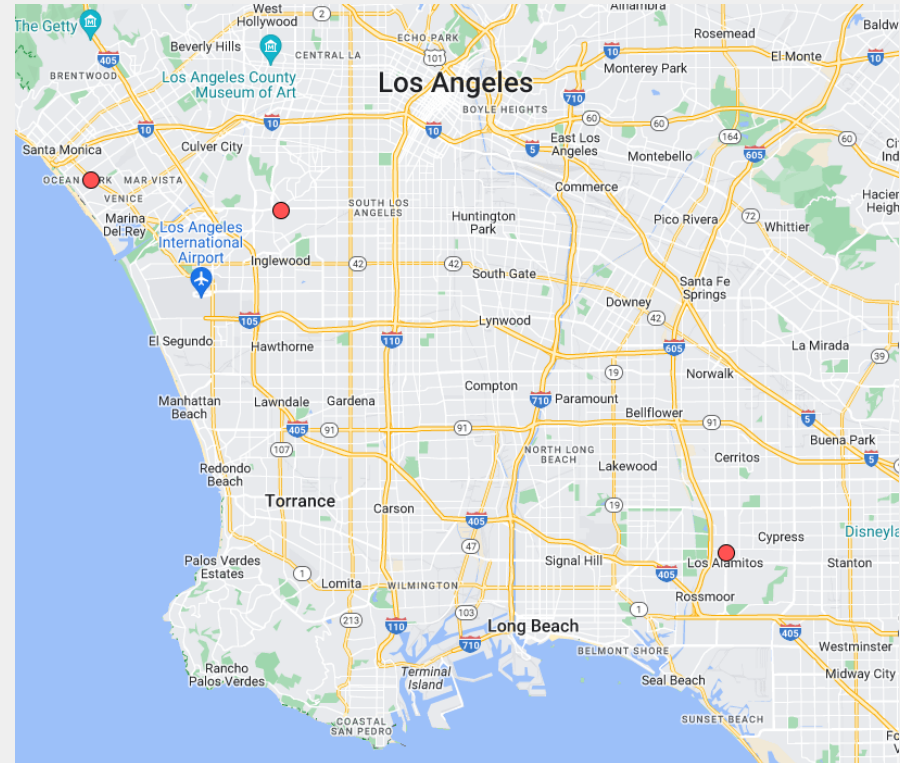
**SECTION III - CHEMICALS USED**

NAMES OF MAJOR VENDORS FOR BEAUTY SUPPLIES \_\_\_\_\_

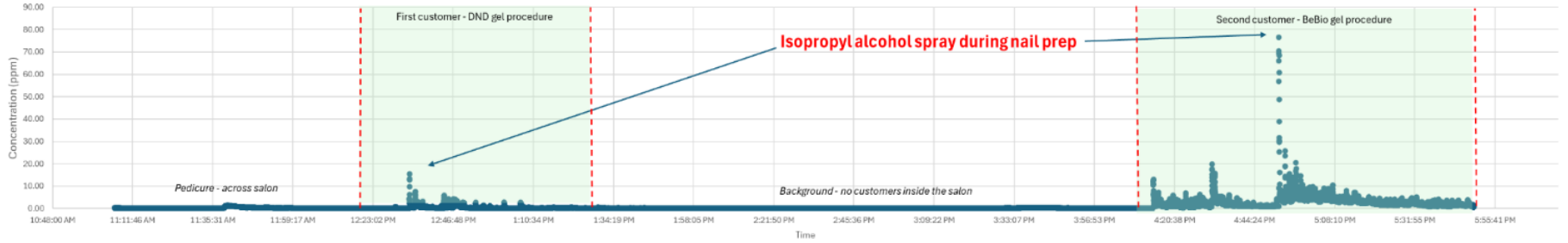


# Preliminary results

- Two nail salons and one Black hair salon in southern California
- 10 total employees within these three salons; 1 stylist per salon was videographed
- Different health concerns in Black hair salons vs. nail salons
- Both nail stylists took pride in their work practices



Nail salon 1 - TVOC over time

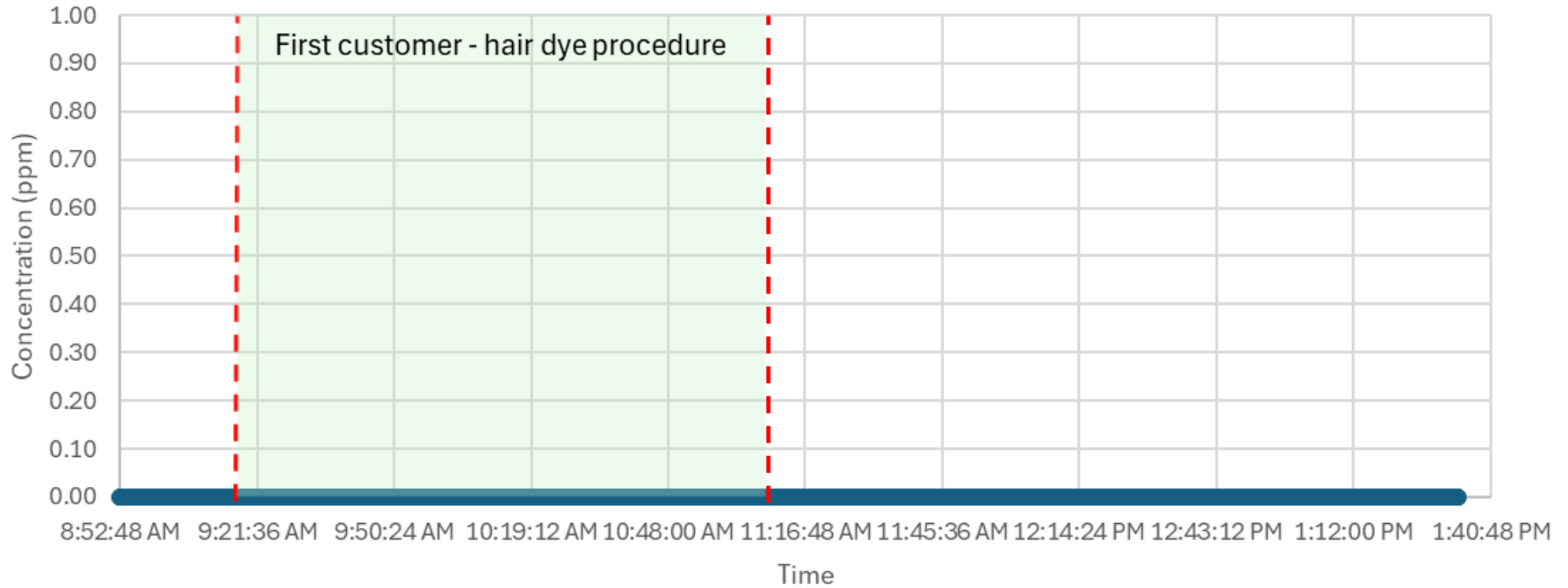


Nail salon 2 - TVOC over time



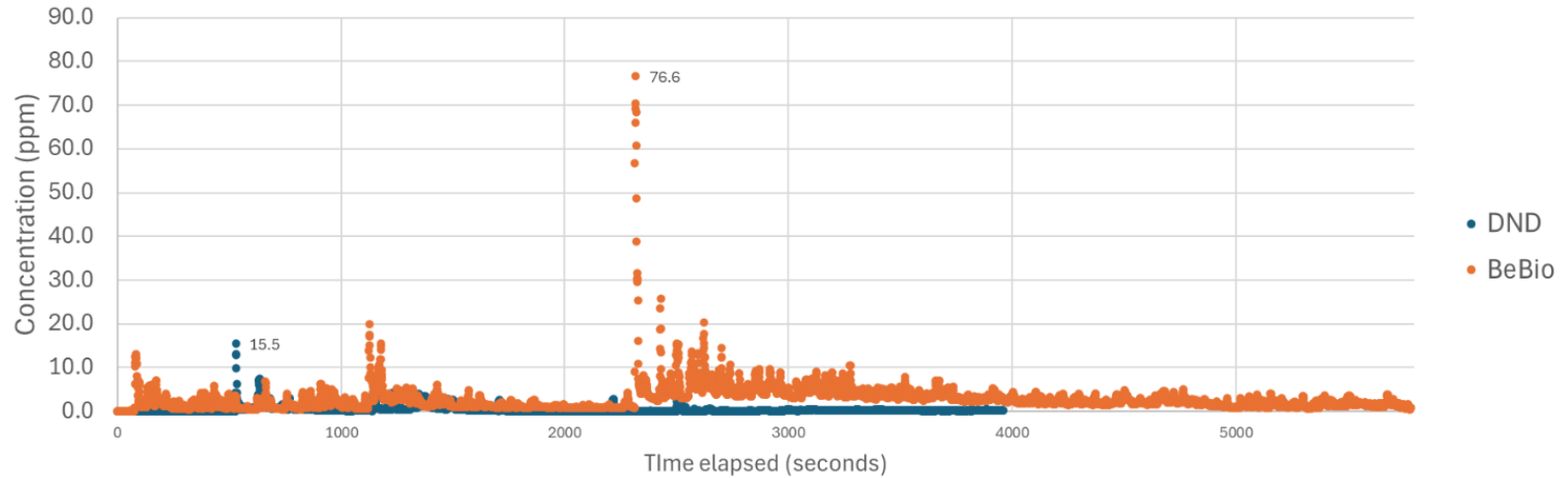
## Preliminary results - Nail salons

## Hair salon 1 - TVOC over time



**Preliminary results - Black hair salons**

Nail salon 1 - TVOC over time - first customer (DND) vs. second customer (BeBio)



	DND (cheaper)	BeBio ("healthy")
Average TVOC (ppm)	0.4	<b>2.8</b>
Median TVOC (ppm)	0.2	<b>2.1</b>
% of nail procedure above IAQ recommended levels (0.108 ppm <sup>1</sup> )	60.7	<b>99</b>

**Cheaper vs. more expensive,  
"healthy" nail products**

# Themes

- Small, independent salons
- Varying work practices between salons → grassroots, community-partnered organizations (CHNSC and BWW) educate salon workers and owners
- Services go beyond styling: stylist and customer interactions create community; salons are a space for vulnerability

# Recommendations



- Use less harmful products, change services offered
- Increase and improve ventilation (especially local exhaust ventilation)
- SDS, hazard communication to workers
- Proper PPE usage

# Next Steps



- Additional air monitoring of **3 nail salons** and **4 Black hair salons** planned over the next two and a half weeks
- Follow up indoor air monitoring of nail and hair salons planned for **2025**



# Limitations and Challenges

- **Area air monitoring  $\neq$  personal air monitoring in the breathing zone**
- **Monolingual  $\rightarrow$  relied on CHNSC colleagues for best communication and connection with nail salon workers**
- **Delayed start to walkthroughs and sampling meant less time for data analysis during my internship**  
**..but visited 14 salon supply stores**

# Successes

- Learned from 5 nail salons and 5 Black hair salons by the end of the study
- Air monitoring data informs EPA pollution prevention efforts
- Give back product: nail salon ventilation guide poster to be displayed in at least 10 nail salons
- Compiled lists of less harmful nail products for supply stores and nail salons



# Acknowledgements

- Participating salons, their employees, customers, and owners:
  - Including LOC LOV LA, Cute Nails, 1st Impression
- Ivy Torres, Kevin Riley, and UCLA LOSH
- Mary Nguyễn and CA Healthy Nail Salon Collaborative
- Arnedra Jordan and Black Women for Wellness
- Tuan Nguyễn
- Shannon Newton - University of Arizona
- Environmental Protection Agency (EPA)
- National Institute for Occupational Safety and Health (NIOSH)



# References

## Slide 3

- 1: Sharma, P., Waheed, S., Nguyen, V., Stepick, V., Orellana, R., Katz, L. & Kim, S. Nail files: a study of nail salon workers and industry in the United States. (UCLA Institute for Research on Labor and Employment, 2018).
- 2: Adewumi-Gunn, T. A., Ponce, E., Flint, N. & Robbins, W. A preliminary community-based occupational health survey of Black hair salon workers in south Los Angeles. *Journal of Immigrant and Minority Health* 20, 164–170 (2016).
- 3: Quach, T., Gunier, R., Tran, A., Von Behren, J., Doan-Billings, P.-A., Nguyen, K.-D., Okahara, L., Lui, B. Y.-B., Nguyen, M., Huynh, J. & Reynolds, P. Characterizing workplace exposures in Vietnamese women working in California nail salons. *American Journal of Public Health* 101, S271–S276 (2011).

## Slide 4

- 1: Occupational Safety and Health Administration. Chemical hazards. Health Hazards in Nail Salons at <<https://www.osha.gov/nail-salons/chemical-hazards>>
- 2: Han, I., Seo, J. Y., Barr, D. B., Panuwet, P., Yakimavets, V., D'Souza, P. E., An-Han, H., Afshar, M. & Chao, Y.-Y. Evaluating indoor air phthalates and volatile organic compounds in nail salons in the greater New York City area: a pilot study. *International Journal of Environmental Research and Public Health* 19, 12411 (2022).
- 3: Zhong, L., Batterman, S. & Milando, C. W. VOC sources and exposures in nail salons: a pilot study in Michigan, USA. *International Archives of Occupational and Environmental Health* 92, 141–153 (2019).
- 4: Lamplugh, A., Harries, M., Xiang, F., Trinh, J., Hecobian, A. & Montoya, L. D. Occupational exposure to volatile organic compounds and health risks in Colorado nail salons. *Environmental Pollution* 249, 518–526 (2019).
- 5: Kim, S., Jung, J., Lee, I., Jung, D., Youn, H. & Choi, K. Thyroid disruption by triphenyl phosphite, an organophosphate flame retardant, in zebrafish (*Danio rerio*) embryos/larvae, and in GH3 and FRTL-5 cell lines. *Aquatic Toxicology* 160, 188–196 (2015).
- 6: Andrade, A. J. M., Grande, S. W., Talsness, C. E., Grote, K. & Chahoud, I. A dose–response study following in utero and lactational exposure to di-(2-ethylhexyl)-phthalate (DEHP): non-monotonic dose–response and low dose effects on rat brain aromatase activity. *Toxicology* 227, 185–192 (2006).
- 7: Gorton, A. The history of nail care. *Nails Magazine* 42–44 (1993).
- 8: IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Chemical agents and related occupations. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 100F, 285 (2012).

## Slide 5

- 1: Scranton, A. Exposed: Ingredients in Salon Products and Salon Worker Health and Safety. 7 (2023). at <[https://womensvoices.org/wp-content/uploads/2023/03/Salon-Label-Report\\_EXPOSED.pdf](https://womensvoices.org/wp-content/uploads/2023/03/Salon-Label-Report_EXPOSED.pdf)>
- 2: Wise, L. A., Palmer, J. R., Reich, D., Cozier, Y. C. & Rosenberg, L. Hair relaxer use and risk of uterine leiomyomata in African-American women. *American Journal of Epidemiology* 175, 432–440 (2012).
- 3: Adewumi-Gunn, T. A., Ponce, E., Flint, N. & Robbins, W. A preliminary community-based occupational health survey of Black hair salon workers in south Los Angeles. *Journal of Immigrant and Minority Health* 20, 164–170 (2016).

## Slide 12

- 1: Jia, C., Cao, K., Valaulikar, R., Fu, X. & Sorin, A. B. Variability of total volatile organic compounds (TVOC) in the indoor air of retail stores. *International Journal of Environmental Research and Public Health* 16, 4622 (2019).