Occupational Chemical Exposures Among Hairdressers of Color

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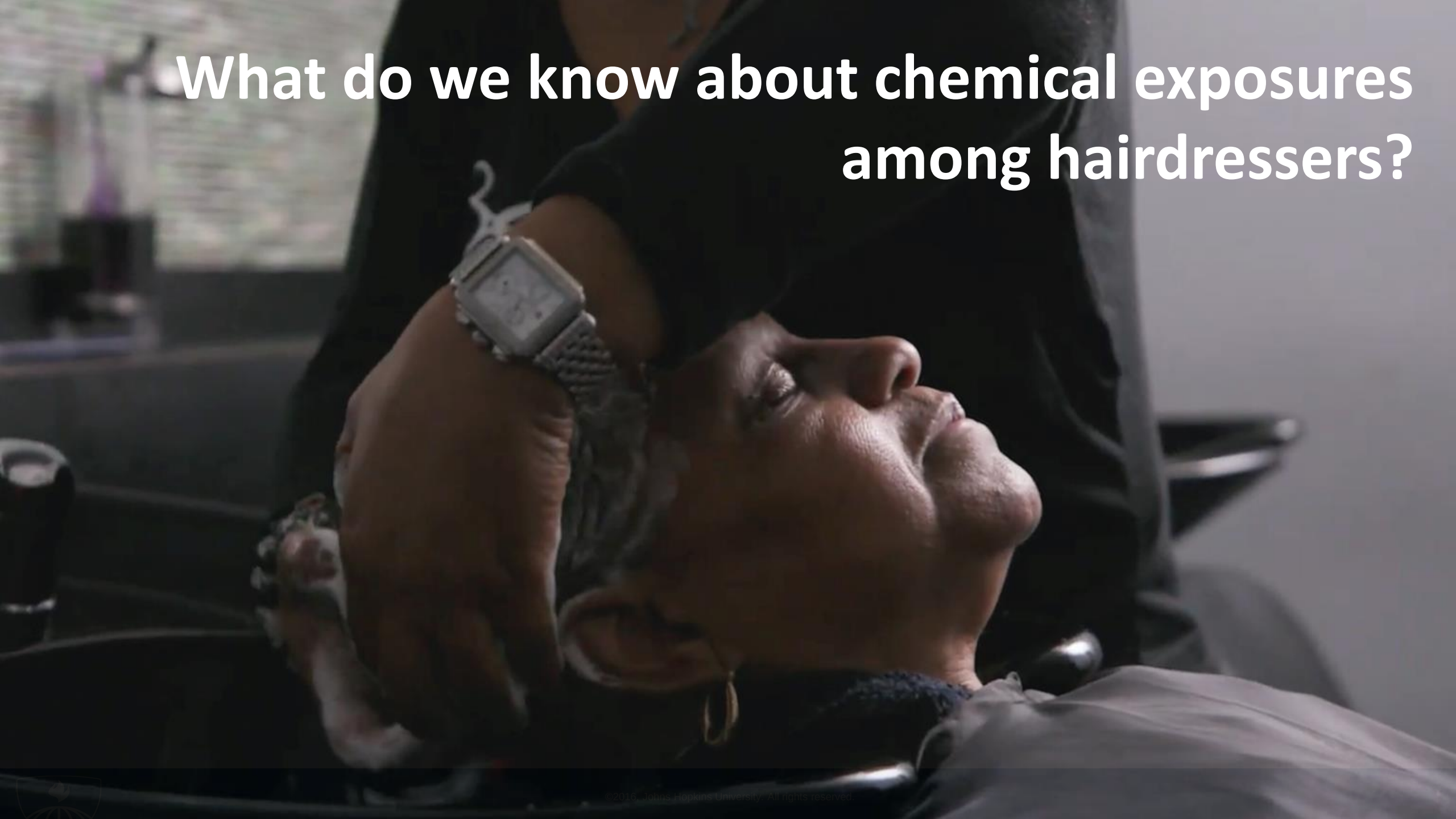
What do we know about chemical exposures among hairdressers?



Existing data gaps on occupational exposures among hairdressers

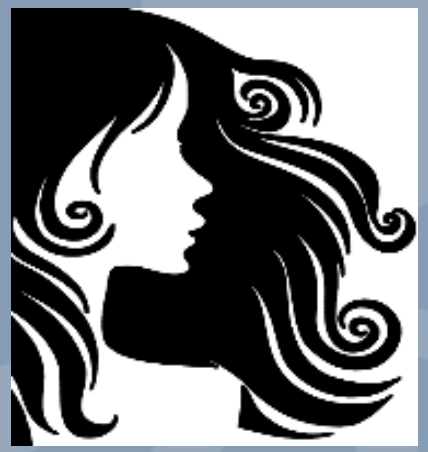
- Limited studies on indoor salon exposures
- Epidemiologic findings limited and/or inconsistent
  - Most conducted in Europe
  - Occupational title to assess exposure
  - Limited data on chemical exposures
- Data on exposures and health risks among workers serving a racially/ethnically diverse clientele lacking
- Products marketed for use among women of color contain harmful ingredients and use patterns are different

What did we do?

Particulate matter

28 VOC biomarkers*

14 VOCs in air



Characterized IAQ and concentrations of indoor air pollutants (VOCs and PM) in 6 hair salons primarily serving an African American and/or Latino clientele and conducted biomonitoring of study participants (23 hairdressers/17 office workers).

Nasal microbiome

9 Phthalate biomarkers *

Untargeted analyses

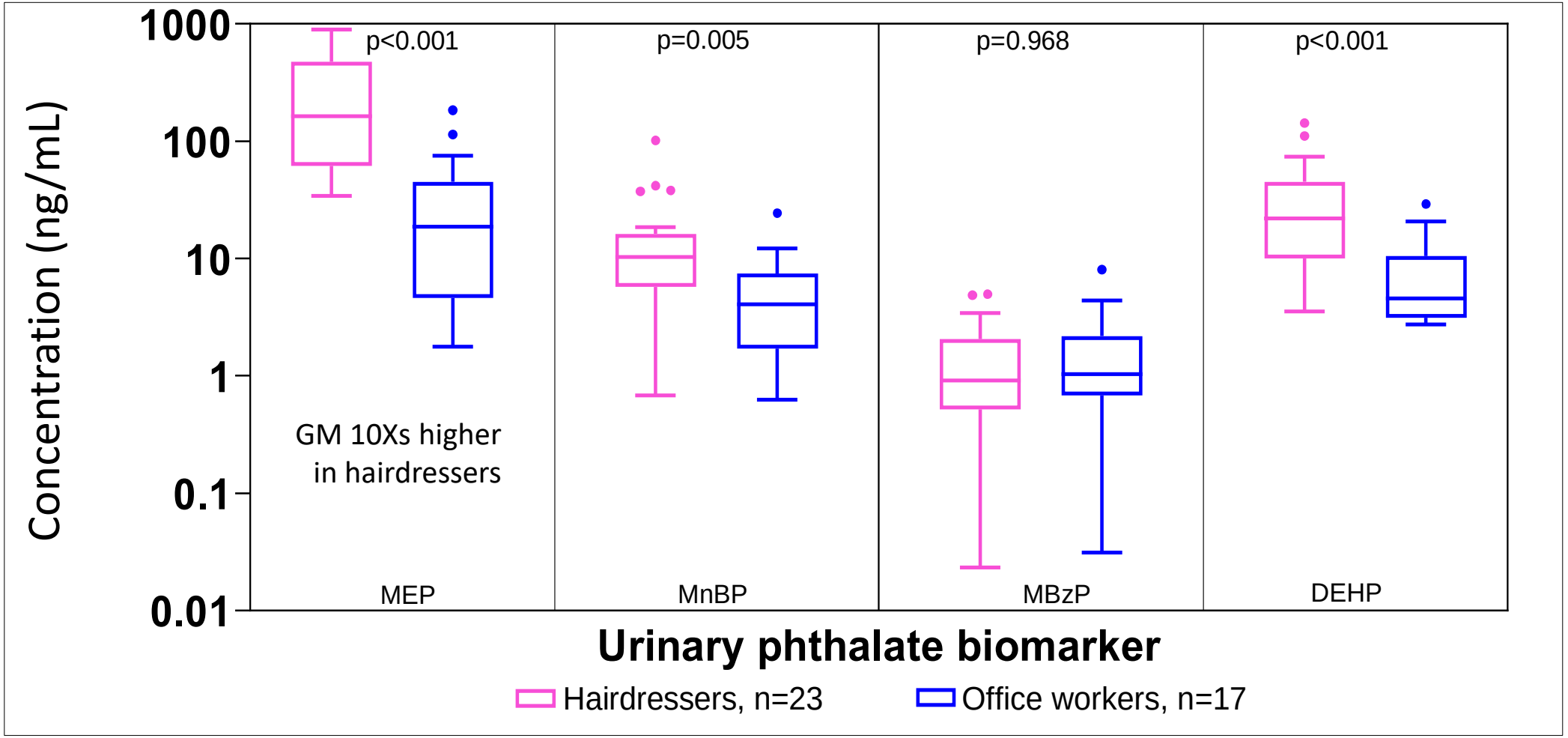
What did we find?

Study population characteristics

- 48% reported worked while pregnant
- 2 hairdressers in their 3rd trimester
- Hairdressers had lower income
- Most non-smokers
- Hairdressers used more beauty products and sought more salon services

Characteristic	Hairdressers (n=23) N(%)	Office Workers (n=17)
Race/Ethnicity		
Hispanic/Latina	11 (47.8)	7 (41.2)
Non-Hispanic Black	11 (47.8)	7 (41.2)
Other	1 (4.4)	3 (17.6)
Income		
≤ $30,000	10 (52.6)	3 (17.7)
$30,001-$50,000	4 (21.1)	3 (17.7)
> $50,000	5 (26.3)	11 (64.7)
Current smoker		
No	19 (82.6)	16 (94.1)
Yes	4 (17.4)	1 (5.9)
Received salon services ≤ 12 months		
None	7 (30.4)	12 (70.6)
1 service	6 (26.1)	3 (17.7)
2-3 services	10 (43.5)	2 (11.8)
Characteristic	**Mean (SD)**	
Age (years)*	40.2 (10.6)	33.6 (7.9)
Work week hrs.	44.3 (18.7)	40.4 (10.4)
Personal use ≤48 hrs.		
Makeup	3.4 (3.1)	2.5 (2.1)
Hair products	2.1 (1.5)	1.5 (1.1)
Other PCPs	10.5 (4.7)	10.6 (2.0)

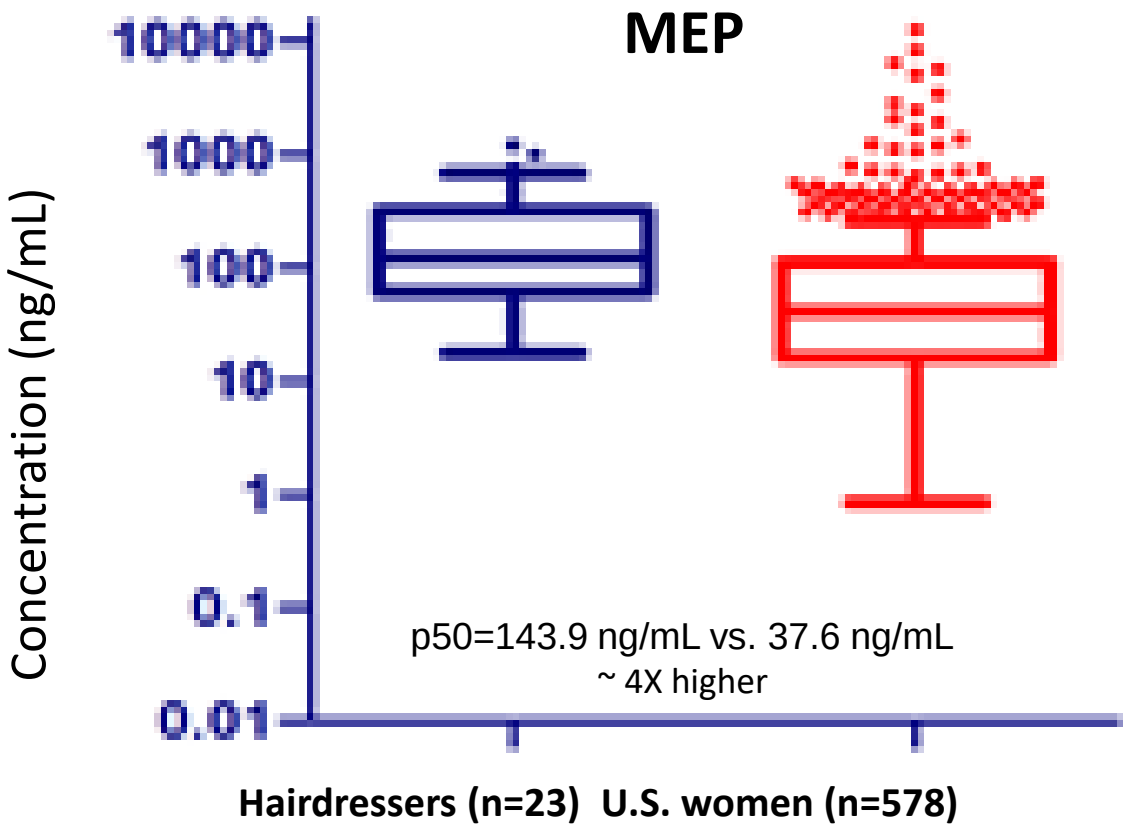
Higher phthalate concentrations in hairdressers vs. office workers



Specific gravity corrected urinary concentrations for select phthalate biomarkers in hairdressers and office workers

Boyle et al. 2021

Higher MEP biomarker concentrations in hairdressers vs. women in the US general population

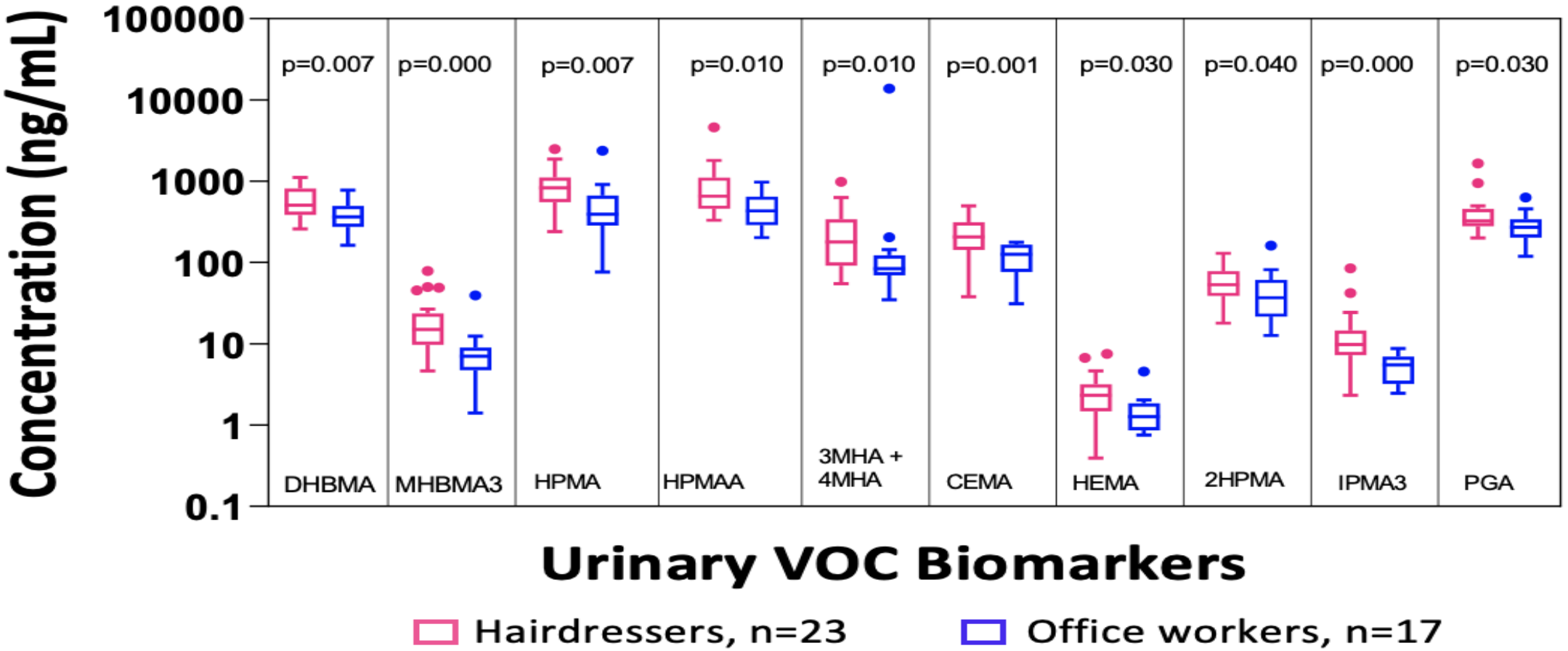


Uncorrected urinary MEP concentrations (ng/mL) in hairdressers and U.S. women (NHANES 2015-2016)

Median concentrations ***2-41 Xs*** *higher vs. women in other studies*

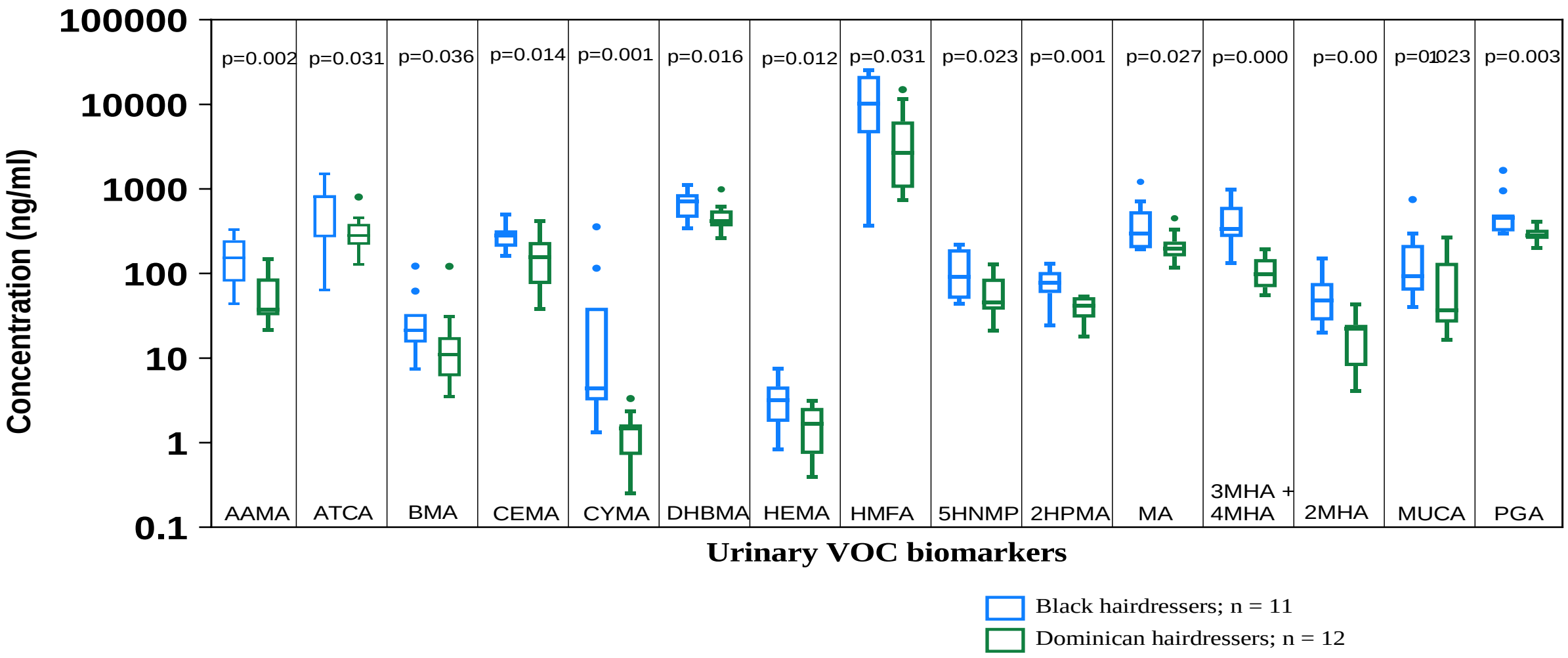
Boyle et al. 2021

Higher VOC biomarker concentrations in hairdressers vs. office workers



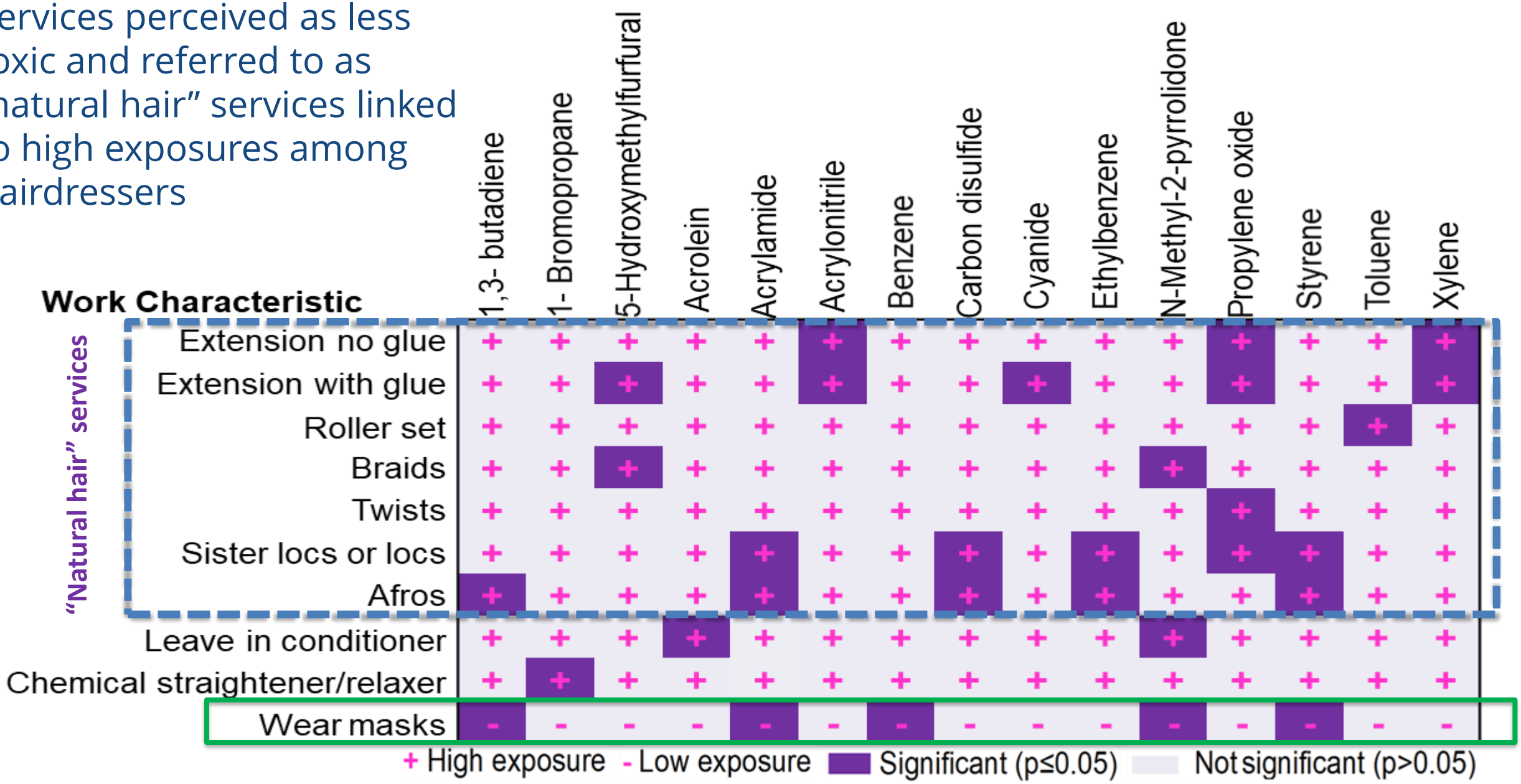
Louis et al. 2021

Higher VOC exposures observed in salons based on clientele



Louis et al. 2021

Services perceived as less toxic and referred to as “natural hair” services linked to high exposures among hairdressers



magazine.jhsph.edu/2022/beautys-byproducts

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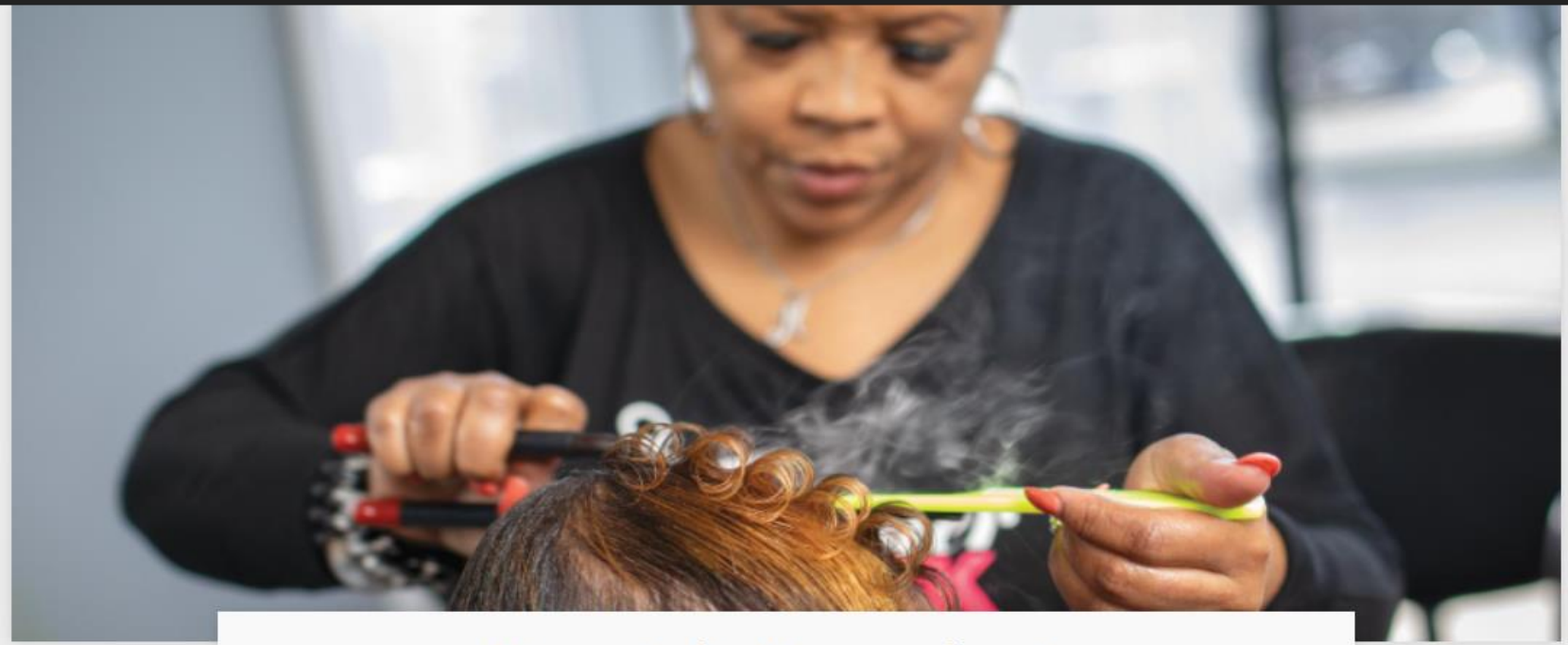

Beauty's Byproducts

Dyes, relaxers, and conditioners give salon clients the styles they want—and leave salon workers with a potentially dangerous chemical burden.

By Lola Butcher • Photos by Chris Hartlove

Late in the week, Tré Shadez Hair Studio in Capitol Heights, Maryland, brims with style and energy. Owner Katrina Randolph and seven other stylists juggle eight to 10 clients a day, straightening hair, texturizing, dyeing, curling. Odors from chemical relaxers, hair spray, bleaches, and conditioners blend in a pungent swirl you can feel in your lungs and eyes. Blow-dryers whir behind animated conversations, creating an artificial breeze that does little to dilute the chemical smell. Steam wisps up from hair shaped by straightening or curling irons.

Randolph, who founded the salon with her husband 22 years ago, is a member of Health Advocates In-Reach and Research (HAIR), a program that engages barbershops and beauty salons in Prince George's County, Montgomery County, and Baltimore City to educate their clients about everything from blood pressure and cancer screenings to COVID-19 vaccinations. Randolph herself was the lead instructor for the White House COVID-19 mitigation initiative Shots@TheShop and hosted vaccination events at Tré

For more...

The study was featured in an article in the BSPH Public Health Magazine: https://magazine.jhsph.edu/2022/beautys-byproducts

YouTube video also available there.

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