
Cancer Risk in California Cosmetologists and Manicurists



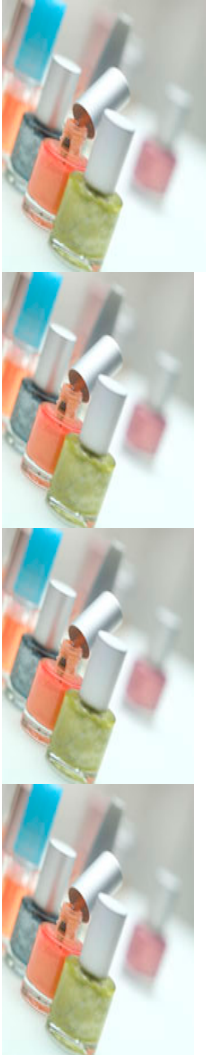
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Northern California Cancer Center

***California Healthy Nail Salon Collaborative Research Convening
April 27, 2009***

Why the interest in nail salon workforce?



- ❑ Rapid growth due to tripling of nail salons in last two decades
- ❑ California—largest number of establishments (N=35,000) and licensees (N>300,000) in the U.S. to perform hair and/or nail services
- ❑ Immigrant workers: Vietnamese comprise a large proportion of the workforce
- ❑ 95% female workers
- ❑ Anecdotal stories from health outreach workers and community clinicians
 - Workers experience acute health symptoms (e.g., headaches, breathing problems, skin irritations)
 - Symptoms disappear when workers are away from work for a few days

Changes in cosmetologist and manicurist workforces over time

Figure 1. Number of Actively Licensed Cosmetologists By Year (1970-2005)

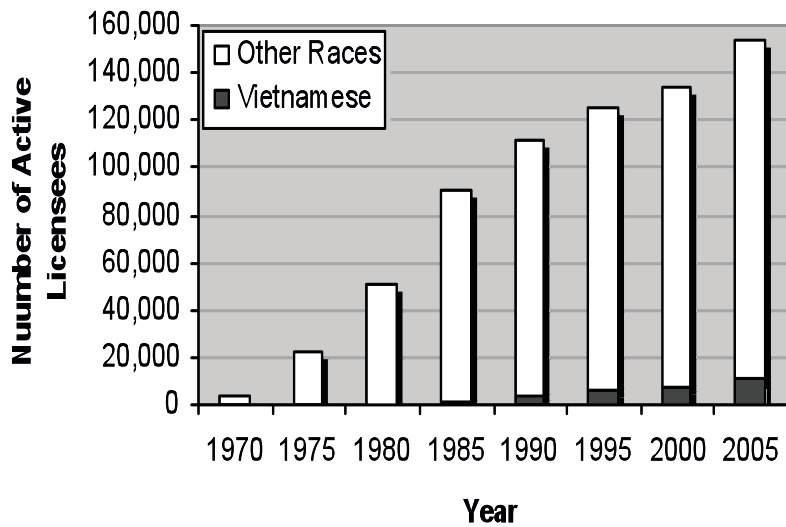
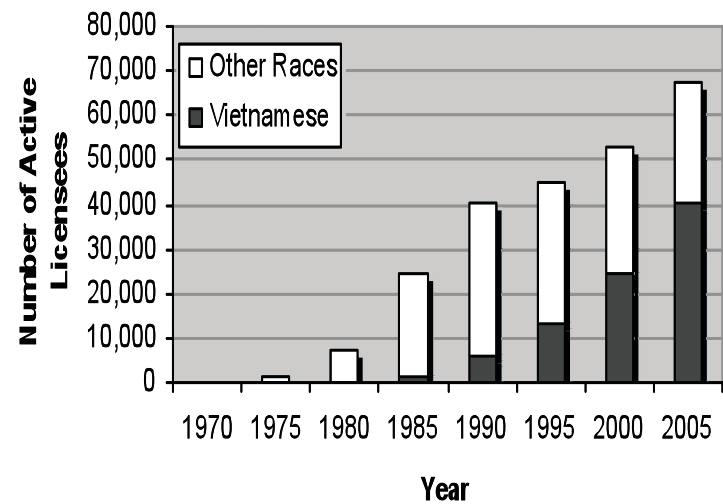


Figure 2. Number of Actively Licensed Manicurists By Year (1970-2005)



Select Compounds in Nail Products

Compounds	Nail care use ¹	Potential Health Effects ²	Route(s) of Exposure ³
Formaldehyde	Nail hardener, tool disinfectant ¹	Known Carcinogen	Inhalation, dermal
Silica	Acrylic nail powder	Known Carcinogen	Inhalation
Methylene Chloride	Artificial nail solvent	Possible Carcinogen	Inhalation, dermal
Titanium Dioxide	Acrylic nail powder ¹	Possible Carcinogen	Inhalation
Acetone	Nail polish remover ¹	Shortens menstrual cycle	Inhalation, dermal
DiButyl Phthalate	Nail polish	Endocrine disruptor	Inhalation, dermal
Toluene	Nail polish, nail adhesives ¹	Suspected Teratogen	Inhalation, dermal

¹US EPA Pollution Prevention Practices for Nail Salons: A Guide to Protect the Health of Nail Salon Workers and their Work Environment, 2007.

²Agency for Toxic Substances Disease Registry (ATSDR). Toxicological Profile Information Sheet [web page] 2006.



Asian Health Services (AHS)



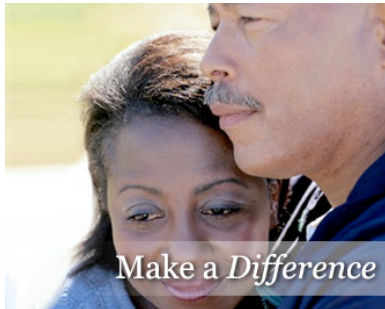
To serve and advocate for the Asian community regarding its health rights, and to assure access to health care services regardless of income, insurance status, language, or culture.



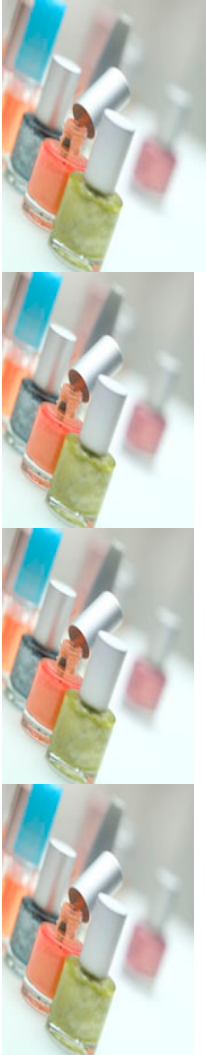


Northern California Cancer Center (NCCC)

Dedicated to preventing cancer through population-based research and community education



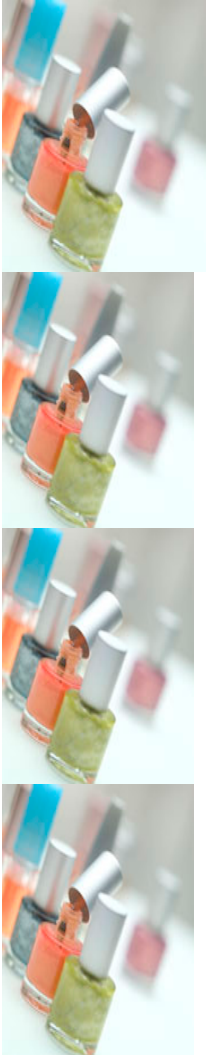
Impetus for Research Focused on Nail Salon Workers



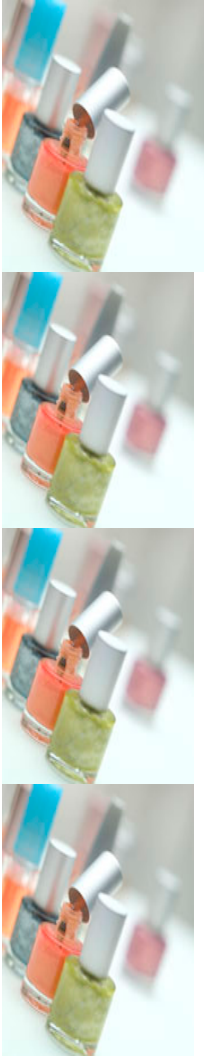
- ❑ AHS has over 15 years of outreach and education to nail salon workers
 - Health outreach staff have long recognized the acute health symptoms of nail salon workers
- ❑ NCCC staff had concerns about occupational exposures
 - Carcinogens and toxins in nail products
 - Poorly ventilated shops
 - Chronic exposures with multiple routes
 - Large vulnerable population: immigrant workers
- ❑ Common interest in understanding workforce members
 - Informing ongoing policy debates regarding potentially hazardous compounds in cosmetics
 - Drawing attention to workers' health problems rather than penalizing their work conduct

Some of the Challenges of Epidemiology Research

- Risk factors difficult to measure
 - People's lives are not simple
 - We aren't exposed to one thing at a time
 - We don't know at what age(s) exposures are most important
 - People can't always tell us what they were exposed to
- Diseases take a while to develop
- Statistical uncertainty



Our Steps to Date for Studying Health Problems in Nail Salon Workers



- Asking them about their jobs and health concerns:
 - In focus groups
 - In individual surveys
- Comparing cancer among cosmetologists and manicurists to the general public to assess whether they have more cancer than might be expected
 - A retrospective cohort study
- Measuring chemical exposures at work
 - An exposure assessment study

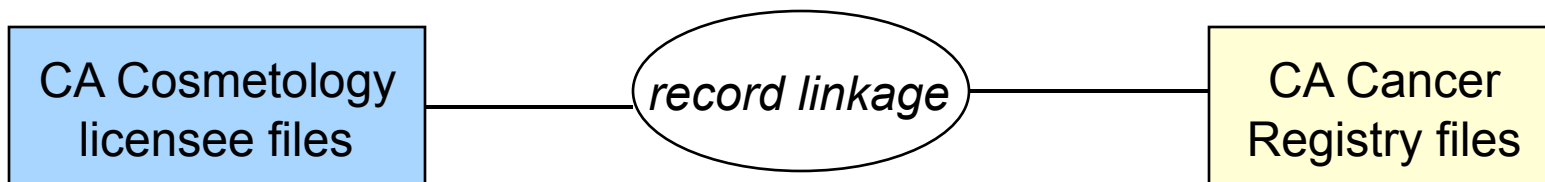
(Community-research collaboration funded by the California Breast Cancer Research Program)

AHS-NCCC Continuation Project (2007-2010)



Part I. Do nail salon workers have higher breast cancer rates than the general population in California?

- All cosmetologists and manicurists required by law to be licensed by state
- Statewide licensee file linked to statewide population-based cancer registry



Compare to female general population

- Excess cancer incidence may suggest occupational link

AHS-NCCC Community-Research Project (2007-2010)



Part II. What are the predictors of exposures to organic solvents among Vietnamese nail salon workers?

- Personal air monitoring with 80 Vietnamese nail salon workers for select compounds (e.g., toluene, ethyl acetate & isopropyl acetate)
- Each worker wears the air monitor at 2-3 times on separate work days and answer short questionnaire
- Comparisons within workers, between workers and across salons help identify predictors of exposure levels

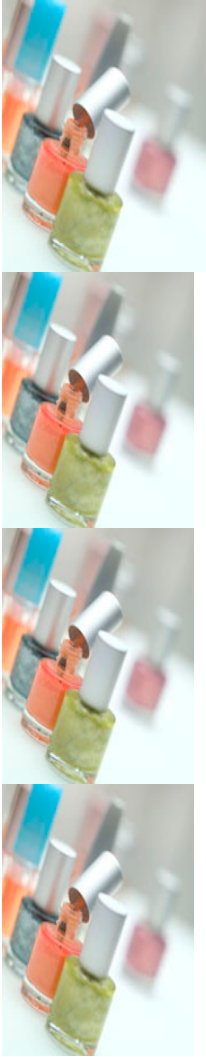


Preliminary Results for Record Linkage Study Component



- 1) **Among cosmetologists and manicurists licensed in California between 1970 and 2005:**
 - There were approximately approximately 326,000 licensees (213,000 cosmetologists and 112,000 manicurists)
 - There were a total of 9,044 cancer cases diagnosed between 1988-2005 (6,239 in cosmetologists and 2,805 in manicurists)
 - Breast cancer and lung cancer comprised the largest number of cancer cases
 - A majority of the cancer cases were diagnosed among workers who first became licensed in 1980s and 1990s.

Preliminary Results for Record Linkage Study Component

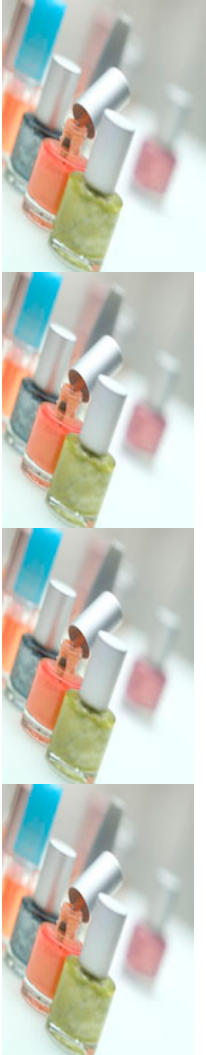


2) When compared to the general female population in California, preliminary results suggests:

- No overall cancer excess among cosmetologists or manicurists
- Small elevated risks for lung cancer among manicurists

Note: *These results are very preliminary and further analysis is needed to confirm these findings.*

Preliminary Results for Record Linkage Study Component

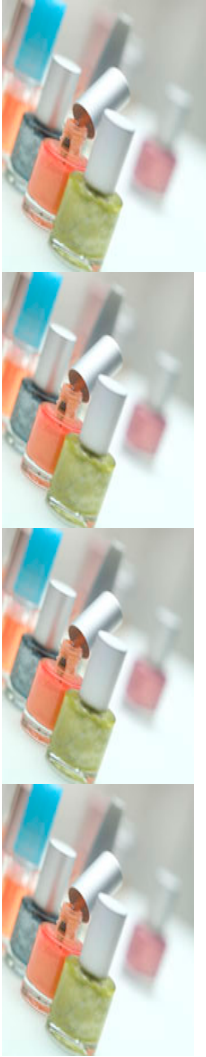


3) When examining number of years a person was licensed, preliminary results suggest:

- Small increase in overall cancer associated with longer period of licensure (adjusting for differences in age)
- Unclear what this means because a person can keep their license active even when he/she is not currently working

Note: *These results are very preliminary and further analysis is needed to confirm these findings.*

Preliminary Results for Air Monitoring Study Component

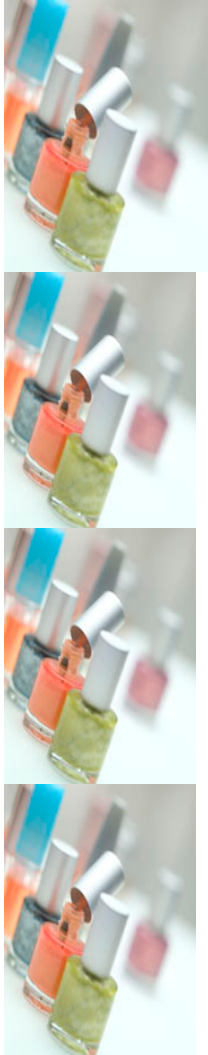


We are currently still in the field collecting data. Based on some very preliminary analysis of measurements from 35 workers at 12 salon shops:

- There are greater differences in measured levels of compounds between salon shops than between individuals
 - Salon characteristics such as size and number of work stations influence the measured levels of compounds

Note: These results are based only a portion of our total sample. Final results may change once all data are collected.

Strengths and Considerations of our Research Study



Strengths

- First study to examine cancer in manicurists, including more recent licensees
- Very large study with statewide information on cosmetologists and manicurists

Considerations

- General female population in California may not be appropriate comparison group for this workforce because they may be very different.
- We lacked information on some important risk factors (e.g., smoking, reproductive history, sex, race/ethnicity)
- Cancer takes a long time to develop, so we may need to wait longer before we can more appropriately evaluate cancer risk in this workforce.

Acknowledgements



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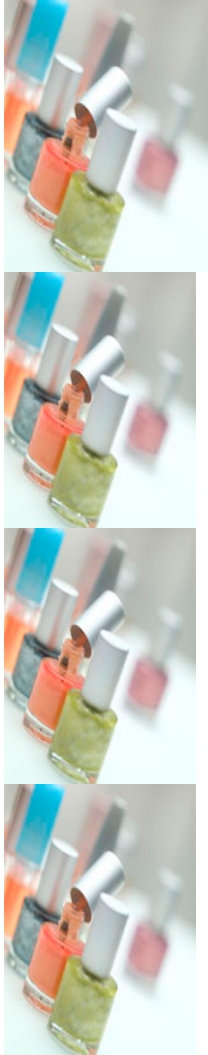
Consultant

Michael DiBartolomeis (California DPH)



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Special thanks to all the nail salon workers and owners who have participated in our research