

Workplace Atlas and Mapping: A Descriptive Study of Nail Salons in Monroe County

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Comments on this report are welcome. Please send any questions or comments to:

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Summary

This report summarizes a 2014 summer project to map nail salons in the Rochester area by the Breast Cancer Coalition of Rochester as part of the Chemicals Education for Cancer Prevention project. The project was funded by the New York State Pollution Prevention Institute (NYSP2I), and utilized materials from the NIH-funded Breast Cancer and the Environment Research Program (BCERP) and the Occupational Safety and Health Administration (OSHA). The Breast Cancer Coalition of Rochester collaborated with the University of Rochester's Environmental Health Sciences Center (EHSC) and Finger Lakes Occupational Health Services (FLOHS) on this project.

Monroe County has the 7th highest incidence rate of breast cancer in New York State, at 140 per 100,000 women. The Chemicals Education for Cancer Prevention project was part of the Breast Cancer Coalition of Rochester's efforts to eradicate breast cancer through education and advocacy by raising awareness of potentially hazardous environmental exposures. Exposure to chemicals such as phthalates has been shown to disrupt the endocrine system and may be a possible breast cancer carcinogen. Despite no established causal link between breast cancer and these chemicals, a national effort is underway to educate the public - particularly those at highest risk - about the potential connections and how to reduce exposure to such chemicals (www.bcerp.org).

The Chemicals Education for Cancer Prevention project had several components, which included community outreach using BCERP materials, education of public health professionals, and production of a 'workplace atlas' characterizing the location, services, and workforces of nail salons in Monroe County, all linked by the common goal of reducing exposure and educating the target audience- women of childbearing age. A summary of the BCERP materials evaluation surveys will be addressed in a separate report.

The workplace atlas and mapping aimed to identify nail salons where employees may be at risk of exposure to harmful chemicals. Exposure during windows of susceptibility- the perinatal, postnatal, pubertal, pregnancy, lactation, and menopausal periods- is concerning because studies have shown that rapidly dividing cells during windows of susceptibility are more vulnerable to the effects of environmental exposures (www.bcerp.org). We focused on nail salons because workers are predominately women of childbearing age and research in other cities has found that nail salon workers may be exposed to harmful chemicals on a daily basis. Investigating poor ventilation, adverse health effects, such as asthma or skin irritation, or chemicals used was beyond the scope of this project. Instead, this project was the preliminary step to identifying local demographics of nail salon workers so that future outreach efforts can be appropriately adapted.

This report summarizes the findings of the workplace atlas and mapping, which included the (1) name, (2) address, (3) approximate workforce size, (4) approximate workplace size, (5) ethnicity/language of the workforce of each establishment visited, (6) type of location, (7) type of services, and (8) a map of salons visited created with ArcGIS Online. Appendix 1 contains screenshots of the ArcGIS Online map and the map can be visited online at <http://bit.ly/1p2OAFb>. The study team visited a total of 120 nail salons located in the City of Rochester and Monroe County randomly selected from Yelp and Google searches. A majority of workers in the visited salons spoke primarily Vietnamese (48.33%) and English (45.83%) and other languages included Chinese (3.33%), Korean (1.67%), and Filipino (0.83%).

I. Background

The Chemicals Education for Cancer Prevention project's goal was to reduce chemicals exposure of populations at risk of breast cancer through education and materials distribution. According to Nails Magazine, 97% of nail salon workers are female, which makes salon workers an optimal target population for this project as the number one risk factor of breast cancer is being female. In addition, exposure to chemicals commonly found in nail polishes- formaldehyde, dibutyl phthalate (DBP), and toluene, commonly known as the 'toxic trio'- may contribute to long term health problems (OSHA, Staying Healthy and Safe While Giving Manicures and Pedicures). Efforts in other cities have had marked success in reducing hazards by educating salon workers and owners about steps they can take to reduce exposures (California Breast Cancer Research Program).

One significant barrier in educating these worker populations in Monroe County is lack of knowledge of the nature, location, ethnicity, and language of these workplaces. Previous work has been done in other areas to investigate high-risk workplaces and sustainable outreach opportunities to the salon population. For example, excellent materials have been developed by other agencies (e.g. OSHA) and community groups in New York, California, and Oregon to reduce chemicals exposure for nail salon workers. However, it has not been feasible to disseminate these efforts to the Rochester area in part because we lack an overview of the workplaces in question, the language/ethnicities of the workers, etc.

The workplace atlas aims to define the demographics of nail salon workers in Monroe County to optimize future outreach efforts. For this study, the 'Rochester Area' includes Monroe County and the City of Rochester. The City of Rochester is defined by the four city quadrants- the Northeast, Northwest, Southeast, and Southwest. According to Nails Magazine, over half of US nail salons are Vietnamese operated and we hypothesized this will hold true for Monroe County. However, we also expected demographic concentrations to vary across neighborhoods and that this diversity among nail salon workers may be important to consider during future outreach. In this workplace atlas, we summarize our findings about the actual ethnicity and distribution of nail salon workers in Monroe County.

II. Methods

Preparations

We compiled a list of nail salon establishments by conducting a Yelp and Google search of 'Nail Salons in Rochester, NY' and initially visited all salons in the Southeast (SE) Quadrant, as per our initial project goal. After completing this area, we expanded the project to include the City of Rochester, which is composed of the Northeast, Northwest, Southeast, Southwest Quadrants. The area boundaries were determined by the official city of Rochester quadrants (www.cityofrochester.gov). All salons listed on Yelp and Google in the City of Rochester were visited.

We continued to expand the project to include all of Monroe County and randomly selected these salons from all salons listed on Yelp and Google in Monroe County. We cross-referenced both sites to ensure we did not exclude any salons. Establishments with limited online information were included in the initial list if the information implied nail services. The search was broadened to include hair salons, tanning salons, and other establishments that advertised nail services. We identified some salons that were not included in our online search during our field work; these salons were also visited. The store name, location, and hours were recorded in an excel spreadsheet and classified by city quadrant - SE, SW, NE, NW Quadrant – or by town for establishments within Monroe County but outside the City of Rochester.

Definitions

The study team originally focused on the SE quadrant of the City of Rochester (n=18) because of anecdotal observations of concentrations of nail salons in this area. However, once these salons were documented, the target region was expanded to include all salons in the City of Rochester and randomly selected salons in Monroe County to provide a more comprehensive overview of salons near Rochester. We identified a total of 38 nail salons in the City of Rochester. A total of 82 nail salons were identified in Monroe County outside of the City of Rochester and were classified by town. The study team randomly selected half the total number of salons in each town- if there were more than five- to visit. In towns with five or fewer salons, we visited all salons to make sure that each town was represented. We visited 82 salons outside the city, for a total sample size of 120 at a rate of about 10-15 salons a day.

At each salon visited, the project team recorded the (1) name, (2) location, (3) number of workers, (4) number of manicure stations, (5) number of pedicure stations, (6) primary language of workers (English, Vietnamese, Chinese, Korean, Filipino, other), (7) type of services (nail only, nail and hair, massage/spa, only hair, nail and tanning), (8) type of location (strip mall, stand alone building, busy street, building complex), (9) brands of polish, and (10) notes.

Observations were made throughout each visit to record salon characteristics. The number of workers was determined by either counting the workers present in the store or counting the licenses on the wall and using the higher value. When possible, the study team would inquire about the number of nail technicians if neither pieces of information were available. The number of manicure and pedicure stations in each salon was determined by counting the stations present. Each nail salon was offered BCERP materials in English and the OSHA booklet in the language of their choice (English, Korean, and Vietnamese).

The size of establishments was classified by the number of manicure stations in the salon; the number of manicure stations defines the maximum number of customers a salon is able to serve at a time. The average number of manicure stations (4.675) was used to determine the size of the salon. Salons with fewer than 5 manicure stations were considered small (54.17%) and salons with five or more manicure stations were considered large (45.83%).

There were two original service categories- (1) Nail Only or (2) Hair and Nail. Additional categories were added to account for the variety of salon types we encountered in the field, which included spas (n=3) and tanning salons (n=1). The current categories may not encompass all non-traditional salons that may offer nails as an additional service; this should be accounted for in future research. Many of these establishments did not have current websites or up to date service information on business review sites, so we often had to re-categorize salons based on our field observations. For example, the category 'Hair Only' was created to accommodate salons included as nail salons on the initial list based on internet information that we discovered when we visited did not offer nail services as advertised and these salons were not included in the total sample size.

Figure 1- Types of Location illustrates the four categories for types of salon locations. Salons that were in open air shopping centers with parking available were classified as strip malls, also known as plazas or shopping centers. Stand alone salons were in buildings that were not connected to the surrounding buildings. These would include independent structures or houses converted into shops. A salon located on a busy street would be a store conjoined in a row with other stores, but not located in a strip mall. These would often include main streets in towns. A building complex salon would be located in a suite within a larger building.

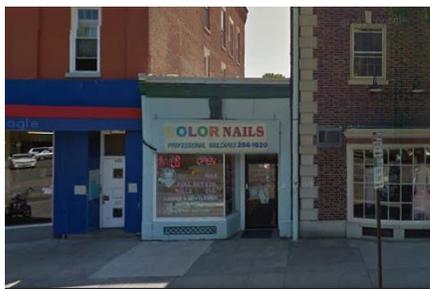
Figure 1 – Types of Location



1.1 Strip Mall Salon



1.2 Stand Alone Salon



1.3 Busy Street Salon



1.4 Building Complex Salon

We recorded brands of polishes when we were able to observe them. Recording brands of polishes used in salons was highly dependent on the distance and placement of the nail polish rack. There was potential error because the study team was able to identify familiar brands more quickly and thus may not fully represent all possible brands. Recurring brands included OPI, Essie, Gelish, VIP, and China Glaze. The study team did not record the different styles of nail applications, which may include traditional nail polish, gel polish, or acrylic nails. Because of the incomplete data collection of brands for each salon, we did not report the distribution of brands. However, we did compile a list of brands observed (in approximate order according to how frequently observed) (Table 1.1). This provides an initial sense of whether/how often brands containing the ‘toxic trio’ is used in our area. O.P.I, China Glaze (most polishes, check label to be sure), Essie, Sally Hansen, and MAC are some of the brands that have begun eliminating the toxic trio from their ingredients.

The study team also recorded notes about the qualitative characteristics of each salon. These observations were not quantified and were only used to write the final report.

Table 1.1

Brand of Nail Polish	Frequency	Brand of Nail Polish	Frequency
<i>O.P.I.</i>	28	<i>Acrylic</i>	2
<i>Gelish</i>	19	<i>Cuccio</i>	1
<i>China Glaze</i>	17	<i>Regal</i>	1
<i>V.I.P.</i>	9	<i>Texture</i>	1
<i>Gel Color by O.P.I.</i>	7	<i>IPolish</i>	1
<i>Essie</i>	4	<i>SpaRitual</i>	1
<i>Revlon</i>	2	<i>Pretti Polish</i>	1

Approach

Resources shared at nail salons included: (1) BCERP's "Your Daughter and Breast Cancer: Reducing Her Risk Now" brochure and (2) OSHA's "Stay Healthy and Safe While Giving Manicures and Pedicures: A Guide for Nail Salon Workers" booklet. The survey that was designed to accompany the BCERP brochure was not administered to nail salon workers because of low interest. Salon information was recorded on a workplace evaluation form created for the project.

The approach to salon employees was revised and improved through trial and error. The standard method developed was to introduce ourselves as the Breast Cancer Coalition to either the front desk or the closest employee. It was important to smile and act friendly, even if the salon employee was indifferent or unfriendly. One intern would introduce the BCERP brochure and summarize the highlights of the brochure, such as what actions to take to limit BPA exposure or plastics to avoid. Meanwhile, the other intern would make observations on number of stations and workers, as well as other noteworthy details. We would then ask if copies of the BCERP brochure could be left with the salon. The majority of salons welcomed the materials.

After leaving BCERP brochures in a visible location, usually on the front waiting table, the second intern would introduce the OSHA nail safety booklet. The OSHA nail safety booklets were the primary method used to determine the employee's language, though there are limitations to this method. Three different translations were available: (1) English, (2) Vietnamese, and (3) Korean. It is possible that salon workers may have selected a brochure in a language that was not their primary language because their primary language brochure was unavailable. To account for this, workers were asked their preferred language if they did not select one of our three available translations or if other employees required a different translation. While one intern discussed the OSHA booklet, the other intern would count the number of stations. After thanking the employees for their time, we would leave and return to the vehicle to review the observations from that site.

The interns gauged the conversation from salon to salon and responded appropriately to the atmosphere in each salon. At times employees were friendly and willing to engage in conversation while at other times they were not. So as not to make employees uncomfortable, we avoided obvious note-taking, such as writing, and instead made mental observations of the salon. Because of the limited time and view, some salons had to be estimated. However, having both interns make observations reduced the chance of error. The collected information was identified by salon, but not by individual worker.

Obstacles

Initially, a brief survey based on the California Breast Cancer and the Environment Research Program's study was prepared for the salon employees to fill out, with questions regarding the employee's age, sex, race, primary language and country of origin, education level and a Likert scale evaluating workplace satisfaction. However, after using the workplace questionnaire on the first day of salon visits, we saw that it was ineffective and made employees uncomfortable. The survey was quickly eliminated from our process.

A workplace evaluation form was created after discarding the employee workplace survey. This form was developed for the study team to record the name, location, number of workers and stations, and comments of each salon. The study team initially carried these forms on clipboards, along with the BCERP and OSHA materials. However, salon workers were more comfortable without the clipboards present and so the study team approached hands-free and recorded observations in the car after each visit.

We initially attempted to have nail salon employees to fill out the BCERP survey that accompanies the BCERP brochure. This survey is different from the workplace questionnaire mentioned above and instead is part of the BCERP brochure report. There was a very poor response rate (n=2) and we quickly stopped after the first week of salon visits. The main difficulty was that employees were often occupied with customers. We resorted to simply leaving several BCERP brochures on the magazine table or front desk for both customer and employee viewing. Salon visits were conducted earlier in the week to avoid weekend rushes but some salons still had a significant customer base Mondays through Thursdays. Salon visits were conducted during normal work hours.

Technical challenges with data collection included incorrect addresses listed online, closed salons, or non-existent salons at the given location. Our cross-sectional approach limits our ability to determine the turnover rate of salons as we do not know the duration of each salon's business. Out of date online information after a closing or ownership change was a logistical challenge. Fourteen nail salons were closed at the time of the visits, and this does not include all the possible closed salons in Monroe County. A longitudinal study would be needed to determine the turnover rate of salon management instead of a simple cross-sectional view like this project. This could be useful in determining how often education/outreach should be repeated.

Language barriers did not significantly impede the workplace atlas. The study team was able to communicate with Chinese speaking salons as one of the team members spoke Mandarin Chinese. In other non-English salons, the study team was able to infer the worker's receptiveness from body language. Most salons were receptive to the BCERP and OSHA materials. The acceptance rate of outreach materials was not measured, but based on study team observations language did not appear to be a significant factor. Only around 10% of all salons were apprehensive of BCERP materials; refusing materials did not appear to be associated with languages.

Analysis

Data was entered after each day of work into a spreadsheet on Google Drive. All descriptive analyses were done after converting the Google Drive Spreadsheet into an Excel document; calculations were done using Excel formulas. The map of language and salon locations was created using a free public account on ArcGIS Online.

III. Results

In total, the study team visited 120 salons in Monroe County, 38 of which are in Rochester City. The city is divided into the Southeast, Southwest, Northeast, and Northwest Quadrants.

Nail Salons in the U.S. and Monroe County

There were 58 Vietnamese speaking salons (48.33%), 55 English speaking salons (45.83%), 4 Chinese speaking salons (3.33%), 2 Korean speaking salons (1.67%), and 1 Filipino speaking salon (0.83%). According to Nails Magazine, 51% of salon workers in the U.S. report to be Vietnamese, 40% to be Caucasian, 5% African American, 3% Hispanics, and 1% other. We were cautious to draw direct comparisons between our mapping and Nails Magazine's survey because different measurements were used and local demographics may differ from national demographics. Our mapping of salons classified salon employees by language spoken while Nails Magazine used nationality. Hence, the category 'English' includes both Caucasians and African Americans. The study team did not encounter any Spanish

speaking salon workers, though this does not eliminate the possibility of salon workers of Hispanic descent located within Monroe County.

Table 1.1- Language and Nationality of Salons

Workplace Atlas and Mapping (n=120)			Nails Magazine	
Language	Count	%	Nationality	%
English	n=55	45.83%	Caucasian	40%
			African American	5%
Vietnamese	n=58	48.33%	Vietnamese	51%
Chinese	n=4	3.33%	Other	1%
Korean	n=2	1.67%		
Filipino	n=1	0.83%		
			Hispanic	3%

Source: "2013-2014 Industry Statistics." Nails Magazine. O.P.I., 2014. Web.

The study team identified only four salon environment categories and they were (1) Nail Only, (2) Hair and Nail, (3) Massage/Spa, and (4) Nail and Tanning. In comparison, Nails Magazine identified six categories: (1) Nail Salon, (2) Full-service salon offering nails, (3) Mobile or home-based salon, (4) Day/hotel/destination spa, (5) School, and (6) other. Again, we were hesitant to draw direct comparisons as we did not know the criteria Nails Magazine used to define their categories. However, it was assumed that 'Nail Only' was synonymous with 'Nail Salon,' 'Hair and Nail' with 'Full-service salon offering nails,' and 'Massage/Spa' with 'Day/hotel/destination spa.' The two categories we did not encounter in our sample population were 'School' and 'Mobile or home-based salon.' Approximately two-thirds of salons in both Monroe County and nationwide focus on nail only services. Monroe County appears to contain a higher percentage of salons that offer both hair and nail services. The percentage of spa salons was comparable nationally and in Monroe County. It is difficult to look at the percentage of 'Nails and Tanning' salons to the national category 'Other' because the two are not interchangeable. 'Nails and Tanning' may fall under the definition of 'Other,' but 'Other' salons may include salons that offer further services. Despite not being comparable, using national salon data gives an idea of the composition of salons in Monroe County and can be used in future studies.

Table 1.2- Type of Salon and Salon Environment

Study Team (n=120)			Nails Magazine	
Type of Salon	Count	%	Salon Environment	%
Nail Only	n=80	66.67%	Nail Salon	68%
Hair and Nail	n=36	30.00%	Full-Service Salon offering nails	20%
Massage/Spa	n=3	2.50%	Day/hotel/destination spa	2%
Nail and Tanning	n=1	0.83%	Other	5%
			Mobile or home based	3%
			School	2%

Source: "2013-2014 Industry Statistics." Nails Magazine. O.P.I., 2014. Web.

The study team was unable to compare national differences in type of salon locations (Strip Mall, Stand Alone, Busy Street, or Building Complex) because Nails Magazine did not ask survey respondents about

establishment locations. The study team believed the location of salons was important to record because of the variety of locations.

Geographic Patterns

The study team had anticipated a higher concentration of salons in the City of Rochester but found more salons located in the suburbs. Salons visited were located in the towns of Greece, Irondequoit, Webster, Honeoye Falls, Fairport-Perinton, Brighton, Pittsford, Henrietta, East Rochester, Penfield, Chili, Gates, Spencerport-Ogden, Brockport-Sweden, and Parma-Hilton. There were 145 suburb salons identified from online research and 82 of these salons were visited.

Appendix 1 contains screenshots of the workplace map from ArcGIS online. A link has also been provided to view the map online. The Southeast (SE) Quadrant had the largest concentration of salons in the City of Rochester (n=18, 47.37%). A large number of these salons were concentrated along Park Avenue and were English speaking salons. Park Ave has historically been known as a more affluent neighborhood of Rochester and many of the salons in this area had extensive interior décor. We hypothesized that this cluster of trendier salons catered towards the more affluent demographic of the Park Ave area.

We cannot identify specific clusters in the suburban areas since not all salons were visited. However, the mapping illustrates a trend of large concentrations of salons along major roads, such as W Ridge Rd in Greece, E Ridge Rd in Irondequoit, and Empire Blvd in Webster that contain strip malls and shopping centers.

The most isolated salons were located in Honeoye Falls (n=2). The landscape in this area was more rural than the more populated areas in Monroe County, such as Brighton. Spacing between buildings was much larger and roads were much narrower. Both salons in this area were smaller, stand alone buildings. It may be more difficult to identify other remote salons if they lack online information and are hard to physically access.

Salon Language and Service

In both the city of Rochester and Monroe County, Vietnamese salons offering 'Nail Only' services outnumber or equal the number of English salons that offer the same services. In the same way, English salons that offer 'Hair and Nail' services outnumber the amount of Vietnamese salons that offer 'Hair and Nail' services. There were a total of 80 'Nail Only' salons (Table 2.3), of which 56 were Vietnamese operated (70%) and 17 English (24.29%) operated. Out of the total of 36 hair and nail salons, 2 were Vietnamese (5.56%) and 34 English (94.44%). This trend remains constant in the city quadrants and suburbs and illustrates how the majority of Vietnamese salons focus on 'Nail Only' services while more English salons offer both 'Hair and Nail' services. 97.67% of Vietnamese salons located in the suburbs offered 'Nail Only' services (n=42 out of n=43). Chinese, Korean and Filipino salons offered 'Nail Only' services. This greatly affects the atmosphere and layout of the salon. Typically, a hair salon requires widespread lighting and mirrors while lighting in a nail salon focuses directly above the manicure booth. Noise level may also be higher in hair salons due to hairdryers. There may be difficult chemical exposures based on the layout and products used in different types of salons; it is important to keep this in mind for future studies.

Table 2.1- Languages and Types of Services

Types of Services	Languages					Total
	English	Vietnamese	Chinese	Korean	Filipino	
Northeast	3	1	1	0	0	5
<i>Nail Only</i>	1	1	1	0	0	3
<i>Hair and Nail</i>	2	0	0	0	0	2
<i>Massage/Spa</i>	0	0	0	0	0	0
<i>Tanning</i>	0	0	0	0	0	0
Northwest	4	5	0	0	0	9
<i>Nail Only</i>	3	5	0	0	0	8
<i>Hair and Nail</i>	1	0	0	0	0	1
<i>Massage/Spa</i>	0	0	0	0	0	0
<i>Tanning</i>	0	0	0	0	0	0
Southeast	10	7	1	0	0	18
<i>Nail Only</i>	1	6	1	0	0	8
<i>Hair and Nail</i>	8	1	0	0	0	9
<i>Massage/Spa</i>	1	0	0	0	0	1
<i>Tanning</i>	0	0	0	0	0	0
Southwest	3	2	0	1	0	6
<i>Nail Only</i>	0	2	0	1	0	3
<i>Hair and Nail</i>	2	0	0	0	0	2
<i>Massage/Spa</i>	1	0	0	0	0	1
<i>Tanning</i>	0	0	0	0	0	0
Outside City	35	43	2	1	1	82
<i>Nail Only</i>	12	42	2	1	1	58
<i>Hair and Nail</i>	21	1	0	0	0	22
<i>Massage/Spa</i>	1	0	0	0	0	1
<i>Tanning</i>	1	0	0	0	0	1
Total	55	58	4	2	1	120

Salon Language and Location

Table 2.2 looks at language and type of location, which can be used to compare differences in the City of Rochester and in Monroe County. The majority of salons in the city (four quadrants) are located on ‘Busy Streets’ (n=22/total city n=38, 57.89%), while the majority of salons outside the city are located in ‘Strip Malls’ (n=53/total suburb n=82, 64.63%). The pattern remains the same for both English and Vietnamese speaking salons in the city- there are more ‘Busy Street’ salons (n=9 for English, n=11 for Vietnamese) than ‘Strip Mall’ salons (n=2 for English, n=4 for Vietnamese). In Monroe County, ‘Strip Mall’ locations are more frequent in both English and Vietnamese speaking salons (n=15 for English, n=35 for Vietnamese), though English ‘Stand Alone’ salons make up a majority of English salons (12). The location contrast may be due to geography and zoning regulations, as there is more land to expand shopping centers in the towns. ‘Busy Street’ and ‘Stand Alone’ locations may be more popular in city streets simply because of older architecture constraints. This distinguishing location difference between salon in the City of Rochester and in Monroe is important to keep in mind when accessing salons in the future.

There is an intriguingly high concentration of Vietnamese operated salons located in strip malls. Of the Vietnamese salons located in the suburbs, 81.40% (n=35/n=43) were located in strip malls. There may be particular reasons why Vietnamese salons are concentrated in shopping centers- such as lower rent

or larger customer base. Identifying specific niches of the nail salon industry will assist future public health initiatives to the nail salon community.

Table 2.2 - Languages and Types of Locations

Types of Locations	Languages					Total
	English	Vietnamese	Chinese	Korean	Filipino	
Northeast	3	1	1	0	0	5
Strip Mall	0	0	0	0	0	0
Stand Alone	2	0	0	0	0	2
Busy Street	1	1	1	0	0	3
Building Complex	0	0	0	0	0	0
Northwest	4	5	0	0	0	9
Strip Mall	0	2	0	0	0	2
Stand Alone	0	0	0	0	0	0
Busy Street	4	3	0	0	0	7
Building Complex	0	0	0	0	0	0
Southeast	10	7	1	0	0	18
Strip Mall	1	2	0	0	0	3
Stand Alone	5	0	1	0	0	6
Busy Street	2	5	0	0	0	7
Building Complex	2	0	0	0	0	2
Southwest	3	2	0	1	0	6
Strip Mall	1	0	0	0	0	1
Stand Alone	0	0	0	0	0	0
Busy Street	2	2	0	1	0	5
Building Complex	0	0	0	0	0	0
Outside City	35	43	2	1	1	82
Strip Mall	15	35	2	1	0	53
Stand Alone	12	3	0	0	0	15
Busy Street	8	5	0	0	1	14
Building Complex	0	0	0	0	0	0
Total	55	58	4	2	1	120

Salon Service and Location

Table 2.3 examines the relationship between salon service and location. Forty-three of the 58 salons that offer ‘Nail Only’ services are located in strip malls outside of the city (74.14%). In comparison, only 5 out of the 22 ‘Nail Only’ salons inside the city are located in strip malls (22.73%) and the majority, 16 out of 22 ‘Nail Only’ salons (72.73%) in the city were located on busy streets.

Shopping centers often contain a major supermarket or chain store and smaller shops with narrower dimensions. ‘Nail Only’ salons are able to fill this niche through compact arrangement of manicure stations.

Table 2.3 - Types of Services and Types of Locations

Types of Locations	Types of Services				Total
	Nail Only	Hair & Nail	Massage/Spa	Tanning	
Northeast	3	2	0	0	5
Strip Mall	0	0	0	0	0
Stand Alone	0	2	0	0	2
Busy Street	3	0	0	0	3
Building Complex	0	0	0	0	0
Northwest	8	1	0	0	9
Strip Mall	2	0	0	0	2
Stand Alone	0	0	0	0	0
Busy Street	6	1	0	0	7
Building Complex	0	0	0	0	0
Southeast	8	9	1	0	18
Strip Mall	3	0	0	0	3
Stand Alone	1	5	0	0	6
Busy Street	4	3	0	0	7
Building Complex	0	1	1	0	2
Southwest	3	2	1	0	6
Strip Mall	0	0	1	0	1
Stand Alone	0	0	0	0	0
Busy Street	3	2	0	0	5
Building Complex	0	0	0	0	0
Outside City	58	22	1	1	82
Strip Mall	43	9	1	0	53
Stand Alone	7	7	0	1	15
Busy Street	8	6	0	0	14
Building Complex	0	0	0	0	0
Total	80	36	3	1	120

IV. Discussion

The initial requirements of mapping the Southeast Quadrant nail salons were fulfilled and expanded upon to include all four quadrants of Rochester and parts of Monroe County. Because the study team did not have an official list of all registered nail salons, the sample population may not include all salons in the City of Rochester. However, we believe we have a comprehensive list of active salons based off salon websites and online review sites.

It was difficult to assimilate into the nail salon community because we did not have connections to the workers. For example, the California Breast Cancer Research Program formed an advisory committee in collaboration with the Asian Health Services (AHS) that helped gather information on the Vietnamese women community in Alameda County. Collaborating with a community organization that has already established trust with the nail salon population would have greatly aided our collection efforts. Unfortunately we do not currently know of any community organizations invested outreach to nail salon workers specifically. The Breast Cancer Coalition of Rochester has looked into collaborating with the Vietnamese Community of Rochester but has not been able to establish a lasting connection.

Future Community Opportunities to Reduce Chemicals Exposure

Future studies might also include nail supply stores to investigate the products salons are using. The study team encountered a Vietnamese supply store, QN Nails Supply, which was unfortunately closed at the time of visiting. Starting at the source can maximize outreach efforts to multiple salons at a time. Understanding where salons get their supplies can identify the direction future outreach should take. Other possible sources include online supply stores or wholesale stores. The natural nail polishes available are typically more expensive than the traditional brands. Sheswai, a formaldehyde, toluene and DBP free polish sells at \$16 per bottle compared to an average \$6-8 per bottle of polish that contains these ingredients. Reducing supply costs of healthier alternatives may play a significant role in reducing chemicals exposure.

Establishing a program like the California Healthy Nail Salon Collaborative is not yet feasible in Rochester but may be in the future. More information needs to be gathered on where nail salon workers spend their leisure time and what community groups they participate in. This may vary across demographics. The California Healthy Nail Salon Collaborative has already collected this information and provides outreach to salon workers, research on workplace health exposures, policy advocacy for product regulations, and media engagement, and collaborates with many local community organizations such as the Asian American & Pacific Islanders for Philanthropy. A similar community program could be adopted for the Rochester community to educate salon employees. These could take the form of community safety classes or workshops. The Breast Cancer Coalition of Rochester does not have the network or staff to engage full time in nail salon outreach. Future efforts may need to be extended to another community organization. The Breast Cancer Coalition has been in contact with the Vietnamese Community of Rochester to extend educational materials to the Vietnamese population; we hope to reach salon employees through their community activities and involvements.

Another consideration is to identify salons using healthier nail products and procedures. Different types of manicures - lacquer, gel, or acrylic - pose different health risks. There are currently two methods to curing gel manicures - using UV or LED light lamps. Using LED lamps is a safer alternative because the high concentration and frequent exposure to UV light may cause skin cancer, but some salons still use UV lamps. Furthermore, gel manicures are soaked in acetone to remove the polish. Salons that use healthier alternatives can be identified via a store front sign or plaque stating that they follow certain health guidelines such as using "3-free" nail polish or LED lamps. This could be an incentive for salons to attract more customers. However, in order for this to work, customers must know of and seek healthier alternatives and salons must consistently follow safety precautions. Interviews can also be set up for salons that adhere to healthy practices and published into community newsletters to promote business.

V. Conclusion

The workplace atlas establishes a baseline of salons in the City of Rochester and in randomly selected salons in Monroe County. The workplace map helped distinguish patterns by region. Salon characteristics differ in the city and in the suburbs and may influence the customer base.

The mapping of salons helped identify some geographic patterns, such as clustering around Park Ave and major roads in Monroe County. However, as discussed earlier, we were unable to map all salons in Monroe County and may be missing certain patterns. A large number of Vietnamese salons offered nails only services and were located in strip malls outside of the city. These two patterns may be associated and may be a reason to investigate further. Future outreach is dependent on the community groups that take up the initiative.