

# BCERP Survey Evaluation

This report is part of the “Chemicals Education for Cancer Prevention: Linking Pollution Prevention and Breast Cancer Risk for Vulnerable Women Workers” project; funded by the New York State Pollution Prevention Institute.

Last Updated: November 20, 2014

Prepared by: Asia Wang; Victoria Koukoulas; etc  
Breast Cancer Coalition of Rochester  
Rochester, New York

## Acknowledgements

The authors would like to acknowledge the many individuals and organizations that have helped the completion of this project, including staff at the Breast Cancer Coalition and University of Rochester. We would like to thank Dr. Katrina Smith Korfmacher and Valerie Garrison of the University of Rochester Environmental Health Sciences Center for their significant contributions to the drafting, progress, and editing of the project and report and staff at the Finger Lakes Occupational Health Services and Occupational Safety and Health Administration (OSHA) for their feedback on the project. We would also like to thank Asia Wang and Victoria Koukoulas for conducting primary data collection and Lori Meath at the Breast Cancer Coalition for her supervision. We would also like to acknowledge Dr. Edwin van Wijngaarden of the University of Rochester for his contributions to the initial drafting of the survey. Funding was provided by the New York State Pollution Prevention Institute and the opinions expressed do not necessarily reflect the organization's ideas. The contents of this report and project are the responsibilities of the authors.

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

Holly Anderson  
[holly@bccr.org](mailto:holly@bccr.org)  
Executive Director  
Breast Cancer Coalition of Rochester  
840 University Ave  
Rochester, NY 14607  
(585) 473-8177

## 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).

Monroe County has the 7<sup>th</sup> highest incidence rate of breast cancer in New York State, at 140 per 100,000 women. Exposure to chemicals such as phthalates has 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 their exposures ([www.bcerp.org](http://www.bcerp.org)).

The Chemicals Education for Cancer Prevention project has several components, which include the mapping of high risk workplaces and education of public health professionals. A summary of the mapping of high-risk workplaces is addressed in a separate report.

The Breast Cancer and the Environment Research Program has developed community outreach and educational materials to be nationally distributed and these materials have been adopted by the Breast Cancer Coalition of Rochester. The primary goal of the Chemicals Education for Cancer Prevention project is to distribute BCERP materials to the Rochester target audience and gauge response to materials. Since the BCERP brochure is produced at national levels, there may be cultural or comprehension differences in different pockets of the U.S. that affect the comprehension of the brochure. If differences existed, the brochure would need to be adjusted to be adapted for the Rochester community.

A brief survey was administered to willing participants to test the relevance of the brochure information to the Rochester audience. The Rochester area was defined as the Rochester Metropolitan Area or Monroe, Genesee, Livingston, Ontario, Orleans, or Wayne County. The survey recorded demographic information and contained a short collection of Likert scale questions designed to measure the participant's perception of chemicals exposure and cancer risk.

The tasks set by the project were to distribute a minimum of 400 brochures and collect 100 evaluation surveys, which the study team has met and exceeded. Based on the Likert scale questions and comments made, the study team has determined that the brochure is suitable for the Rochester community. There do not appear to be any significant changes needed for the brochure content, though a Spanish translation would expand the reading audience. The study team found that providing supplemental information explaining BPA and other chemicals helped readers and suggests that this be provided during future outreach. The brochure materials can also be provided at doctors' offices and healthcare centers.

## **I. Background**

Education is an important influence to modifying an individual's state of mind during the pre-contemplation and contemplation stages of change. Educational materials help ignite the individual's desire to change patterns of behavior by providing more information on the subject and steps towards change. The BCERP 'Reducing Her Risk Now' brochure is a tool that can be used to raise awareness of health issues from chemicals exposure to BPA and phthalates.

The outreach team focused on community festivals and health fairs to distribute the BCERP materials and survey. These events offer a diverse audience representative of the Rochester area and are largely attended by the target audience- women of child bearing age (ages 15-49). The evaluation survey was created by the study team with help and revision from advisors at the University of Rochester. To increase study participation, small incentives were used as a reward for answering the survey. The locations visited and study period were determined by the Breast Cancer Collation of Rochester (BCCR) summer outreach events.

## **II. Methods**

The survey was designed to gauge the effectiveness of the brochure reading through capturing demographic information and using Likert scale questions.

The questionnaire follows the U.S. census's formatting to compare the survey findings to national data. Appendix 1 provides a copy of the survey used during the evaluation period. There were several versions of the survey, including an open ended questions format (long) and a Likert scale questions only (short). Ultimately, with the help of staff at the BCCR and Dr. Katrina Korfmacher and Dr. Edwin van Wijngaarden from the University of Rochester, the study team decided on a combination of Likert scale questions and an open ended comments question.

The main target population was women of child-bearing age and the sub-target populations were immigrant women and low income women. Childbearing age was classified as women ages 15-49, following the WHO definition. To identify immigrant women, we included the question 'Were you born in the US' and the follow up 'If not, what is your country of origin.' There were several obstacles in identifying low income women. Ultimately the study team decided to use the lowest fifth quintile of U.S. census, at \$20,260, to define low income. The alternative was to ask if the individual received SNAP/WIC, but that may potentially exclude eligible individuals who had not applied for services.

The study area was focused on the Rochester metropolitan area, which consists of the City of Rochester and Monroe, Genesee, Livingston, Ontario, Orleans, and Wayne County. The six Likert scale questions, illustrated in Table 1.1, were designed to address the previous, current, and future perception of breast cancer risk and chemical exposures. The questions were formulated in this order to measure if the reader had processed the brochure information. Dr. Edwin van Wijngaarden, of the University of Rochester, assisted in the development of the Likert questions. Questions 1,3, and 5 address the participants' view of cancer risk in their environment prior, current, and after reading the brochure and questions 2,4, and 6 address environmental exposures.

Table 1.1- Likert Scale Questions

<b>Please share your thoughts about the “Reducing Her Risk Now” brochure:</b>				
<b>1. Prior to reading this brochure, I have made changes in my life and/or my family's lives to reduce cancer risk.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<b>2. Prior to reading this brochure, I was knowledgeable of hazardous environmental exposures.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<b>3. I have learned new information about reducing cancer risk from this brochure.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<b>4. I have learned new information about environmental chemicals from this brochure.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<b>5. I will try to reduce my and/or my family's risk of breast cancer by changing my actions and behaviors.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<b>6. I will try to reduce my and/or my family's exposure to environmental chemicals.</b>				
1	2	3	4	5
<i>Strongly Agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly Disagree</i>

Small incentives were used to increase survey participation. These were inventory items available at the BCCR and included pink breast cancer hats, small tote bags, pink bandanas, Fruit & Grain Cereal bars (Mixed Berry, Blue Berry, and Raspberry flavored), jelly bracelets, breast cancer picture pins with ribbon, breast cancer magnets, packaged chocolate, and mini flashlights.

Table 2.1 documents the number of brochures distributed and surveys collected at each location visited. Due to the high volume of booth visitors, the study team was unable to record all the brochures distributed at each location and estimated the number at some locations. In total, there were 1500 brochures printed and available for use in this project.

The most significant amount of brochures was distributed at nail salons through the City of Rochester and Monroe County. This is an artificially high number because the study team did not distribute the brochures directly to individuals and may not represent the number of actual readers of the brochure. A minimum of three brochures were left as waiting area reading materials with each nail salon visited and since no follow-up was performed, the study team cannot determine the number of actual readers. The number may be higher or lower than three, depending on the salon.

The study team began supplementing the brochure with other printouts following the Don Samuel Torres Park Healthcare Fair. These printouts include Mount Sinai's 'Quick Guide to Safe Plastics' and Zero Breast Cancer's 'Common Chemicals May Harm Breast Development,' which are both available at [www.bccrc.org](http://www.bccrc.org). Some participants were also interested in other handouts on breast cancer, such as self-breast examination, provided by the BCCR.

Table 2.1- Brochure Distribution Log

Location	Date	Brochures Distributed	Surveys Collected
Lilac Festival	May 17-18, 2014	N=161	N=0
Mary Cariola Employee Healthcare Fair	May 22, 2014	N=39	N=32
Fairport Canal Days Festival	June 7-8, 2014	N=227	N=18
Monroe Community College Women's Health Expo	June 21, 2014	N=100+	N=19
Breast Cancer Coalition of Rochester	July 16, 2014	N=2+	N=2
Don Samuel Torres Park Healthcare Fair	July 17, 2014	N=36+	N=36
Southwedge Farmer's Market	July 17, 2014	N=11+	N=11
Ginna Employee Healthcare Fair	July 18, 2014	N=21+	N=21
Anthony Jordan Health Fair	July 23, 2014	N=21+	N=21
Park Avenue Festival	August 2-3, 2014	N=100+	N=0
Nail Salons	May-July, 2014	N=300+	N=2

**BCERP 'Toolkit for Health Professionals' Training Sessions**

There were two training sessions held on BCERP materials education for healthcare providers. The first training session was a workshop at the Highland Family Medicine Center in Rochester on June 3, 2014. There were 5 project staff and 13 health care providers present at the workshop. During the workshop, attendees were provided a project summary explaining the purpose of the Chemicals Education for Cancer Prevention project, the "Breast Cancer and the Environment Research Program (BCERP): An Overview of Recent Research Findings Applicable to Health Professionals" monograph, and four "Fact Sheet for Health Professionals" – (1) "Early Puberty and Breast Cancer Risk," (2) "Endocrine-Disrupting Chemicals and Breast Cancer Risk," (3) Lifestyle and Breast Cancer Risk," and (4) "Motivating Change in Patients and Parents/Caregivers." Participants were given time to review the materials and Dr. Katrina Korfmacher of EHSC led a group discussions intended to facilitate feedback on the handouts.

The second training was a 'Health Professional Workshop' held June 23, 2014 at the Breast Cancer Coalition. This was a toolkit training breakfast open to health providers in the general public. A flyer was created and distributed to board members of BCCR, staff and students at the University of Rochester, and members involved with the Chemicals Education Project. There were 7 participants in this session. The workshop was run by Dr. Korfmacher in a similar fashion as the previous training session.

### III. Results

Over 1018 brochures were distributed and 162 surveys were completed during the study period. There is a substantial difference between the number of brochures distributed and the number of surveys received due to the high distribution of brochures at festivals and nail salons. Surveys were not collected at nail salons because of interference with nail salon data collection. Many festival goers were disinterested in participating in the survey but were willing to accept the BCERP brochure.

The brochures were printed in sets of 500 and printed three times, making a total of 1500 brochures available for use of outreach. Initially, the brochure was handed only to women to increase survey responses from the target population. However, we found that broadening the information was more worthwhile and a number of survey respondents include men.

The evaluation surveys were first used during the Mary Cariola Employee Healthcare Fair. Surveys were not collected at the Lilac Festival because the survey revisions were not yet finalized. Responses at the Mary Cariola Fair were generally positive but may be slightly skewed as it is a healthcare fair and attendees may be more healthy-conscious. This was a reoccurring confounding factor at other employee healthcare fairs, including the Monroe Community College Women's Health Expo and Ginna Employee Health Fair.

While distributing brochures, the study team would briefly explain the purpose of the brochures and was able to engage in conversation with some participants. Holding a conversation created longer-lasting impressions and hopefully influences behavior changes.

Table 3.1 summarizes the survey responses by the total survey population and the target population (women of childbearing age). The total count of each question answered is provided as not all participants completed the entire survey. Generally, demographics in the target population represent the total population. There are no retired individuals in the target population, most likely because the age of retirement is typically 65 and exceeds the range of childbearing age. There are also no male survey respondents in the target population. The average age of all participants was 40.93 years and the average age of the target population was 33.91 years. More women seemed to visit the Breast Cancer Coalition's table, especially during community festivals. This may have influenced the large number (88.27%) of female survey respondents.

Participants were able to list what their primary language was if they marked 'Other' and Spanish was the only language written down (n=4 for the Total Population, n=3 for the Target Population). Other countries of origin include Scotland (n=1), France (n=1), Venezuela (n=1), Germany (n=1), Vietnam (n=1), South Korea (n=1), Bahamas (n=1), Canada (n=1), and Puerto Rico (n=6).

55.56% of participants had a family history of breast cancer, but the degree of relation was not documented. The purpose of the question was not to determine the individual's chance of breast cancer but to see if family history made individuals more aware of chemicals exposure and cancer risk. It may have also been uncomfortable for individuals to disclose this information.

A very low number of participants in the target population were immigrants (8.74%) and low income (24.27%) and were not further categorized into another subgroup. Keeping the target population of women of childbearing age expands the audience.

Table 3.1

Characteristic	Total Survey Population (N=162)			Target Population (N=103)		
	Total Answered	Count	Percent	Total Answered	Count	Percent
<b>Gender</b>	N=161	18	11.11%	N=103	0	0.00%
<i>Male</i>		143	88.27%		103	100.00%
<i>Female</i>						
<b>Hispanic</b>	N=156	28	17.28%	N=100	18	17.48%
<i>Yes</i>		128	79.01%		82	79.61%
<i>No</i>						
<b>Race</b>	N=142	2	1.23%	N=89	1	.97%
<i>American Indian</i>		26	16.05%		16	15.53%
<i>African American</i>		1	0.62%		0	0
<i>Chinese</i>		1	0.62%		1	.97%
<i>Korean</i>		1	0.62%		1	.97%
<i>Vietnamese</i>		98	60.49%		61	59.22%
<i>White</i>		13	8.02%		9	8.74%
<i>Other</i>						
<b>Primary Language</b>	N=162	153	94.44%	N=103	98	95.15%
<i>English</i>		9	5.56%		5	4.85%
<i>Other</i>						
<b>Born in the US?</b>	N=161	143	88.27%	N=103	94	91.26%
<i>Yes</i>		18	11.11%		9	8.74%
<i>No</i>						
<b>Education Completed</b>	N=160	16	9.88%	N=102	10	9.71%
<i>&gt;9<sup>th</sup> Grade</i>		31	19.14%		19	18.45%
<i>High School</i>		26	16.05%		16	15.53%
<i>Some College</i>		21	12.96%		13	12.62%
<i>Associate's Degree</i>		25	15.43%		17	16.50%
<i>Bachelor's Degree</i>		41	25.31%		27	26.21%
<i>Graduate/Professional</i>		2	1.23%		0	0.00%
<i>Prefer not to say</i>						
<b>Rochester Area Resident</b>	N=159	153	94.44%	N=102	97	94.17%
<i>Yes</i>		6	3.70%		5	4.85%
<i>No</i>						
<b>Job Status</b>	N=150	111	74.00%	N=95	73	76.84%
<i>Employed</i>		14	9.33%		10	10.53%
<i>Unemployed</i>		8	5.33%		0	0.00%
<i>Retired</i>		17	11.33%		2	12.63%
<i>Prefer Not to Say</i>						
<b>Income Exceeds \$20,260</b>	N=158	104	64.20%	N=103	67	65.05%
<i>Yes</i>						



No		37	22.84%		25	24.27%
Unknown		17	10.49%		11	10.68%
<b>Response for Dependents</b>						
Yes	N=157	73	45.06%	N=101	56	54.37%
No		84	51.85%		45	43.69%
<b>Breast Cancer History in Family</b>						
Yes	N=161	90	55.56%	N=103	57	55.34%
No		60	37.04%		40	38.83%
Unknown		11	6.79%		6	5.83%
<b>Have a Daughter Under 18</b>						
Yes	N=158	48	29.63%	N=102	40	38.83%
No		110	67.90%		62	60.19%

The Likert responses were used to gauge willingness to reduce breast cancer risks and chemical exposures. The answer options ranged from ‘1 Strongly Agree,’ ‘2 Agree,’ ‘3 Neutral,’ ‘4 Disagree,’ and ‘5 Strongly Disagree.’ Each of the six questions addressed a different aspect of the individual’s knowledge. Questions 1, 3, and 5 look at the individual’s actions and knowledge of cancer risk and Questions 2, 4, and 6 look at the individual’s actions and knowledge of chemicals exposure.

Tables 4.1 displays the total counts for each question for the total survey population. The mode for Questions 1, 2, 3, and 4 was “2 Agree” and for Questions 5 and 6, “1 Strongly Agree.” The trend remained the same for Table 5.1, which displays the target population’s data.

Tables 4.2 and 5.2 display the averages for each question and there is a trend moving closer to “1 Strongly Agree” as the Questions progress from 1 to 5 and 2 to 6. This downward trend suggests that the brochure may influence the participant to reduce exposures and risk by changing behavior. This implies that the BCERP brochure is effective at providing information for the target population and for the general Rochester community. However, we cannot measure if individuals actually perform any risk-reducing behaviors after reading the brochure, as this is not a longitudinal study. We can only assume that the information will impact their perception of harmful chemicals and exposures and that they will begin to change behaviors.

Table 4.1 Total Population Scores

Q1 (n=158)		Q2 (n=158)		Q3 (n=155)		Q4 (n=156)		Q5 (n=158)		Q6 (n=158)	
One	50	One	40	One	70	One	64	One	81	One	92
Two	73	Two	73	Two	67	Two	73	Two	68	Two	57
Three	26	Three	24	Three	16	Three	16	Three	7	Three	7
Four	7	Four	16	Four	0	Four	2	Four	0	Four	0
Five	2	Five	5	Five	2	Five	1	Five	2	Five	2

Table 4.2- Averages

Average					
<b>Q1</b>	1.975	<b>Q3</b>	1.6903	<b>Q5</b>	1.5696
<b>Q2</b>	2.1962	<b>Q4</b>	1.7372	<b>Q6</b>	1.5000

Table 5.1 Target Population Scores

Q1 (n=102)		Q2 (n=102)		Q3 (n=102)		Q4 (n=101)		Q5 (n=102)		Q6 (n=102)	
One	27	One	21	One	38	One	34	One	50	One	55
Two	51	Two	50	Two	52	Two	54	Two	49	Two	42
Three	19	Three	19	Three	11	Three	11	Three	3	Three	5
Four	5	Four	9	Four	0	Four	2	Four	0	Four	0
Five	0	Five	3	Five	1	Five	0	Five	0	Five	0

Table 5.2- Averages

Average					
<b>Q1</b>	2.02	<b>Q3</b>	1.7647	<b>Q5</b>	1.5392
<b>Q2</b>	2.2451	<b>Q4</b>	1.8119	<b>Q6</b>	1.5098

The study team included supplemental information from the Environmental Working Group (EWG) website ([www.ewg.org](http://www.ewg.org)) explain what phthalates, BPA, and other related chemicals are in later health care and community fairs. The study team found that supplementing the BCERP brochure with handouts explaining what phthalates and other related chemicals was useful when conversing with participants at healthcare and community fairs. The study team faced time limitations at fairs and supplemental information helped convey the message quicker. Many participants we encountered did not know what BPA or phthalates were and providing extra materials can help increase awareness. The study team suggests that supplemental materials continue to be included in the outreach process.

The BCCR staff developed a fun fact game called ‘Truth or Tale’ of true or false chemicals exposure and breast cancer trivia for participants at health care and community fairs. The game consists of facts from the BCERP website, cancer websites, and the Environmental Working Group (EWG) website. The facts were printed on pink card stock paper with a simple “Truth or Tale” logo on the back. There has been positive feedback from participants and the game is used to facilitate involvement at community events.

#### **BCERP ‘Toolkit for Health Professionals’ Training Sessions**

The discussions during the two training sessions generated constructive feedback on the BCERP materials. The participants at the Highland Family Medicine Center sessions were medical residents and the main message they obtained from the BCERP brochure was that (1) there are connections between breast cancer and environmental health, (2) there are uncertainties about these connections, (3) the greatest risk from exposure is during childhood development, and (4) to pay attention to plastics and the need to be a smart consumer.

The participants of the Health Professional Breakfast Workshop saw the outreach materials as important in helping translate chemicals exposure knowledge to patients to help ‘make it real’ and relevant to patients. Comments from attendees included that people don’t realize that exposure now affects future generations. The BCERP materials help readers realize how long-term exposures impact health. Participants also mentioned including the information in a health curriculum.

### **Feedback on 'Girls, the Environment, and Breast Cancer Risk' Brochure**

The participants found that the term 'early menarche' may be hard to understand and should be defined in the brochure. It would also be helpful to provide the counter argument for the information in the brochure- for example the brochure suggests increasing soy in the diet but soy intake has been contradictory. There were several formatting issues raised: (1) the bullet points in the 'When possible, choose to:' blue box are hard to read because of the white font color and the quantity of text, and (2) convert the color scheme of the brochure to be printable in black and white for cost saving measures. The residents found that the word choice for "When possible, choose to..." instead of "do..." or "try..." was positive and may help make the information more acceptable to patients. The wording is optional and thus patients will not feel bad if they do not strictly adhere to the suggestions.

The participants of the health professional toolkit breakfast suggested including a list of common products that include harmful chemicals in the brochure.

### **Feedback on 'Motivating Change'**

The residents at the Highland Family Medicine Center found that the points made in the fact sheet would be good talking points during a patient's annual GYN/breast exam. They also suggested exploring the cultural differences and preconceived myths patients may have that would make lifestyle changes suggested in the brochure difficult. Preconceived ideas that hinder lifestyle changes may vary between communities.

The participants found the fact sheet format helpful for communicating the information to patients. They were surprised and liked at the inclusion of suggestions to pay attention to cultural sensitivity and adapting the message to community. They expected initiating conversations with patients to be a challenge; these materials can help bring a reason and context to starting the conversation with patients. However, the amount of materials may be overwhelming and a condensed version may be more effect in patient interactions.

### **Feedback on 'Lifestyle Change'**

The residents found the information as a potentially helpful tool in addressing current health priorities in patients, such as how an increase in BMI now can increase a person's risk of breast cancer later in linfe. These materials can help educate and empower kids to take charge in their own health decisions. The residents believed they would need to address how to improve health in the now as there may be difficulty relating to future impacts.

The participants of the toolkit breakfast found the main message of this fact sheet to be very similar to the early puberty fact sheet materials, which is that a healthy lifestyle is important. The fact sheet had information on studies that found breast cancer risk lower in women who consumed increased amounts of soy to be surprising, as there have been conflicting messages about soy in the media. They also commented on how the materials emphasize the importance of healthy diets but does not address the issue of 'food desserts.' It may be less overwhelming to include advice on where to get help finding healthy food.

### **Feedback on 'Endocrine-Disrupting Chemicals'**

The participants found that the information on the fact sheet was consistent with the information in the general brochure. The residents found it helpful that the fact sheet information was more detailed and included more information, such as elaborating on the precautionary principle, than the brochure. The

residents suggested including evidence on modes of exposure to improve the way providers talk with clients about their risk.

Participants of the toolkit breakfast found that the general idea of chemicals exposure was not new, but suggested that people may be surprised of early life (puberty) exposure playing a large role in later life adverse effects. They found it important to be able to read and process the key messages from the fact sheet quickly. The majority of people believe that the government is meant to protect people from harmful exposures and found the message in the fact sheet shocking- that certain products containing harmful products are commercially available. The participants suggested that it is important to inform without placing blame. They also found it important to avoid guilt tripping patients and to avoid blaming a mother for her daughter's risk or exposure.

### **Feedback on 'Early Puberty'**

The residents found that the information on the Early Puberty fact sheet was vague- such as the statement 'avoid certain dietary fats.' The fact sheet increased curiosity about non-endocrine-disruption chemicals that are found in the food line (e.g. bovine hormones, antibiotics) and how they affect health. They suggested a visual tool to help share information with low-literacy patients (e.g. having a plastic bottle on hand to demonstrate how to find the plastic number). They also suggested having a specific list of names of chemicals to avoid to share with patients. The residents raised questions of who is the target population and what is the appropriate timing for sharing the information. The providers questioned if this information sharing should be a primary or secondary prevention. For example, should providers share this information with patients who have gone through early puberty because they are at greater risk from chemical exposure, or should providers share the information with patients early in life because the chemicals contribute to early puberty?

The participants of the toolkit workshop breakfast found the information in the Early Puberty Fact Sheet understandable and straightforward. One participant questioned the 'how' for some claims, but found it acceptable that the fact sheet mentioned ongoing research and uncertainty. They found that the presentation of the information together could be a little overwhelming and suggested including a graphic of how the information is connected.

## **IV. Discussion**

### ***Limitations***

This study cannot gauge if participants actually changed their behaviors to reduce cancer risk and chemicals exposure as it is only a cross-sectional study. The main goal of this study is to provide information and materials and to gauge if these materials are clear to the Rochester community, which has been fulfilled. The sampling technique was not the most randomized since it relied on soliciting individuals to participate. The locations were not randomly chosen but have been geographically diverse throughout Rochester.

Offering incentives may be a confounding factor for the validity of the survey answers. Many booths and tables at healthcare fairs offer free goodies such as Chap Stick or bags, which a lot of attendees come for. Thus, the participants in our survey may have an ulterior motive to fill out the survey as quickly as possible for the incentives we offered and in the process they may not actually read the brochure. For example, attendees at the Don Samuel Torres Healthcare Fair took from the incentive basket without permission because many assumed the table was offering free items like the other booths. However,

offering incentives does help capture a more diverse sample size and may lure people to participate that otherwise would not.

### ***Future Improvements to Take***

Supplementing the BCERP brochure with more information on what phthalates and other chemicals are and where they can be found reduces the research the reader would have to do. The study team suggests that supplemental materials continue to be included in the outreach process. Many participants we encountered did not know what BPA or phthalates were and providing extra materials can help increase awareness. The trivia game facilitated interest in participants at busy community festivals and helped engage them to learn about chemicals exposure. These were two positive by-products of our community visits.

A Spanish translation of the brochure would greatly benefit certain areas in Rochester. There was a high concentration of Spanish speakers at the Don Samuel Torres Park Healthcare Fair that requested a Spanish version of the brochure. Translating the brochure would require clearance with BCERP but would not be a large task.

Comments were recorded in the database entry, but were not quantified. Overall, the comments were positive and called the brochure 'informative' and 'easy to read.' Some suggestions include larger font size and adding specific product brands. Unfortunately, adding specific product brands is unrealistic because the industry is constantly changing ingredients used and regulations.

## **V. Conclusion**

The BCERP brochure appears to be suitable for the Rochester population. Several formatting changes need to be made to make the brochure clearer and creating a Spanish translation. Participants mark that they will attempt to change behaviors after the reading of the brochure, but we cannot gauge actual changes. However, this does not mean education is not an important public health tool. Education and providing resources is the initial step to raising awareness in populations. The BCERP brochure was supplemented by handouts explaining what chemicals exposure is and which chemicals are included and a trivia game that helped engage participants. The next step is to construct sustainable programs and structures. The BCERP brochure can be expanded into medical offices and healthcare centers as a next step.