Warning: BPA Toxicity. Don’t Heat Food With “Plastic.”

A Proposal For labeling in Grocery Stores.

Tag Words: BPA and health risks, BPA exposure, Avoiding BPA, BPA in our plastics, BPA and ethics in science and society

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Summary (PH)

With the progress of time and the growing popularity of environmental protection movements, most of the American population has become more concerned about how a certain product affects the environment as opposed to the effects of that same product on human health. BPA, a chemical found in most of the plastic containers has recently been shown to have toxic properties that could cause serious damage in the neurological and hormonal systems of individuals who are constantly exposed to it. In order to completely reduce the amount of exposure of the average American person, the FDA must take immediate action on the matter and ban the use BPA. However, due to the uncertainties of the matter no “immediate” action will be taken by the FDA. Therefore, in order to expedite the policy making process, we need to inform the general public about the risks of BPA plastics. We will attempt to raise awareness through our community service project. Our project will consist of sending out e-mails to the major grocery stores around New Brunswick with a printable attachment. This attachment would then be used to warn people against the risks of using plastic bags.

Video Link

Raise Awareness on BPA: http://www.youtube.com/watch?v=dxC4bg8aTJ8
The Issue: BPA Toxicity

We all look for easy, fast solutions to anything and everything we are doing. For example, we enjoy using light, affordable plastic containers for our food and beverages because they are easy to use, however. This easy and simple way to hold our foods and beverages has severe consequences and risks to our health. There is a toxic chemical called Bis-phenol A (BPA) that is in many plastics. When plastic products are heated, BPA is even more of a danger. We need to raise awareness as to what BPA is and what it exactly does to our body systems. We propose to mandate supermarkets to make BPA known to customers that are purchasing these plastic products through labels that should surround any plastic product containing BPA.

What is BPA? (JS)
For many, our health is linked to our environment. If we have a clean environment, we should be somewhat healthy, too. We are becoming more and more eco-friendly as we continue to buy reusable water bottles and fabric bags when we carry our groceries while also trying to maintain a healthy weight. With obesity rising more and more in the United States each year, we have continued to turn to many options to improve our health. We are becoming more familiar and educated with our health in nutrition and diet as well to improve our personal health to stay away from the health risks that obesity carries.

Due to the media, the Internet, cook books, and personal trainers, we now know what our diets should be like. On the other hand, many people are unaware what are the correct and safe cooking packages and containers that foods are eaten out of exactly are. We have done our “homework” on what healthy eating is, but many of us have not looked into the safety of the packages in which we carry our food. As most of us already know, there are many options in Tupperware available in the stores and online.

It is important for us to be familiar with the different types of plastics and how certain plastics can be damaging to our health and the health of others. A lot of food packaging are used with BPA. BPA is a chemical produced when making plastics that we all need to be cautious of and refrain from using. Plastic is manufactured for the use of countless products that we encounter in our everyday lives; from soda bottles to pieces of technology and to mechanical pencils we write with. With the manufacture of these different types of plastics, we find that there are consequences with this production.

Bisphenol-A (BPA) is one of the primary chemicals used in the production of polycarbonate plastics and epoxy resins. Epoxy resins used to coat metal food and beverage cans, including beer and soda cans, are another major use of BPA. The most common way people are exposed to BPA is from foods or drinks packaged or prepared in containers that contain BPA. BPA from the plastic or protective liner can then transfer into the food we eat. The temperature of the contents determine how much BPA passes into food from the container. Not only can heat help BPA transfer into our bodies, but acid, alcohol, harsh detergents, age, and microwaving can also exacerbate the release of BPA. A hot beverage causes BPA to seep 55 times quicker. Even though the production of BPA to make our plastic products is a necessity to our everyday lifestyle, BPA is not a safe chemical for our health. BPA has a chemical composition that acts on our body in a very damaging way.

BPA has been found to have some harmful and detrimental effects on our health. BPA is considered to be harmful to our health because it is a synthetic hormone. This is what BPA was
originally synthesized for in the 1930s. BPA was created by Russian, Aleksandr Dianin. Dianin synthesized BPA in the laboratory to act like a hormone. He then noticed that its estrogen properties were not as strong as other estrogens, so it essentially took a backseat. However, in 1930, the properties of BPA were investigated and it made its return in the 1950s as polycarbonate and epoxy resin. The production of BPA used in plastics became very demanding by the market and to society. People enjoyed all the functions that BPA was able to provide for them. Since the demand for BPA became very high, a toxicity test was done on BPA to view its safety. In the late 1970s, the National Cancer Institute (NCI) and National Toxicology Program (NTP) tested the safety of BPA. The report stated that the evidence around carcinogenicity effects were not convincing. However, the NTP reported reproductive toxicity. It was found that BPA affected the reproductive system and that also tied into our hormones; most significantly, our reproductive hormones.

We all have different types of hormones within our bodies; sometimes we have too much of one hormone and sometimes too little of it. This is part of the reason why synthetic hormones were produced in labs; patients who could not produce a certain hormone were provided with a synthetic one which could then act as a substitute to the natural one. Hormones improve sleep; decrease inflammation; ameliorate chronic fatigue; improve sexual function, mood, muscle strength, and body composition; normalize blood clotting; improve spatial recognition; and induce apoptosis, or cell death, of breast cancer cells. At the time, many scientists and physicians did not know that synthetic hormones would possibly disrupt the production of natural hormones and certain systems that are already in our bodies. BPA can disrupt the production of the sex hormone, estrogen.

How does BPA Affect Our Health? (JS)
The chemical composition of BPA is closely related to the sex hormone estrogen. Since BPA chemically looks like estrogen, if BPA is in the body, BPA has the ability to act as if it were actually estrogen and bind to estrogen receptors in our bodies. Nonetheless, BPA is known as an endocrine disruptor. BPA is a hormone-disrupting chemical that mimics estrogen, the female sex hormone essential for the development and function of reproductive organs. BPA can affect a fetus during pregnancy and can also affect humans at any other age during their life. A fetus is heavily affected by BPA and as a newborn. BPA also has been measured in breast milk, amniotic fluid, and follicular fluid; providing evidence that the developing fetus and infant also are exposed. Premature infants in neonatal intensive care units undergoing treatments were found to have 10 times higher BPA levels than seen in the general public, presumably as a result of BPA leaching from plastic components of medical care devices. Plastic baby bottles that are used for infants are a major source of leakage of BPA for infants since their bottles are heated when they are fed. The biology of BPA shows us that BPA does more than solely just supply us with containers for our foods and drinks and other recreational uses.

The science behind BPA and estrogen proves that BPA is damaging to our health and bodies. When BPA binds with the estrogen receptor, the complex so formed interacts with DNA and can lower sperm counts and increase the risk of developmental problems, cancer, schizophrenia, neurological disorders, and weight gain. The interaction with the hormone receptor does not make BPA a hormone—but rather the hormone mimicry interferes with normal physiologic processes, causing a wide variety of adverse effects. This is imperative to our health because our genetic makeup can be disrupted and since BPA can interact with our DNA, our DNA can
become mutated. Since the hormone and hormone receptor complex often work together to mediate the hormonal activity, a complex made up of a receptor and a foreign compound is likely to result in an abnormal physiologic response. This abnormal physiologic response can result in one of the many health defects that BPA causes. Most of these health defects taking place in the reproductive system. The hormones in the reproductive system become affected as well.

Estrogen is the main hormone made in the ovaries in women and comes into play for reproduction. This helps explain why BPA can interfere and disrupt the process of reproduction in women and in their fetus causing health affects after birth. This also helps explain why the younger population is more heavily affected by BPA. Younger children are more affected by BPA because their reproductive organs are still developing as a fetus, infant, and child. This means pregnant women and kids can benefit from reduced exposure to BPA. Men are also affected by BPA. BPA can cause delayed puberty, decreased sperm counts, and hormonal alterations. BPA is a chemical that any of us can be physically affected by. It is to our well-being that we avoid the use of BPA.

How important is BPA to you? (JS)
The use of plastics has many useful purposes today in our world. We depend on a lot of products that can manufactured from plastic, however. There are multiple types of plastics with different degrees and recycling numbers. There must be a way that we can avoid this use that creates the production of BPA. The only positive thing about BPA is that it does employ a large population and bring in money to corporations and our economy. According to the Society of the Plastics Industry, the U.S. plastic industry, the production employs 1.1 million people and creates $379 billion in annual shipments.

Although the plastic industry brings in massive amounts of money, isn’t your health worth more than that? Why should we add another health threat to our lives and families when this threat could be avoided? Ask yourself, if you could avoid a possible health threat, what measures or extremes would you go through? Research supports that BPA is a topic of concern and is something that society should learn to adapt to live without it.

Resources

http://www.niehs.nih.gov/news/media/questions/sya-bpa.cfm#bisphenol
Janssen, Sarah M.D., Ph.D, MPH.(March 2010). Congressional Action Needed on a Chemical of High Concern: Bisphenol A (BPA). Retrieved from:
http://www.saferchemicals.org/resources/bpa.html
http://enhs.umn.edu/current/2008studentwebsites/pubh6101/bpa/references.html
Research on BPA (AS)
Bisphenol A (BPA) impairs the double-strands break repair machinery in the germline and causes chromosome abnormalities.
By Patrick Allard and Monica P. Colaiacovo
Department of Genetics, Harvard Medical School, Boston, MA
Bisphenol A has found to be a disruptive chemical which brings abnormalities in the chromosomes of living beings. In humans, BPA has been a harmful chemical which has linked to various diseases like diabetes, cardiovascular as well as a high risk of getting miscarriages in women. Now, there is evidence in this research that exposure of BPA to mice has disrupted the process of meiosis. The exposure of BPA showed damaged to the chromosome synthesis and breakage of meiotic DSBR (double-strand break repair) progression. The carrier of an anti-estrogenic activity in germline of BPA has caused germline-specific down-regulation of DSBR gene. Germline of a developing individuals is the line of the germ cells that has genetic material which may pass to the offspring.
Association of Urinary Bisphenol A Concentration With Medical Disorders and Laboratory Abnormalities in Adult
Iain A. Lang, PhD, Epidemiology and Public Health groups
Robert B. Wallace, MD, University of Iowa College of Public Health
BPA is a very harmful chemical that has been widely used in epoxy resins lining food and also in the containers of cold drinks and beverages. Concern has been raised in living beings over low-level chronic exposure (having contact at least 1 year) especially in human patients. The main objective of this research was to examine relations between urinary BPA concentration and adult health status. The results has shown many surprising facts. The higher urinary BPA concentrations were related with cardiovascular diagnosis, diabetes but it was not associated with any common diseases. It has also studied that BPA concentration were associated with clinically abnormal concentration of liver enzymes gamma-glutamyltransferase and alkaline phosphate. This research has concluded that the higher the exposure of BPA will reflect the higher in urinary concentration of BPA.
Determination of bisphenol A concentrations in human biological fluids reveal significant early prenatal exposure.
Yumiko Ikezuki, Osamu Tsutsumi, Yasushi Takai, Yoshimasa Kamei and Yuji Taketani
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo.
Bisphenol A is considered an estronic endocrine-disturbing chemical. The annual production is at 1.7 billions, used in making of polycarbonate plastics and epoxy resins which are used in many products that can be a direct exposure to living beings. This scientific report on BPA revealed that this particular chemical has affected pre-implantation embryos or fetuses and damage their postnatal growth especially those available in the environment. This report also says that BPA not only affect early embryonic development at low and environmentally but also exerts late effects on postnatal development which was conducted on mice. In conclusion, BPA which has potential exposure for human exposure must be considered in evaluating to endocrine-disturbing chemicals.
Prenatal and lactational exposure to low-doses of bisphenol A alters adult mice behavior
Keiko Nakamura, Kyoho Itoh, Hongmei Dai, Longzhe Han
Department of pathology and applied neurobiology, Kyoto University of Medicine, Japan
Bisphenol A is widely used in many industries. This research has also considered BPA an endocrine-disturbing chemical. They previously reported that BPA affected murine neocortical (The dorsal region of the cerebral cortex in household rats) development by accelerating neuronal differentiation/migration, resulting in abnormal neocortical (dorsal region of cerebral cortex) architecture and also aberrant thalamocortical connections in the brains of adult mice. The main objective of this experiment was to see whether the prenatal BPA exposure could affect the behavior of adult mice. BPA was injected in pregnant mice daily from embryonic to postnatal day and behavior test was conducted and compared with controlled animals. The results showed that prenatal and lactational BPA exposure injured the behavior in postnatal period and adult mice.

Gene Expression in the Fetal Mouse Ovary is Altered by Exposure to Low Doses of Bisphenol A
Crystal Lawson, Mary Gieske, Breda Murdoch, Ping Ye, Yunfei Li, Terry Hassold
School of molecular Biosciences and center for reproductive Biology, Washington State University, Pullman, Washington
The experimental studies has supported that fetal exposure to BPA has dangerous reproductive effects in both sex. Researchers from laboratories has shown that exposure to the growing female fetuses produces multigeneration and unique effect. Expression studies were conducted to characterize gene expression change in the fetal ovary which was resulted from the exposure of BPA. Gene ontology has advised that BPA works to down regulate mitotic cell genes and creating the possibility of fetal BPA exposure may act to limit expansion of the beginning germ cell population.

Occupational exposure to bisphenol-A (BPA) and the risk of Self-Reported Male Sexual Dysfunction
D. Li, Z. Zhou, D. Qing
Division of Research, Kaiser Foundation Research Institute, Kaiser Permanente Northern California, 2000 Broadway, Oakland, CA 94612, USA
The studies has suggested that bisphenol A can be a potential higher risk of male dysfunction. A short occupational cohort was conducted to examine the effect of exposure to BPA on the risk of sexual dysfunction male. The exposed workers with high BPA was recruited for the studies and interviews by using standard male sexual function inventory. The results has shown that BPA-exposed male workers had more risk of sexual dysfunction compared to the unexposed male workers. The searched informations has supported the first evidence of the exposure of BPA reduced the sexual function of male.

Oral Exposure to Bisphenol A Increases Dimethylbenzanthracene-Induced Mammary Cancer in Rats
Sarah Jenkins, Nandini Raghuraman, Carol A. Lamartiniere
Department of Toxicology and pharmacology, University of Alabama
The main objective of this research on BPA, which has been recognized as an endocrine disruptor, was to find evidence supporting the effects of BPA as a development disruptor. It was hypothesized that BPA could elicit the development changes in the mammary tissue and cause a predisposition for mammary cancer. The neonatal and female offspring rats that were exposed to a certain amount of BPA every day. The results show that the lactational BPA exposure resulted in increased cell proliferation and decreased apoptosis. Lactational is the period when milk is secreted. The researcher has concluded that these alteration can enhance mammary carcinogenesis after the BPA exposure.
Bisphenol A (BPA) impairs the double-strands break repair machinery in the germline and causes chromosome abnormalities
doi:10.1073/pnas.1010386107PNAS November 8, 2010 retrieved from
http://www.pnas.org/content/early/2010/11/01/1010386107.abstract
Association of Urinary Bisphenol A Concentration With Medical Disorders and Laboratory Abnormalities in Adult JAMA. 2008;300(11):1303-1310 retrieved from http://jama.ama-assn.org/content/300/11/1303
Gene Expression in the Fetal Mouse Ovary Is Altered by Exposure to Low Doses of Bisphenol A Biology of Reproduction January 1, 2011 vol. 84 no. 1 79-86 retrieved from http://www.biolreprod.org/content/84/1/79.abstract

Sources of BPA exposure (AS)
The products that are of high risk for BPA exposure are below:
1] Water bottle, baby bottles, plastic food and canned food liner- The closed bottle or plastic container can be contaminated with BPA from the plastic of bottle and can be a good sources of BPA exposure.
2] Dental sealants - A study has found that BPA in the sealant can be exposed through the mouth. This chemical can be leach into saliva at following dental procedure.
3] Eye wears - Eyeglasses or sunglasses with plastic lenses are another sources of getting to exposed, if it is weared whole day in the warm hot or warm weather.
4] Children’s toys - children can get easily exposed to BPA when they are taking in the mouth or through their body skins.
5] pizza boxes, receipts and toilet papers. These products also has ability for exposure of BPA. Since, they are smooth texture, the slicky coating does have a contains of BPA which gets into through your skin.
http://www.greenamerica.org/pubs/realgreen/articles/dentistry.cfm
Getting Rid of BPA to Save Our Health (PH)

BPA is one of the most widely used chemicals in the manufacturing of plastics within the United States. The commonality and the uncertainty of the toxic properties of this chemical has made it difficult for consumers to avoid it and for producers to discontinue its usage. Although, it is a difficult task many different companies have made the effort to replace BPA with chemicals that are seemingly less harmful to the health of the consumer. These efforts are supported by the Food and Drug Administration agency (FDA), which has taken action against BPA in order to reduce consumer’s exposure to it. These methods of action, however, have not proven to be very efficient due to a lack of consumer awareness. The “BPA issue” was not advertised enough, and most consumers still do not posses any knowledge about it. Therefore, unless the “BPA issue” becomes more known to the everyday consumer, there will still be small traces of BPA in our water and food sources that when accumulated throughout time could potentially cause health problems to the consumer.

Companies like Poland Springs have tried to avoid the use of BPA by utilizing less harmful components like PET (polyethylene terephthalate) for their small plastic bottles. PET is produced by the reaction between terephthalic acid (PTA) and ethylene glycol (EG) which are seemingly harmless to human health when combined. PET is an inert substance meaning that it travels very slowly and does not mix with the contained water. This property makes PET very useful in the production of plastic containers. Other companies like Pepsi also utilize HDPE (High Density Polyethylene) which is made from petroleum, but is stronger and more resistant than PET. These two chemicals which are respectively marked as “#1” and “#2” by the United States labeling system have been authorized by the FDA for decades. Nevertheless, there has been evidence found in the water contained within PET containers that link them to other toxic substances that can cause harm to the consumer’s health.

Antimony, which is a well known contaminant, was recently found in water samples that were extracted from water bottles made with PET. This contaminant is very harmful towards human health. If consumed through a prolonged period of time, Antimony can cause a significant increase in cholesterol and a decrease in blood sugar. Regardless of its negative impacts on human health, antimony continues to be used in the production of PET. In a previous study, it was discovered that most PET plastic bottles tend to leak antimony. Under normal room temperature (22 °C), the amount of antimony which is released from the plastic ranged from 0.095 to 0.521 parts per billion (ppb) which is well below the United States Environmental Protection Agency maximum contaminant level of 6 ppm. But, when the PET bottles were subjected to higher temperatures the rate at which antimony was released from the plastic bottles increased significantly. Exposing the water bottle to temperatures above 60° C, caused the rate at which antimony was being released to exceed the maximum contaminant levels. This effect worsens when a microwave is used, because the radiation waves emitted by a microwave causes the kinetic energy of the molecules to increase by providing them with enough radiation energy to move faster. However, since PET is virtually harmless unless subjected to extreme conditions, it is becoming the plastic of choice for consumers and producers.

PET is rapidly gaining popularity in the American plastic industry; almost every bottled water company produces their plastic bottles with PET. This type of plastic does not harm the environment and it is “safe” according to the FDA standards. But, since PET is susceptible to high temperatures and it is not as strong of a plastic as BPA, companies like Poland Springs are forced to limit their use of PET to the small plastic bottles and utilize BPA plastic in the
production of the bigger gallons. These companies that continue to use BPA in the production of plastic get away with it because the FDA has not completely banned the use of BPA. we need to rid BPA in order to protect our health.

The FDA recognizes the dangers that can be caused by the continuous consumption of water and food sources contaminated with BPA. According to their website. At this interim stage, the FDA shares the perspective of the National Toxicology Program that recent studies provide reason for some concern about the potential effects of BPA on the brain, behavior, and prostate gland of fetuses, infants and children. The evidence provided by previous studies on BPA has been enough to put a limit on the amount of BPA that can be utilized by a certain company in the production of plastic. However, recent studies made this year seem to counter the findings of previous studies on BPA. For the most part, these new studies deny the negative impacts of BPA on human health and question the relevance of the animal models that were utilized in the studies that claim that BPA can be toxic for human health. The discrepancies between the results of the different studies have created substantial uncertainties about the overall “BPA issue.”

Currently the FDA is running more studies to continue to investigate how BPA would affect the nervous system and the sub chronic systems of rodents, and how these could be compared to human internal systems. These studies would influence future laws and regulations concerning the use of BPA in the creation of plastics. But until all uncertainties are solved, and BPA is not completely proven to be a toxic agent that can damage human health, we will continue to consume water and food that are contaminated by BPA. Although the amount of contamination might seem small, the continuous consumption of contaminated foods throughout a prolonged period of time could be dangerous (FDA).

The health risks that come with consuming food and water that has been contaminated with BPA will always be present unless the consumers become more aware of the situation. Although the media did try to expose the dangers of using plastic container created from BPA when the issue was first discovered, these efforts were not as aggressive as the ones for major diseases like for instance swine flu. The lack of effort was most likely attributed to the uncertainties that surround the issue itself. However, it is because the “BPA issue” is too uncertain for policy makers to make a quick decision about it that we need the general public to become informed about BPA and its effects on human health. According to the FDA website:

The FDA will open a public docket for comment on BPA. The docket will contain the Center for Food Safety and Applied Nutrition’s review of the low dose toxicity studies and recently published studies, the five expert reviews, and other relevant material. The agency welcomes comments on these documents, other available evidence, and the agency’s regulatory options. This docket will be open for public comment for 60 days. (FDA)

In other words, the FDA will be open not only to expert opinion about the subject, but also the opinion of the general public. The majority of people that use these plastic products are used by every day people. Therefore, since it every day people control the demand for these plastic products it is important for us to have an opinion about BPA. By doing this, not only will we be able to control the supply curve for BPA plastic but also the rules and regulations that are made by the FDA.
The Service Project: Letters

Our service project was sending letters of concern to local supermarkets around the New Brunswick, NJ area. The letters were addressed to the CEO’s of each supermarket. The letter addresses our concern with exposure to BPA, the risks customers are facing, and how the supermarket can help to avoid BPA exposure and help protect their customers.

Letter to CEO directors:
(Jacalyn Szaro and Paula Hernandez)

Dear, (To the CEO),

Supermarkets are an essential part of the American culture. Almost every town has local supermarkets to provide the consumers with accessible foods in a convenient way. Most people, who utilize supermarkets, enjoy the fresh and healthy foods that are easily attainable through them. With the increase in health awareness, our craving for foods that can provide some kind of health benefit has also increased. Most of us, utilize the food pyramid to guide us to what and how much we should be consuming on a daily basis, but there is one product that comes with our food that is working against our health. This product, Bisphenol-A (BPA) can infiltrate our bodies through the consumption of foods and liquids that have been kept in containers made with BPA. This dangerous chemical can be found as a component in many of the plastics that we utilize in our everyday lives. Hence, we need our supermarkets to not only support our cravings
for a healthy lifestyle by providing us with fresh vegetables and fruits, but to also help the consumers by increasing awareness against BPA.

BPA acts very similarly to the hormone estrogen. The science behind BPA and estrogen proves that BPA could potentially damage our health and bodies. BPA can bind to our hormone receptors and DNA and it can lower sperm counts and increase the risk of developmental problems, cancer, schizophrenia, neurological disorders, and weight gain. Consumers should be warned about the health risks that come with utilizing plastic products to prepare their food. They should be aware that BPA is not safe and that the risks that come with it increase when the product is heated. Heat is a source of energy that can expedite the rate at which certain molecules react with their surroundings. When BPA plastic is subjected to heat, BPA molecules travel faster into the food or liquid. As soon as that food or liquid is consumed, the BPA molecules infiltrate our bodies and become free to circulate through our blood and cause damage to our various body systems. The dangers of consuming foods or liquids that have been contaminated with BPA should be brought to the consumers attention.

In order to raise awareness, warning labels should be created in which BPA is singled out as one of the chemical components of certain plastic products. This warning label should be displayed on plastic products that customers purchase and are of the supermarket’s responsibility. The label should read:
WARNING: DO NOT HEAT FOOD IN PLASTIC BAGS/PACKAGING. MAY CONTAIN BISPHENOL-A. (BPA)

It is essential for consumers to be aware of the risks that we are taking while utilizing plastic bags and other plastic products. BPA, is a toxic chemical and it is not fair that many people are putting themselves at risk, because they do not know about it. Putting warning labels on plastic that contain BPA would allow us, consumers to have a choice on whether or not we expose ourselves to the risks of this chemical. These warning labels would also be of the supermarkets best interest. It would show us costumers, that we are not only seen in terms of what we buy from the supermarkets, but that we are seen as people and that our health counts. This would in return, increase the trust of the consumers on the Super Market which could potentially increase sales. Hence, it would be beneficiary for both parties.

We thank you greatly, for taking the time to read our letter and we hope that you can take our suggestion into consideration.

Sincerely,
Jacalyn Szaro
Paula Hernandez
Ajay Singh
Dr. Julie Fagan, Ph.D.
Rutgers University, The State University of New Jersey
School of Environmental and Biological Sciences

List of Recipients:
(Ajay Singh)
(1) Joseph Colalillo
Chairman and CEO
Wakefern Food Corp.(SHOPRITE)
505 DIVISION STREET
ELIZABETH, NJ 07207
Conclusion (JS)
Now that we can see that BPA raises huge risks to our health, we need to be more cautious with our use of plastics. If we can use other products like glass when we cook and heat foods, why can’t we all use glass more often? If using BPA puts our health at risk, we should all be changing our lifestyles in our homes, our workplace, and everyday activity. Without our health, we virtually have nothing. If we can stop smoking cigarettes for example because it affects our health, why can’t we stop using plastics that have BPA in them? We can make the change to better ourselves and the environment. The change needs to start with you.

Editorials

Are plastic products safe?
By: Jacalyn Szaro (Submitted to the Courier News).
For decades, products made from plastic have heavily impacted our lives in many beneficial ways. We are surrounded by plastic products in our kitchens, workplaces, children’s classrooms, and hospitals across the globe. We all believe plastic products are safe. For starters, plastic is not easily broken like glass; it is a durable product to use anywhere. Secondly, they are light in weight and come in many shapes and sizes to better accommodate our needs. We love plastic so much, we even hold Tupperware parties to buy these plastic products in fun colors and easy snap on lids. Up until recently, plastic has been a go-to, innovative, affordable, convenient product.

Although society is convinced that plastic products are safe and reliable, based on new research and information, I have to disagree. Plastic products are tainted with a chemical called
BPA (biphenol A), that is extremely detrimental to our health, especially when heated. BPA is a polycarbonate plastic, which is a chemical that behaves like a synthetic hormone in our body. It is commonly used in the production of clear plastics like those used for food storage, hard water bottles, sippie cups, and baby bottles (Williamson-Maloy, 2010). Writer and author, Randa Williamson-Maloy says that BPA has been known to leech and to dissolve from the plastic lining of canned foods and liquids into the product being consumed. This harmful chemical is then subsequently being ingested by humans and animals. Most of BPA’s consumption is through foods and beverages.

The National Health Institute (NHI) describes BPA as a hormone-disrupting chemical that mimics estrogen, the female sex hormone essential for the development and function of reproductive organs. BPA can affect a fetus during pregnancy and can also affect humans at any other age during their life. The Journal of American Physicians and Surgeons explains that when BPA binds with the estrogen receptor, the complex formed interacts with DNA and can lower sperm counts and increase the risk of developmental problems, cancer, schizophrenia, neurologic disorders, and weight gain (Ellsworth & Hotze, 2008). We can see, that BPA does without question, damage our health. Many studies have been conducted by the NHI, the Center for Disease Control and Prevention (CDC), and many prestigious institutions such as the Harvard School of Public Health to show that we all have traces of BPA in our bodies because of our high exposure to plastics throughout our everyday lives. As a whole, we all need to find ways to avoid the use of plastics and especially in ways that cause BPA to leak out into our foods and beverages.

There are multiple ways we can begin to change the ways we use plastics and prevent BPA from entering our bodies. Here are a few easy ways to avoid BPA exposure given by Williamson-Maloy:
1. Buy a stainless steel water bottle instead of plastic recyclable water bottles.
2. Do not heat plastic in the microwave.
3. Do not cook and/or heat with plastic at the same time.
4. If you must use plastic, use plastic that says “BPA Free.”
5. Avoid putting plastics in the dishwasher.
6. Use glass products.

These are a few simple ways that I think many people might not be aware of, which leads to another issue that goes along with BPA. How do we make people aware of the risks that BPA poses? One way is to have supermarkets display caution signs on any product that contains plastic, telling customers that this product should NOT be heated or cooked with because of these health risks that can occur.

Education is the best and most important way to prevent and precaution people of this important issue. If we are not educated, we can not be healthy, and if we are not healthy, we will not be living the lives we are supposed to be living. That being said, I think supermarkets should be forced to supply labels on plastic products around their store to prevent their customers from possibly having BPA exposure. Supermarkets should have caution labels even on top of the plastic bags that people bag their fresh fruit and vegetables in. Even better, we should move towards a society that does not rely so heavily on plastics. Knowing the health effects that plastic has on us, why wouldn’t we want to get rid of it for good?

For more information on BPA, visit and read [http://www.niehs.nih.gov/news/media/questions/sya-bpa.cfm#bisphenol](http://www.niehs.nih.gov/news/media/questions/sya-bpa.cfm#bisphenol)
BPA in Our Plastics

BPA is one of the most widely used chemicals in the manufacturing of plastics within the United States. This chemical is the building block for polycarbonate plastics, and for epoxy resins which are used to coat the containers of canned foods and beverages. The use of BPA is essential for the production of plastic containers like baby bottles and water coolers. However, recent studies have shown that the use of BPA can be detrimental to human health and child development.

BPA is a synthetic type of estrogen that can act as an endocrine disruptor. The BPA molecules in plastic containers can move into the food they contain and from there infiltrate the human body and link to the estrogen receptors. Concentration of Bisphenol A between 1pM and 1nM of in the blood cells could disturb the function of estrogen responsive cells and tissues by either inhibiting or expediting their reaction with the estrogen. Nevertheless, some studies have measured an average of BPA concentration that exceeds these numbers in blood samples collected from pregnant women, fetuses and adults. The disruption of the endocrine system by low but prolonged doses of BPA could further cause mal-function in organs that are linked to estrogen, and it could potentially lead to the reduction of male reproductive capacity and maybe even cancer.

Plastics putting you in major health risks (Submitted to Robbinsville Reporter)
(Ajay Singh)

Today, plastics have being use a common product or very cheaper material in products for any use. People have been using plastics in a safe manner. Many companies and organizations are still not awaking seriously about its exposure to living beings especially to humans. Most of the plastics contain a chemical component which has shown in many researches that it has very significant risks to human beings. Unfortunately, FDA and many other companies have not worked in serious manner to make awareness of this harmful chemical found in plastics. Last year, this toxic chemical has been banned by the government of Canada to use in any plastic product. And also European Unions and China are considering in this matter. Bisphenol A also know in short as BPA is the toxic chemical which is revealed by many researchers and scientists.

BPA is found in almost all the plastic materials including plastic bags, water bottle, cans and food packaging. This toxic chemical used to make polycarbonate plastic and epoxy resins, along with other applications. Polycarbonate plastic, which is clear and nearly
shatter-proof, is used to make a variety of common products including baby and water bottles, sports equipment, medical and dental devices, dental fillings and sealants, eyeglass lenses, CDs and DVDs, and household electronics. Epoxy resins containing bisphenol A are used as coatings on the inside of almost all food and beverage cans. For the identification of BPA in plastics, there is marked recycle codes 1, 2, 4, 5, and 6 are very unlikely to contain BPA. Some, but not all, plastics that are marked with recycle codes 3 or 7 may be made with BPA.

Health risks are a significant and major issue with this chemical. Bisphenol A is an endocrine disruptor, which can mimic the body's own hormones and may lead to negative health effects. In 2009 The Endocrine Society released a statement expressing concern over current human exposure to BPA. A panel convened by the U.S. National Institutes of Health determined that there was "some concern" about BPA's effects on fetal and infant brain development and behavior. In obesity, a 2009 review of some scientist and heath public officers' available studies has concluded that "prenatal BPA exposure acts to exert persistent effects on body weight and adiposity" A 2008 study by the Yale School of Medicine demonstrated that adverse neurological effects occur in non-human primates regularly exposed to bisphenol A at levels equal to the United States Environmental Protection Agency’s (EPA) maximum safe dose of 50 µg/kg/day. This research found a connection between BPA and interference with brain cell connections vital to memory, learning and mood.

From all of these risks, all plastics user needed to be aware of using it. Any individual should never tried to heat it with the food in the microwave. Before using the plastic bottle for beverage make sure the recycling codes on it. Avoid washing the plastics in the dishwasher. My recommendation is to buy a glass bottle instead of plastics bottle. Remember if we are safe, the genes of our offsprings will be safe.