Ontario Nurses for the Environment Interest Group

Winter 2012, Issue 3

In This Issue

Happy holidays from the ONEIG Executive Committee!

Welcome to our third newsletter, which focuses on air quality. This past year has been an exciting journey for ONEIG, with the addition of four new EC members, three resolutions passed at RNAO's 2012 AGM, and two community events, among other activities. We are grateful for your support and extend a warm welcome to our new members! As always, we invite you to share your feedback and environmental health interests at environmentrn@gmail.com. To learn more about our group, you can also visit our website (www.oneig.ca) and Facebook group (https://www.facebook.com/ONEIGrnao).

Wishing you and yours peace and joy this holiday season,

The ONEIG Executive

Meet our new Executive Members!

Communications ENO - Andrew Shepherd, BScN student

My name is Andrew Shepherd, and I am currently enrolled in the second year in the Loyalist College/Brock University undergraduate program, and I love it! Being a first year student was overwhelming when I realized how much opportunity students have in regards to being involved in political action groups, and interest groups that make a huge impact on nursing and the community. Being a member of ONEIG is truly an amazing experience. I love camping, and outdoor activities, which sparked my passion to help clean up the world in little ways. I have written letters to local MPPs discussing green alternative and renewable energy. Also, I wrote a research paper on how much industrial wind generators can immensely improve air quality on local, national, and a worldwide scale. Remember, getting the world to become a greener place is a collective, ongoing process, and what better way to help the planets health while improving the health of people we love.

Communications ENO Andrew Shepherd

Membership ENO Kate Dunbar

Membership ENO - Kate Dunbar, BScH, BScN student

Kate is currently in the final year of her undergraduate nursing degree at the Bloomberg Faculty of Nursing, University of Toronto. She previously completed an Honours Bachelor of Science with a major in Psychology and minors in Religion and Anthropology. Kate's interest in environmental health grew from the simple joy and wellbeing she experienced while camping in Northern Ontario as a child. Since that time, she has developed a fascination with how people around the globe engage with and experience the natural world. Kate's interests also include food security and consumer freedom of choice, biodiversity, sustainable agriculture and biodynamic farming, as well as the impact of the environment on individual and community mental health.

While still new to her position as ONEIG's membership ENO, Kate aims to gain a better understanding of the environmental health issues of greatest concern to members. In her role, Kate hopes to foster and support the growing interest in environmental health among ONEIG's member base.

CNHE Liaison Sima Patel

Canadian Nurses for Health and the Environment Liaison – Sima Patel, RN, BScN, MES

As a graduate of University of Toronto's nursing program in 2001, Sima has worked in various settings and capacities in the health care sector. Her nursing experience ranges from acute pediatric care at the Hospital for Sick Children to overseas work with Doctors Without Borders to public health. Her volunteer work in Zambia sparked an interest in environmental issues and she decided to do a Masters in Environmental Studies at York University, where she focused on sustainable food systems as well as improving sustainability within organizations.

Since graduating with her Masters, she has worked as a program coordinator for a non profit organization, where she was involved with managing the community garden program as well as assisting school boards to increase local food procurement within schools. She has also been employed as a sustainability consultant, where she worked on a variety of projects aiming to improve environmental sustainability within communities, private companies and public organizations. She has also developed her Masters research into three peer-reviewed journal articles.

Through her current work at Toronto Public Health, Sima promotes healthy eating and physical activity amongst youth and is supporting Toronto schools in establishing and maintaining school food gardens.

Student Representative Reena Ahluwalia

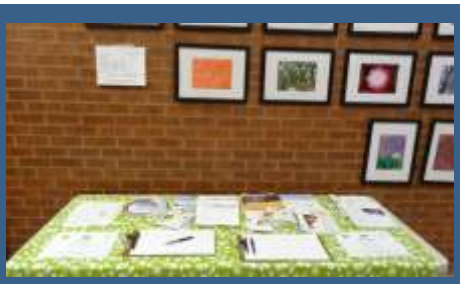
Student Representative - Reena Ahluwalia, Fourth year BScN student at York University

Health and the Environment have always been a passion of mine. It all began in my first year of university where I was enrolled in the Environmental Studies program. Here I saw the deep connections between how the state of our planet directly affects our health. Keeping this new found connection in mind I decided to pursue a different career; nursing which has provided me with a deeper understanding of the meaning of health in different environments. I'm still on a journey of discovery and am excited to be a part of ONEIG a group that joins both of my passions. My goal is to find exciting ways to engage students and encourage them to participate in this environmental health movement.

ONEIG Events in Fall 2012

Air Care

ONEIG is committed to supporting students through initiatives and ideas put forward by our student members. On October 3rd our student representative, **Reena Ahluwalia** a fourth year nursing student at York University, had the opportunity to collaborate with the Green Change project as well as Toronto Environmental Alliance to hold an air quality discussion called "Air Care" in the Jane and Finch community center. The discussion was lead by Clara Stewart-Robertson who is the project coordinator for the Green Change Project and **Chrys Kells**, RN,BScN, Air Quality Trainer for the College of Family Physicians of Canada. Key stakeholders within the community had the opportunity to discuss and learn about the links between air pollutants and their health. They were also provided with resources that provide ways to reduce the impacts of air pollution. Though this partnership Reena also had the opportunity to attend a workshop related to the Chemtrac project which aims towards improving public health by reducing toxic chemicals in our environment though reporting emissions and pollutants. Opportunities such as these have been a result of ONEIG's continual collaboration and advocacy for awareness regarding environmental health.



ONEIG Info Booth at Air Care

Attendees before the presentation

Lisa Vanlint and Ed Rubenstein of UHN

Ed with CNHE Liason Sima Patel

Nursing Leadership and Greening Health Care

On October 10th, ONEIG welcomed over 25 members and friends to a discussion on Nursing Leadership & Greening Health Care. Hosted by Ed Rubinstein and Lisa Vanlint of the University Health Network, the presentation gave an overview of the sustainability initiatives that UHN front-line staff are currently undertaking, including many ways that nurses can affect green change in their respective sectors. Presentation slides can be viewed here. This event was also mentioned in the November-December issue of *The RN Journal.*

For weekly information on greening health care, you can sign up for Ed and LIsa's fabulous blog, Talkin' Trash with UHN.

A huge thank you to everyone who attended!

BScN Student Articles on Air Quality and Health

This edition features excerpts from two essays written by **Morgan Lincoln** and **Andrew Shepherd**, ONEIG President-Elect and Communications ENO, respectively. Both were submitted as assignments for their BScN programs. To think of the awareness building that could occur if more environmental health content was included in nursing curricula! Current BScN students who have a passion for environmental health may consider entering the **Hollie Shaner-McRae Nursing Student Essay Contest**, which closes in February 2013.

Exploring Childhood Asthma through an Environmental Health Lens

Morgan Lincoln, RN, BScN, MA

Asthma, Air Pollution and the Physiological Vulnerability of Children

The commonness of asthma in children is partially attributable to children's physiological susceptibility to environmental hazards (Sattler, 2002; Canadian Partnership for Children's Health and the Environment [CPCHE], 2005). As espoused by Sattler (2002), a prominent American environmental health nurse, "Children are not just little adults… Their status as developing organisms, their heightened biological sensitivity, their diet, and their unique exploratory nature enhance their vulnerability to many toxic threats in their environment" (p. 230). One such toxic threat is that of air pollution, of which vehicle exhaust is a significant component (Neidell, 2004). In support of ONEIG's anti-idling resolution, vehicle pollutants, including carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter (PM_{10}), are believed to exacerbate asthma symptoms (Neidell, 2004). Due to the elevated respiratory rate of infants and young children relative to older persons, children as a population are disproportionally exposed to these airborne toxins (Sattler, 2003). Furthermore, lung development during infancy is a period whereby environmental hazards exhibit a greater effect on human health compared to later times of respiratory maturity (Sattler, 2002). Coined *windows of vulnerability* by the Canadian Partnership of Children's Health and the Environment (CPCHE, 2005), these factors, among others that are beyond the scope of this paper, provide rationale for the increased prevalence of asthma among children.

In addition to children's biological sensitivity to toxins, there are a number of other social and environmental determinants of health that have been associated with childhood asthma in the literature, an overview of which is provided below. This exploration seeks to demonstrate the fact that asthma as "a health condition that is also an environmental justice issue" (Grineski, 2011, p. 360).

Childhood Asthma and the Social and Environmental Determinants of Health

Living in an urban environment. Research by Wong and Chow (2008) suggests that asthma is more prevalent among more urbanized environments, in part due to the environmental exposures inherent in urban living, though these exact mechanisms are currently uncertain. Research also indicates that the prevalence of childhood asthma varies according to area of residence within a given urban centre. In their examination of asthma-related symptoms in school aged children from Southern California, McConnell et al. (2006) found that asthma and wheezing were significantly more common in children who lived 75 metres or less from a major road, as opposed to further than 300 metres away. Interestingly, however, this relationship was only present when the participants with asthma-related symptoms had been living at the same residence (i.e. near the major road) since before the age of two. This finding supports the idea that children have certain *windows of vulnerability* with regard to asthma, whereby specific age groups are more biologically susceptible to the effects of various environmental toxins (CPCHE, 2005). McConnell et al.

posit that their findings suggest a link between the pollutants in vehicle emissions and an exacerbation of childhood asthma. As the percentage of individuals moving to urban centres continues to grow worldwide (Vlahov & Galea, 2002), the need for a preventative approach to childhood asthma will only increase in salience over time.

Socio-economic status. Potentially mediating the aforementioned relationship between place of residence and childhood asthma is socio-economic status (SES). To determine the relationships between these variables, Neidell (2004) divided the state of California into subgroups and analyzed them according to their a) level of air pollution, b) number of annual childhood visits to the emergency room due to asthma-related symptoms, and c) SES. Controlling for the use of tobacco inside the home, the author states that his findings support "the 'double jeopardy' hypothesis that low SES children are not only exposed to higher levels of pollution but also are more harmed by similar amounts of pollution" (Neidell, 2004, p. 1228). Ostensibly, families of higher SES have the means to choose their place of residency, allowing them to avoid urban spaces with greater amounts of air pollution (Neidell, 2004). On a related note, indoor air pollutants correlated with asthma, such as moulds and allergens (Brown, Mayer, Zavestoski, Luebke, Madelbaum, & McCormick, 2003), may also be more frequent in less expensive, neglected dwellings.

SES may also be a factor when determining parents' ability to access health care and treatments for their child with asthma (e.g. lack of funds for transportation or asthma medications). Furthermore, given that childhood asthma is correlated with absences from school (National Institute of Environmental Health Sciences, 2000, as cited in Neidell, 2004), it may be difficult for parents with lower incomes to either miss work or access affordable childcare.

Age, gender and race. Sattler (2002) notes the significance of the fact that the "pollution thresholds" used to determine safe levels of exposure to environmental hazards are tested on adult white males. Given children's physiological susceptibilities to toxins, in addition to the diversity across gender and race, the lack of stricter government policy in this regard may be considered another determinant of childhood asthma. Finally, literature from the United States briefly suggests that race is another social determinant of asthma, yet this relationship also appears to be at least partially mediated by SES (Grineski, 2011).

In light of the reviewed scholarship, it is apparent that the prevalence and severity of childhood asthma may be improved by adopting a primary health care approach to this health issue.

URL List of References

Brown et al. (2003) on the health politics and illness experience of asthma in the United States:
http://www.ncbi.nlm.nih.gov/pubmed/12791488

CPCHE (2005) primer on children's environmental health:
http://www.healthyenvironmentforkids.ca/sites/healthyenvironmentforkids.ca/files/cpche-resources/Primer.pdf

Grineski (2007) on environmental justice, air pollution and children's asthma in Phoenix, Arizona:
http://www.tandfonline.com/doi/abs/10.1016/j.envhaz.2007.09.007

McDonnell et al. (2006) on traffic and childhood asthma:
http://www.ncbi.nlm.nih.gov/pubmed/16675435

Neidell (2004) on air pollution, SES and childhood asthma: http://www.sciencedirect.com/science/article/pii/S0167629604000864

Sattler & Lipscomb (2002) on environmental health and nursing practice:
http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDQQFjAB&url=http%3A%2F%2Fbooks.google.com%2Fbooks%2Fabout%2FEnvironmental_health_and_nursing_practic.html%3Fid%3DDbXYG1dGS5UC&ei=z_2ET73bDceN0QGFwM35Bw&usg=AFQjCNGZ_af3hsAZAp7FM__rYrjj-YI3Lg

Vlahov & Galea (2002) on urbanization and health:
http://www.ncbi.nlm.nih.gov/pubmed/12473694

Wong & Chow (2008) on urban and rural asthma epidemiology:
http://www.ncbi.nlm.nih.gov/pubmed/18092349

Building Sustainable, Green Communities

Andrew Shepherd, BScN student and colleagues

The primary objective of Canadian health care policy states:

> It is hereby declared that the primary objective of Canadian health care policy is to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial barriers (Canada Health Act, 1984, c. 6, s.3).

An important pillar of creating a vibrant community is to build a sustainable and green community that can maintain the standard of the Canadian Health Care Policy. This policy states, “where by protecting, promoting and restoring the physical and mental well-being" is a priority to maintain good health for Canadians. Poor air quality in Canada has a negative effect on the health of Canadians. The determinants of air quality have everything to do with greenhouse gas emissions. Energy generated by coal is Canada's number one source of energy which is a concern considering the amount of greenhouse gas that fossil fuels burn off which destroy the ozone layer. Finding a greener alternative mean of energy can improve the air quality for Canadians, especially on a local level.

Air quality has a large effect on the health of Canadians. The World Health Organization data suggests that environmental factors account for 24% of all the world’s diseases, and 23% of all deaths. From this information, the Ontario Medical Association concludes that 9,500 deaths per year, in Canada, are caused by poor air quality ("Vibrant Communities," 2010, p.8). The specific diseases directly linked to poor air quality include asthma, lung cancer, cardiovascular disease, allergies, and many other health problems (Environment Canada, 2006).

> “In Ontario, during 2010, there were over 300 deaths, 440 hospital admissions, 522 emergency visits, and 158,000 recorded minor illnesses that were related to poor air quality due to greenhouse gases (RNAO, 2011).”

The factors that decide air quality have everything to do with greenhouse gases. There are four major greenhouse gases that affect the health of Canadians: carbon dioxide, methane, nitrogen oxide, and chlorofluorocarbons. Carbon dioxide, methane, and nitrogen oxide are by-products of the consumption of fossil fuels. (Environmental Protection Agency, 2011). Canada currently ranks 7th in the world for carbon dioxide emissions (Rogers & Evans, 2011). Ontario, specifically Eastern Ontario, has the worst air quality in Canada, and all of North America (Environmental Protection Agency, 2003). Essroc Canada, a cement plant located in Prince Edward County, is Ontario's second largest nitrogen oxide emitter and is in the top 20 for largest carbon dioxide emissions in Ontario (Ontario Clean Air Alliance,2007).

Coal is ranked number one for the most used source of energy throughout Canada and Ontario, even though it is known that the consumption of fossil fuels is detrimental to our health (L. Dombrowsky, personal communication, September 27, 2011). Coal is used in power plants to provide electricity for our country and for the United States, steel mills, and other industrial workplaces that require high amounts of heat and power, such as Essroc Canada, a cement plant in Prince Edward County (Ontario Clean Air Alliance, 2007).

All coal burning power plants, whether they are power plants or not, produce greenhouse gases that affect the ozone layer of our planet. Some examples of these chemicals released into our atmosphere are lead and mercury. The more that these chemicals are released into our atmosphere, the more the ozone layer, which protects us from harmful ultra-violet waves emitted from the sun, will get thinned and risk the chance of a hole developing. The United Nations Environment Program has proven that “A reduction in ozone of 1% leads to increase of up to 3% in some forms of non-

melanoma skin cancer" (United Nations Environment Program, 1998). Other illnesses that have been suggested to be linked to greenhouse gases and poor air quality are asthma, lung cancer, cardiovascular disease, and allergies (Environment Canada, 2006).

In Ontario, during 2010, there were over 300 deaths, 440 hospital admissions, 522 emergency visits, and 158,000 recorded minor illnesses that were related to poor air quality due to greenhouse gases (RNAO, 2011). In a study that was created in 2005 for Ontario, it was shown that 3 billion dollars were spent on greenhouse gas related illnesses, which can be mostly attributed to the fact that Ontario still produces vast amounts of greenhouse gases with the number one contributor being coal energy (L. Dombrowsky, personal communication, September 27, 2011). Though our province has plans to close all coal burning power plants by 2014, this means that another 600 or more people will potentially die due to the pollution in the air. According to RNAO "when an activity threatens human or environmental harm, precautionary measures must be taken even if a conclusive cause and effect relationship has not been fully established scientifically" ("Vibrant Communities," 2010, p.8).

Building a sustainable, green community and improving air quality could theoretically save the lives of nearly 9,500 Ontarians a year ("Vibrant Communities," 2010, p.8). One of the many methods that will reduce greenhouse emissions is looking into alternative energy sources, such as using wind turbines and solar energy instead of depending on coal electricity.

References

Department of Justice. (2011). Canada Health Act. Retrieved from: http://laws.justice.gc.ca/PDF/C-6.pdf

Environment Canada. (2006). Health Issues. Retrieved from: http://www.ec.gc.ca/air/default.asp?lang=En&xml=C8A1FE65-89FA-4487-89FD-8EEAA6CBAE31

Environmental Protection Agency. (2003). Air quality agreement: 2002 progress report. Retrieved from: http://www.epa.gov/airmarkt/progsregs/usca/docs/airus02.pdf

Environmental Protection Agency. (2011). Greenhouse gas emissions. Retrieved from: http://www.epa.gov/climatechange/emissions/index.html

Ontario Clean Air Alliance. (2007, January 26). OPG: Ontario's pollution giant. Retrieved from: http://www.cleanairalliance.org/files/active/0/opggiant.pdf

Registered Nurses Association of Ontario. (2011). Discussion: commit to terminate all Coal burning at Ontario's power plants by 2012 and cancel plans to build new nuclear plants. Retrieved from: http://rnao.org/Page.asp?PageID=122&ContentID =3546&SiteNode ID =390

RNAO's challenge to Ontario's political parties. (2010, January). Creating Vibrant Communities, 8-11.

Rogers, S., & Evans, L. (2011, January 31). World carbon dioxide emissions data by country: China speeds ahead of the rest. Retrieved from: http://www.guardian.co.uk/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2

United Nations Environmental Programme. (1998). Environmental effects of ozone depletion: 1988 assessment. Nairobi, Kenya.

ONEIG's Featured Member:
Barbara Mead

Kate Dunbar, BScH, BScN student

Our members are the driving force behind the work that we do. In order to celebrate the incredible dedication of ONEIG members working to improving health through environmental activism and awareness, we want to share with you the inspiring stories of our champion members. One such member is Barbara Mead.

Barb volunteering in Guatemala, 2012

Barb was born in Quebec City, but grew up all over Ontario and Manitoba. After finishing high school in Hamilton, she enrolled at the Oshawa General Hospital School of Nursing, graduating in 1969. Since that time, she has worked in various hospitals, performed private duty and worked in medical departments in industry. She worked for 35 years in the ER at West Haldimand General in Hagersville Ontario where she also held a managerial position. While working as a nurse, Barb completed her BA in psychology at McMaster University in 1985. Currently, Barb works casual part time in a long-term care facility in Dunnville and occasionally still works in industry.

Barb enjoys spending time with her family in Ottawa where her sister, nieces, nephews and their children live. Barb's sense of adventure led her to volunteer on medical missions which have sent her twice to Haiti and once to Guatemala since 2009. Closer to home, she plans to volunteer at the local horse rescue and with The Equestrian Association for the Disabled. Barb owned horses in the 80's and was a 4-H leader for several years during that time. In addition to her nursing work, Barb keeps busy tending her garden and running a year-round Bed and Breakfast in her home. She has been an active member of ONEIG since its inception in 2010.

We interviewed Barb this past September in order to learn more about her interest in health and the environment.

When did you first become interested in environmental issues as they relate to health? What sparked your interest?

It was during my second year postgraduate when working as an RN in Hamilton that I became interested in the environment. I was reading articles and editorials in the newspaper about the growing concern about garbage disposal. As bacteria and disease were associated with uncontrolled and improper disposal I became more aware about what was going into the trash and where it was being sent. Being a practical person, I thought some of our waste could be reused, and researched plants in the city that would recycle bottles and cans. Plastic was not as prolific as is it now, but it concerned me that it was not able to decompose for hundreds of years and was taking up landfill. I decided to restrict my use of plastic as much as possible, which I still do today, in addition to recycling.

What activities or environmental initiatives have you been involved in?

The first environmental group I joined was Pollution Probe, a non-profit organization examining our air, water and energy sources in regard to how pollution affects climate change. The group focuses on reducing carbon emissions, improving wastewater infrastructure, protecting the Great Lakes, and supports efficient and renewable energy sources, in partnership with several other environmental and conservation organizations. Through these groups I became more aware of how pollutants in the water and air get into our food, air and products, such as mercury and lead, and greenhouse gas emissions from cars and coal fired plants. More evidence was also accumulating about how these things related to health problems such as asthma, allergies, and cancer. Some things we thought were acceptable, such as cigarette smoking and asbestos insulation, have now been revealed to be harmful years later.

Concerned about what I could do to protect myself, I started reading Prevention magazine, which recommends not only a healthy lifestyle through good food and exercise, but suggests alternatives to taking medication that some people have found helpful. I personally take many vitamins and try to choose organic for certain foods even though I remain uncertain of the extent of their benefit. I am grateful that I have not had a cold in years and have had minimal need of antibiotics in the last 30 years. Events such as what happened at Chernobyl and Three Mile Island prompted me to join Greenpeace to support global concerns such as nuclear energy and pollution in the oceans. I also support local groups who oppose landfills in wetlands. In Canada, I belong to the Council of Canadians, an organization committed to public health care and protection of our natural resources, particularly water. Our accomplishments include successfully stopping bovine growth hormones and genetically engineered wheat. It all becomes very political as we recognize the determinants of health and how it is linked to how our tax dollars are distributed. We as nurses know that cuts to social programs lead to an increase in poverty, which leads to declining health. There have been some gains in Ontario with the Clean Water Act and the Green Energy Act, but more needs to be done.

What are some small things you do in your personal and professional life that contribute to a healthier environment?

Besides recycling paper, plastic and glass, I also have two composters in my yard. I have encouraged my family and others to do the same. I have a metal roof with a lifetime guarantee [Metal roofs are energy and cost efficient, durable and can be made from recycled materials. They are also great for collecting algae-free rain water!]. After losing my mother last year, I have become even more aware of the abundance of possessions I have accumulated and regularly recycle clothing and household items to charitable organizations and contribute to local food banks. I collect rainwater for my many houseplants and recycle water from the dehumidifier. I use phosphate-free detergents and green cleaning products. I also encourage others, both friends and colleagues, to quit smoking and buy fuel efficient cars, rechargeable batteries, low water use toilets, solar lights and Energy Star appliances.

Professionally, I am concerned about the amount of waste produced in healthcare settings. I try to promote recycling, and advocate for the removal of unhealthy foods from hospitals. Of growing concern is the use of disposable briefs in Long Term Care institutions, although some hospitals and LTC facilities are using more renewable and biodegradable products, including bedpans. I am also concerned about the impact of wide scale polypharmacy on our water supply.

What initiatives or direction would you like to see ONEIG and/or the RNAO move in with regards to health and the environment?

ONEIG should continue to partner with others to promote greater public education and standardization, as it is a formidable task to take on alone. For example, many people who live in old houses do not know if the old paint is lead based, or if the old insulation has asbestos. These things are occasionally being addressed in TV renovation programs, but many people are still not aware. Education is the key and lobbying for stricter controls will increase awareness and help prevent further damage. Protecting water and air from contaminants are the highest priorities as they all end up in our bodies one way or another. Promoting more use of renewable and biodegradable products helps avoid adding to the problem. One of the challenges is to keep on top of the research in order to stay on the right track to protect health.

What do you think is the nurse's role in supporting health as it relates to the environment?

There are many things we can all do to reduce our carbon footprint, both individually and collectively. Being involved in environmental organizations and caring about something larger than myself gives me the motivation to live the best life I can and promote the same for others. Through engaging our colleagues, work administration and our politicians in a dialogue about the environmental impact on health we can keep it on the forefront for positive change. We all have to be good stewards and care for our environment so we can protect our physical and mental health and preserve it for future generations.

Chrystyna's Green Kitchen Tips

Just in time for your holiday feast, ONEIG President **Chrys Kells** shares her favourite eco kitchen tips from Vegetarian Times. Look out for her next tip in our next newsletter.

1. Choose energy-efficient cookware

"Fast, even heat conduction saves energy and yields tastier results. Cast iron, stainless steels, and copper pans are the best stove-top options, along with time-saving stainless steel pressure cookers. And switch to glass, ceramic, or silicone baking pans and molds, which allow you to reduce over temperatures by 25-30 degrees Fahrenheit."