PLANETARY HEALTH WEEKLY

BRINGING YOU CURRENT NEWS ON GLOBAL HEALTH & ECOLOGICAL WELLNESS

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DIABETES IN SUB-SAHARAN AFRICA: FROM CLINICAL CARE TO HEALTH POLICY

Rapid demographic, sociocultural, and economic transitions are driving increases in the risk and prevalence of diabetes and other non communicable diseases in sub-Saharan Africa. The impacts of these transitions and their health and economic consequences are evident. Sub-Saharan Africa which contains a high proportion of the world's least developed countries, will face the multifaceted challenge of dealing with a high burden of infectious diseases and diseases of poverty, while also addressing the increasing burden of cardiovascular disease and its risk factors. At present, many of the health systems in sub-Saharan African struggle to cope with infectious diseases. Meeting the goals of the UN high level meeting on non communicable diseases (to reduce premature mortality by a third by 2030) requires a coordinated approach within countries, which starts with a firm consideration of disease burden, needs and priorities.

Read More on Research Gate

ALSO IN THIS ISSUE:

KENYA IMPOSES WORLD'S TOUGHEST LAW AGAINST PLASTIC BAGS

Kenyans producing, selling or even using plastic bags will risk imprisonment of up to four years or fines of $40,000, as the world's toughest law aimed at reducing plastic pollution came into effect. The East African nation joins more than 40 other countries that have banned, partly banned or taxed single use plastic bags, including China, France, Rwanda, and Italy. Many bags drift into the ocean, strangling turtles, suffocating seabirds and filling the stomachs of dolphins and whales with waste until they die of starvation. "If we continue like this, by 2050, we will have more plastic in the ocean than fish," said Habib El-Habr, an expert on marine litter working with the U.N. Environment Programme in Kenya. Plastic bags, which El-Habr says take between 500 to 1,000 years to break down, also enter the human food chain through fish and other animals. In Nairobi's slaughterhouses, some cows destined for human consumption had 20 bags removed from their stomachs. Kenya's law allows police to go after anyone even carrying a plastic bag. But Judy Wakhungu, Kenya's environment minister, said enforcement would initially be directed at manufacturers and suppliers.

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Ryerson University Faculty of Community Services

Major Drug Study Opens Up Vast New Opportunities in Combating Heart Disease

A landmark drug study has opened up a potent way to lower the risk of heart attacks, beyond the now standard advice of reducing cholesterol, promising new avenues of treatment of a number one killer. Physicians not involved in the study described the results as a scientific triumph, calling the implications for drug treatment of heart disease "huge." The findings provide validation of an idea that has been tantalizing cardiologists for years: that reducing inflammation could be a way to treat artery-clogging heart disease. The drug company that sponsored the trial, Novartis, plans to meet with regulators this fall and file for approval by the end of the year. The drug, an injection given once every three months, would then be reviewed by the Food and Drug Administration. The study showed its effect, a 15 percent drop in a combined measure of heart attacks, stroke and cardiovascular death, in a select, high-risk population of people who had suffered a previous heart attack and had high levels of a marker of inflammation in their blood.

Read More on The Washington Post

WHO: River Blindness Under Control in Africa and other Disease Updates

The World Health Organisation (WHO) says it has recorded success in controlling river blindness in Africa after more than 40 years of sustained effort. Dr. Matshidiso Moeti, the WHO Regional Director for Africa, said according to the organization's 2016-2017 Biennial Report on the work of WHO in the African Region, there has been significant reduction in the HIV related deaths from 800,000 in 2015 to 720,000 in 2016. The regional director said the report aimed to highlight the progress achieved in emergency preparedness and response, elimination of priority diseases such as HIV, TB and malaria. She said it also aimed to highlight continuing efforts by the organisation in tackling non-communicable diseases, progress in protecting children from illness and deaths, among others. She said that to ensure Africa becomes polio-free by 2019, over 190,000 polio vaccinators have so far immunised more than 116 million under-five children in 13 countries in West and Central Africa.

Read More on Sun News

World's Biggest Drone Drug Deliveries Take Off in Tanzania

Tanzania is set to launch the world's largest drone delivery network in January, with drones parachuting blood and medicines out of the skies to save lives. California's Zipline will make 2,000 deliveries a day to more than 1,000 health facilities across the east African country, including blood, vaccines and malaria and AIDS drugs, following the success of a smaller project in nearby Rwanda. "It's the right move," Lilian Mvule, 51, said by phone, recalling how her granddaughter died from malaria two years ago. Malaria is a major killer in Tanzania, and children under age 5 often need blood transfusions when they develop malaria-induced anemia. If supplies are out of stock, as is often the case with rare blood types, they can die. Tanzania is larger than Nigeria and four times the size of the United Kingdom, making it hard for the cash-strapped government to ensure all of its 5,000-plus clinics are fully stocked, particularly in remote rural areas. The drones fly at 100 kph (62 mph), much faster than traveling by road. Small packages are dropped from the sky using a biodegradable parachute. The government also hopes to save the lives of thousands of women who die from profuse bleeding after giving birth.

Read More on VOA

Exxon Knew Climate Change Was Real, Ads Told Public It Wasn't

Sometimes it's best not to dare the public to do the research, especially if you're trying to persuade them of something that isn't true. Almost two years ago, *Inside Climate News* published a significant expose that confirmed Exxon's own scientists had agreed that human carbon emissions contributed to global warming as early as July 1977. But as the company's scientists grew steadily more convinced of that fact over more than three decades, Exxon's ads to the public increasingly cast doubt on the same science. That revelation, also covered by the Los Angeles Times, focused huge public attention on the discrepancy between Exxon's internal understanding of climate science and its efforts to convince the public that scientists remained unsure. The company now faces lawsuits from a variety of sources, including employees and shareholders over those 40 years of discrepancies. Responding to the continuing controversy, Exxon has claimed reporters had "cherry-picked statements" from the company's ads.

Read More on Green Car Reports

NIH Unit Deletes References to Climate Change

A unit of the National Institutes of Health has removed references to climate "change" from its website, deletions that one environmental group criticizes as "cleansing" but an NIH official describes as minor. The revisions occurred on the National Institute of Environmental Health Sciences site. A headline that read "Climate Change and Human Health," for example, was altered to "Climate and Human Health." A menu title that read "Climate Change and Children's Health" in June now appears as "Climate and Children's Health." Links to a fact sheet on "Climate Change and Human Health" also were removed. "The cleansing continues," said David Doniger, director of the climate and clean air program at the Natural Resources Defense Council. "But they're not going to be able to erase the science, or the truth, by scrubbing websites." The changes were revealed in a report by the Environmental Data and Governance Initiative, a group of non-profits and academics who monitor what they call "potential threats" to federal policy and scientific research on energy and the environment. The phrase "climate change" still can be found several times in the text below the headline that now reads "Climate and Human Health."

Read More on The Washington Post

Endangered Sharks and Rays Further Threatened by Global Food Markets

A majority of shark fins and manta ray gills sold around the globe for traditional medicines come from endangered species. Using cutting-edge DNA barcoding technology, researchers found 71 per cent of dried fins and gills collected from markets in Canada, China and Sri Lanka came from species listed as at-risk and therefore banned from international trade. "Despite the controversy around shark fin soup and the fact that many of these species are threatened, there is still a large market for shark fins and a growing demand for ray gill plates," said Dirk Steinke, integrative biology professor and member of the Centre for Biodiversity Genomics. "It's an area that until now has been hard to enforce because shark fins are dried and processed before they are sold making it difficult to identify the species." Shark finning, or removing fins from live sharks, is illegal in Canada. Importing shark fins for sale is also illegal for species at-risk. Researchers collected 129 market samples in Canada, China and Sri Lanka representing 20 shark and ray species. Twelve of those species, including whale sharks, are listed as protected and illegal to trade under the Convention on International Trade in Endangered Species (CITES).

Read More on Science Daily

What Does Contraception Have to Do With Education? Everything

Worldwide, 62 million girls between the ages 6 and 15 are not in school, and girls continue to fall significantly behind boys in completing secondary school. There are numerous reasons for these disparities: cost, distance, safety, lack of sanitary supplies, gender discrimination, early marriage, and more. There are also a number of solutions to help get more girls in school, including expanding access to reproductive health information and services. The United Nations Foundation's Universal Access Project recently returned from a trip to Uganda, a country where nearly a quarter of girls are pregnant or have a child by age 19, and comprehensive sex education is not taught in many schools. A recurring theme surfaced in almost every interview: adolescent girls were getting pregnant, dropping out of school, and often getting married. We also heard of women unable to plan their families who ended up having more children than they wanted and could not afford to send their children to school. We can help to break the cycle of school dropouts by empowering girls with information about their bodies and access to proven solutions to prevent unintended pregnancy and transmission of sexually transmitted infections, including HIV.

Read More on UN Foundation

SPOTLIGHT ON POLICY: HOW GOVERNMENT POLICY EXACERBATES HURRICANES LIKE HARVEY

The fate of America's fourth-largest city held the world's attention, but it is hardly alone. In India, Bangladesh and Nepal, at least 1,200 people have died and millions have been left homeless by this year's monsoon floods. Torrential rains caused a mudslide in Sierra Leone that killed over 1,000, though the exact toll will never be known. Around the world, governments are grappling with the threat from floods. This will ultimately be about dealing with climate change. Just as important, is correcting short-sighted government policy and the perverse incentives that make flooding worse. Floods and storms are also becoming more costly. By one estimate, three times as many people were living in houses threatened by hurricanes in 2010 as in 1970, and the number is expected to grow as still more people move to coastal cities. Government failure adds to the harm. Developing countries are underinsured against natural disasters. All this is a test of government, of foresight and the ability to withstand the lobbying of homeowners and developers. But politicians and officials who fail the test need to realise that, sooner or later, they will wake up to a Hurricane Harvey of their own.

Read More on The Economist

SPOTLIGHT ON INDIGENOUS HEALTH: THE CANADIAN COMPANY MINING HILLS OF SILVER, AND THE PEOPLE DYING TO STOP IT

Deep underground, buried in the lush hills of southern Guatemala, lies a veritable treasure trove: silver, tonnes of it, one of the largest deposits in the world. A mine extracted more than $350m (£270m) worth of silver last year. There are currently at least 307 active mining licences in Guatemala, mainly in rural indigenous regions, according to Ministry of Energy and Mines (MEM) figures. Almost 600 more are under consideration. At least 32 hydroelectric dams are operational, with dozens more under construction or assessment. Against that, about two million people have participated in plebiscites since 2010, voting overwhelmingly against environmentally destructive projects such as mines, logging and dams. Their voices have been largely ignored. The deep mine, which was acquired by Canadian company Tahoe Resources in 2010, is thought to hold the third biggest silver deposit in the world. But it is situated in the middle of Guatemala's southern agricultural heartlands where thousands of families live off the land.

Read More on The Guardian

WEEKLY BULLETIN

QUOTE OF THE WEEK

"This event is unprecedented and all impacts are unknown and beyond anything experienced."

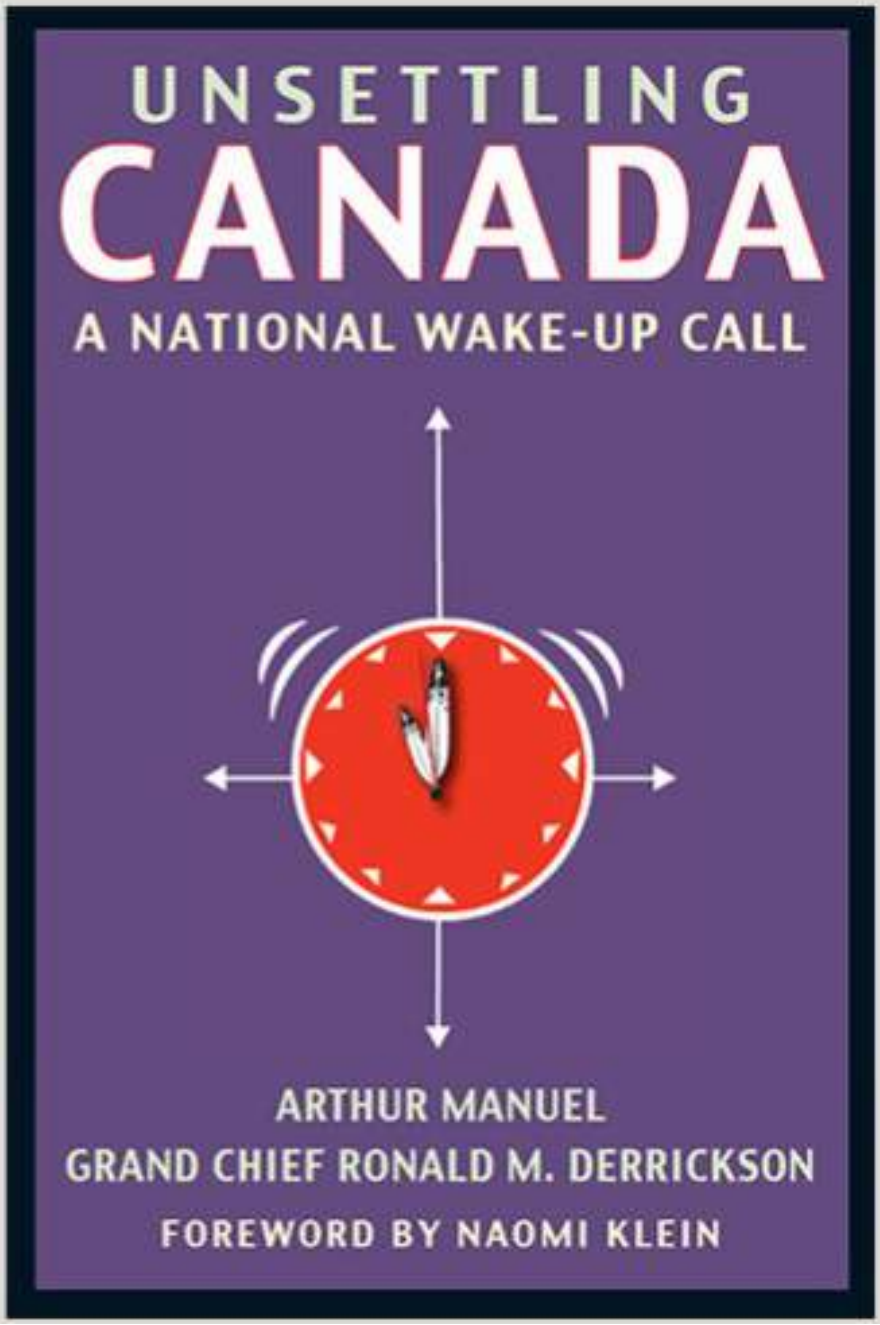
National Weather Service, August 27, 2017 commenting on the catastrophic flooding in the Houston Metropolitan Area

Read More on The Guardian

EVENTS TABLE

DATE	CONFERENCE	LOCATION	REGISTER
Sept 25-27	Canadian Association of Community Health Centres 2017 Conference	Calgary Canada	https://www.cachc.ca/2017conference/?utm_source=CACHC+e-News&utm_campaign=95ef99308c-EMAIL_CAMPAIGN_2017_06_20&utm_medium=email&utm_term=0_78768ad041-95ef99308c-306041945
Sept 29	Governance of Pharmaceuticals Policy Workshop	Toronto Canada	http://www.pharmacy.utoronto.ca/whocc
Sept 30	The 6th Annual uOttawa Global Health Conference	Ottawa Canada	http://www.aghnconference.com/
Oct 11-14	The 48th Union World Conference on Lung Health: Accelerating Toward Elimination	Guadalajara Mexico	http://guadalajara.worldlunghealth.org/about-us/ welcome
Oct 12	Reframing Risk and Accountability for Action to Zero TB	Guadalajara Mexico	http://globalhealth.org/event/reframing-risk-and-accountability-for-action/
Oct 12	Women Leaders in Global Health Conference	Stanford USA	https://www.wlghconference.org/
Oct 29-31	Canadian Conference for Global Heath	Ottawa Canada	http://www.csih.org/en/events/canadian-conference-global-health
Nov 13-17	4th Global Forum on Human Resources for Health: Building the Health Workforce of the Future	Dublin Ireland	http://hrhforum2017.ie/
May 8-11	2018 International Congress on Integrative Medicine and Health	Maryland Baltimore	http://www.imconsortium.org/events/2018Congress.cfm

JOIN A NEW MONTHLY BOOK CLUB



Unsettling Canada is a book written by Arthur Manuel and Grand Chief Ron Derrickson that details decades of struggle for Indigenous rights in Canada at a local, national, and international level. Organizers of Unsettling Canada 150, a group formed to bring attention to these struggles, calls on Canadians to read and discuss this book to gain a better understanding of Canada's colonization of this land. The Council of Canadians is launching a monthly webinar on the book, and each meeting will cover three chapters. The first book club meeting will be held on October 4 at 8 p.m. ET. A link will be shared closer to the date. Please join us for this though-provoking conversation.

You can borrow the book from your local library, or buy it from local vendors like Between the Lines.

Learn more about Unsettling Canada

RESEARCHERS PREDICTED WHEN CHOLERA EPIDEMIC IN YEMEN WOULD PEAK

Cholera, which is caused by the bacterium *Vibrio cholerae*, infects the small intestine through water and food. Symptoms include diarrhea, abdominal cramps and dehydration. Yemen has been hit by one of the world's worst cholera epidemics, in particular since April 2017. A total of 356,591 suspected cases were reported between April 27 and July 17, of which 1,802 people died.

After the cholera outbreak in Yemen, the team compiled a real-time forecast based on weekly data collected by the World Health Organization (WHO) about suspected cases and fatalities between April 16 (16th week of the outbreak) and July 1 (26th week). The team incorporated reporting delays, time lags between the onset of the disease and the reporting of cases, in the mathematical model by analyzing the epidemic curve that was updated every week. It also discovered a method, through the study of weekly death rates, to adjust the ascertainment bias -- the tendency that more cholera cases likely will be reported after many cases have already been reported rather than in the initial phase of the outbreak. Incorporated in the epidemic curve is a logistic curve or generalized logistic (Richards) curve.

The team estimated the cumulative cholera cases at the end of the epidemic would be 790,778 on the logistic model and 767,029 on the Richards model. The researchers estimated the epidemic curve would peak by the 26th week of 2017 and then drop monotonically in the subsequent weeks. The forecasted monotonic decline has been actually seen in WHO data by mid-August 2017.

"Our model succeeded in excluding two biases for the first time and the resulting forecast has been proven reliable so far. Real-time forecasting could assist enhancing situation awareness about the ongoing epidemic communication between experts and citizens while avoiding excessive pessimism, in addition to crafting future measures against cholera," says Hiroshi Nishiura of the research team.

Read More on The Science Daily

THIS BATTERY BREAKTHROUGH COULD CHANGE EVERYTHING

As technology tries to maintain its dizzying ascent, one dead weight has kept its altitude in check: the battery.

Earlier this month came news of a potential game changer, from no less a tech luminary than Bill Joy. As Joy explains it, Ionic's innovations combine the advantages of the familiar alkaline batteries we buy at the drugstore (cheap, safe, and reliable) with those of the more expensive, fire-prone lithium batteries in our computers and phones (powerful, rechargeable, and more earth-friendly). He claims Ionic's new approach is a big step to cheaper, safer, and more efficient batteries will not only power our devices and vehicles, but also enable an "energy internet" based on renewable sources.

What's the simplest way to describe what's different about this approach to batteries?

"In a normal battery, you have some ingredients, like lithium or alkaline, and a separator, like a piece of cloth that you put between them. Then you pour in a liquid so that the ions can move around. Bad things happen with liquids. Films form, things go into [the] solution and run around and react with each other—you have safety issues like the battery catching fire. To be solid instead of liquid is something people have been striving for for 100 years. But in this battery, you have no liquid. You have just a plastic, a polymer, that replaces the liquid, so it's solid. It's a pretty big difference from a chemistry standpoint. It also turns out that this polymer just happens to be essentially a fire retardant material. So when you build batteries with this polymer, you don't have a safety problem. "

Besides safety, what are the other advantages?

"Right now the most desirable battery materials are ones we can't use. For example, there are very desirable materials for lithium batteries that would give them more capacity, but they're not safe in a liquid. Basically, all of a sudden maybe a half dozen things that people have been trying to do with lithium batteries that weren't possible are possible. You can make better lithium batteries."

[Read More on The Wired]

September 07, 2017

THE LOSSES THAT COME AFTER THE EARTHQUAKE: DEVASTING AND COSTLY

The study, titled, "Losses Associated with Secondary Effects in Earthquakes," published in *Frontiers in Built Environment*, looks at the devastation resulting from secondary disasters, such as tsunamis, liquefaction of sediments, fires, landslides, and flooding that occurred during 100 key earthquakes that occurred from 1900 to the present. And unlike previous studies, Daniell et al put a dollar value to the devastation from these secondary causes.

Since 1900, 2.3 million people have died in 2,233 earthquakes, yet it is important to understand that 93 percent of the fatalities that occurred as a result of violent earthquakes happened in only 1 percent of key earthquakes. In other words, the worst devastation tends to happen in only a very few quakes and generally as a result of dire secondary effects. Indeed fully 40 percent of economic losses and deaths result from secondary effects rather than the shaking itself. Several key earthquakes have changed our knowledge of secondary effects and serve as models to understand and heed in planning communities, homes and buildings, highways, and infrastructure such as nuclear power plants. In 2004 the Indian Ocean earthquake unleashed tsunamis that killed a total of 227,300 people in Indonesia, Sri Lanka, India, and Thailand, plus more than $10 billion in damages. In 2011, the Tohoku earthquake created a series of huge tsunami waves, which damaged coastal communities killing more than 17,900 people, forcing more than 50,000 households to relocate, and caused the Fukushima nuclear power plant failure, a nuclear disaster second only to Chernobyl in Russia in 1986, but which spread radiation across the Pacific Ocean. Studying the Indian Ocean and Tohoku earthquakes gives us information to create maximum tsunami height models for these high risk areas to better predict how populations, property, and gross domestic product might be impacted in the future by similar events.

As experts collect more data on secondary effects and resulting losses from high-intensity earthquakes, three benefits emerge. First, better models can be developed to understand the inherent risks and projected losses of building and living in certain areas. Secondly, scientists can reassess historic events, many of which were insufficiently recorded at the time. Thirdly, in this paper the authors demonstrate that to truly learn from these violent events data must be shared internationally and new technologies employed to process large volumes of information, otherwise, these tragedies appear as isolated, random events, rather than as natural disasters to which we can and must adapt.

Read More on Science Daily

STRETCHABLE BIOFUEL CELLS EXTRACT ENERGY FROM SWEAT TO POWER WEARABLE DEVICES

A team of engineers has developed stretchable fuel cells that extract energy from sweat and are capable of powering electronics, such as LEDs and Bluetooth radios. The biofuel cells generate 10 times more power per surface area than any existing wearable biofuel cells. The devices could be used to power a range of wearable devices.

The epidermal biofuel cells are a major breakthrough in the field, which has been struggling with making the devices that are stretchable enough and powerful enough. Engineers from the University of California San Diego were able to achieve this breakthrough thanks to a combination of clever chemistry, advanced materials and electronic interfaces. This allowed them to build a stretchable electronic foundation by using lithography and by using screen-printing to make 3D carbon nanotube-based cathode and anode arrays. The biofuel cells are equipped with an enzyme that oxidizes the lactic acid present in human sweat to generate current. This turns the sweat into a source of power.

Engineers report their results in the June issue of *Energy and Environmental Science*. In the paper, they describe how they connected the biofuel cells to a custom-made circuit board and demonstrated the device was able to power an LED while a person wearing it exercised on a stationary bike. To be compatible with wearable devices, the biofuel cell needs to be flexible and stretchable. So engineers decided to use what they call a "bridge and island" structure developed in Xu's research group. Essentially, the cell is made up of rows of dots that are each connected by spring-shaped structures. Half of the dots make up the cell's anode; the other half are the cathode. The spring-like structures can stretch and bend, making the cell flexible without deforming the anode and cathode.

The researchers' biggest challenge was increasing the biofuel cell's energy density, meaning the amount of energy it can generate per surface area. Increasing energy density is key to increasing performance for the biofuel cells. The more energy the cells can generate, the more powerful they can be.

Read More on Biofuel Daily

HOW CANADA BECAME AN EDUCATION SUPERPOWER

When there are debates about the world's top performing education systems, the names that usually get mentioned are the Asian powerhouses such as Singapore and South Korea or the Nordic know-alls, such as Finland or Norway.

But with much less recognition, Canada has climbed into the top tier of international rankings. In the most recent round of international Pisa tests, Canada was one of a handful of countries to appear in the top 10 for maths, science and reading.The tests, run by the Organisation for Economic Co-operation and Development (OECD), are a major study of educational performance and show Canada's teenagers as among the best educated in the world. They are far ahead of geographical neighbours such as the US and European countries with strong cultural ties like the UK and France.

At university level, Canada has the world's highest proportion of working-age adults who have been through higher education, 55% compared with an average in OECD countries of 35%. Canada's success in school tests is also very unusual compared with other international trends. Canada does not even really have a national education system, it is based on autonomous provinces and it is hard to think of a bigger contrast between a city state such as Singapore and a sprawling land mass such as Canada. The OECD, trying to understand Canada's success in education, described the role of the federal government as "limited and sometimes non-existent".

Also not widely recognised is that Canada has a high level of migrants in its school population. More than a third of young adults in Canada are from families where both parents are from another country. But the children of newly-arrived, migrant families seem to integrate rapidly enough to perform at the same high level as their classmates.

If Canadian provinces entered Pisa tests as separate countries, three of them, Alberta, British Columbia and Quebec, would be in the top five places for science in the world, alongside Singapore and Japan and above the likes of Finland and Hong Kong. Despite the different policies in individual provinces, there is a common commitment to an equal chance in school.

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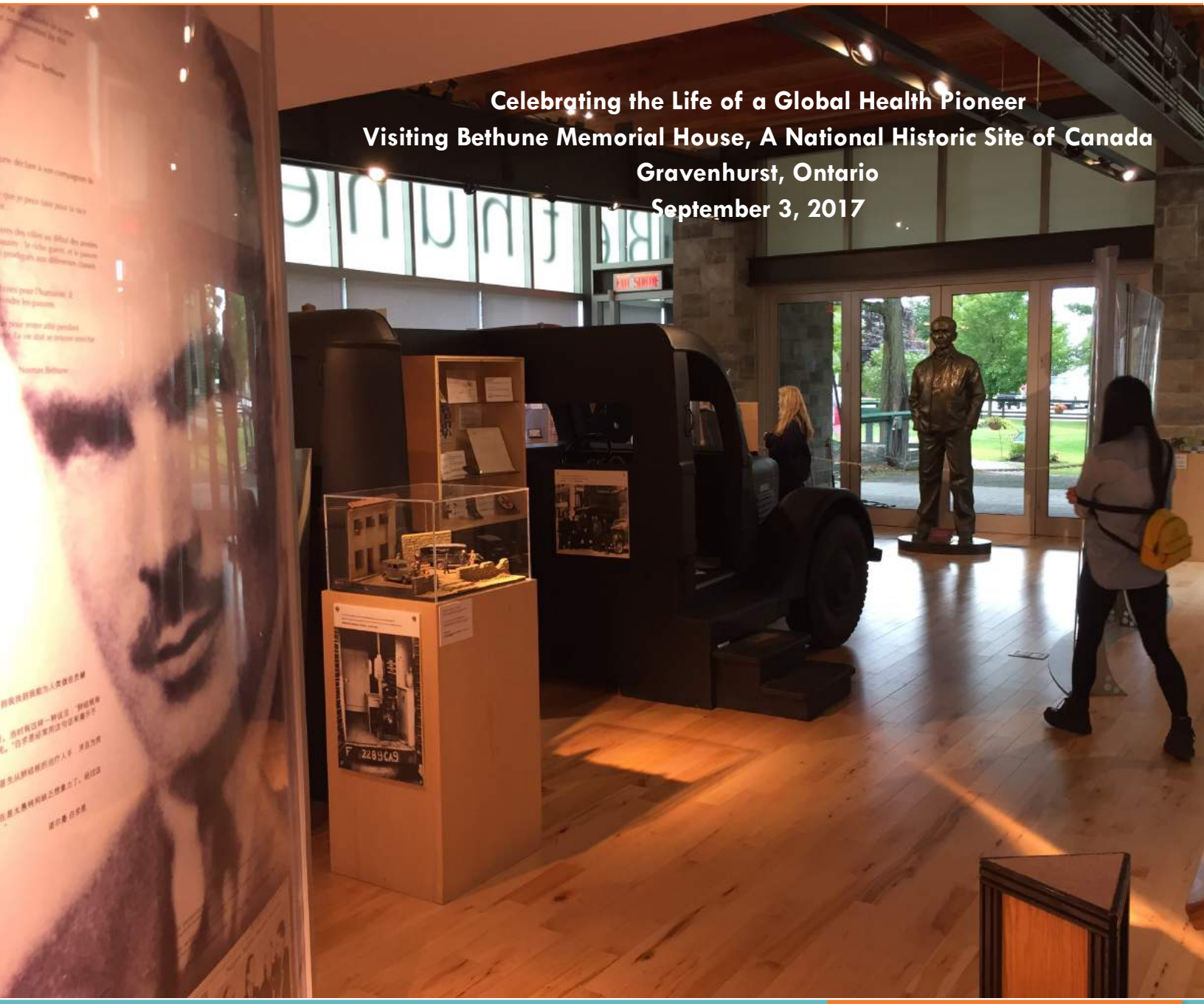

Celebrating the Life of a Global Health Pioneer
Visiting Bethune Memorial House, A National Historic Site of Canada
Gravenhurst, Ontario
September 3, 2017

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CONTACT US

@PlanetaryWeekly
@PlanetaryHealthWeekly
planetaryhealthweekly@gmail.com
Planetary Health Weekly

Publisher and Editor: **Dr. David Zakus**
dzakus@ryerson.ca

Production: **Angeline Sahayanathan & Abinethaa Paramasivam**

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350 Victoria St.
Toronto, ON
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