WORKING TO IMPROVE COMMUNITY HEALTH IN OREGON

Harvest for Health
A partnership between PSU, local farms, and health care providers brings healthy foods to people with diet-related illnesses.

Getting the Message Across
Communicating the importance of the Developmental Origins of Health and Disease.

Lessons from the History of Medicine
Delving into the history of efforts to treat and prevent malnutrition in Uganda.
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Back in September, when work began on this issue of RSP’s Quarterly Review research news magazine, no one could have imagined the magnitude of the changes that were taking place. Even now, as we consider what those changes might be and how they might affect our communities and our health system, we are constantly reminded of the importance of higher education. Now, more than ever, we can appreciate the value of programs that prepare students to manage change, to provide leadership, and to craft creative and collaborative solutions to the challenges we face.

This issue of the Quarterly Review focuses on population health and strategies to improve it. Although these strategies may be revised and added to in the years ahead, the “Triple Aim” of addressing health costs, improving the experience of care, and maintaining healthy populations will undoubtedly remain unchanged, as will our drive to better understand the role of public health in developing resilient people and communities.

The research highlighted in this issue also bears witness to the importance of community and the ways in which Portland State University and the OHSU-PSU School of Public Health are empowering communities to live longer, healthier lives. The unique partnership between OHSU and PSU continues to produce research-based data for decision-making and educating a new generation of public health workers to tackle the challenges ahead.

In the pages that follow, readers will learn about partnerships that provide access to nutritious foods and measure the positive effects of such access on family, economic, and social stability. The notion of “moving upstream” is echoed in research that demonstrates the benefits of access to comprehensive, integrated primary care—as well as the need to address disparities in access to care that persist despite increases in insurance coverage.

Clear, accessible discussion of the issues surrounding this upstream movement—particularly within the context of highly diverse communities—poses a unique challenge for public health researchers in their efforts to sustain community-engaged research and treatment programs. Understanding the subtle factors that promote (or undermine) healthy pregnancies among Latinas in Oregon, participation in diabetes management programs across the country, and global malnutrition requires scholarship that engages—and is engaged with—communities.

Addressing population health involves more than the health system, and more than socially defined communities. The health of individuals, as of populations, is dependent upon complex social and environmental determinants. This point is highlighted, for example, in research into the economic and environmental value of cross-laminated timber and sustainability of the built environment, research that explores who votes in mayoral elections, as well as in research that exposes a shift in the sources of methane that contribute to global warming and suggests ways cities might adapt to climate change.

Throughout this issue, readers will note a common theme: all of these advances stem from the work of researchers who are committed to stringent ethical foundations and scientific standards of public health research. These principles, coupled with our commitments to “let knowledge serve the city,” and to educate the next generation of public health practitioners, makes all the difference at Portland State University and within the communities we serve.

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Public health practitioners often note that the push to improve population health should begin “upstream” of where negative outcomes necessitate socially and economically costly interventions such as hospitalization and continuing care. That means addressing the biological and social determinants of health and well-being, particularly in communities where health disparities exist. But the behavioral, environmental, social, and physiological factors that influence health form strong currents that challenge those striving to navigate upstream.
To answer that challenge, many communities have formed partnerships that leverage their collective strengths in efforts to build momentum counter to the current. They work together developing and implementing innovative approaches to health care that are preventative by design and focus on issues such as poverty, food insecurity, documentation status, education, and promoting healthy behaviors.

In Portland, a group of community stakeholders has banded together to provide healthy, affordable food and nutrition education to families burdened by diet-related illnesses and lacking access to fruits and vegetables. Their project is called Community Supported Agriculture (CSA) Partnerships for Health. Its core members include Zenger Farm, the Multnomah County Health Department, OHSU Family Medicine at Richmond Clinic, Village Gardens, and Portland State University.

Supported by Kaiser Permanente Northwest Community Benefit and the Knight Cancer Institute Community Partnership Program, CSA Partnerships for Health provides one hundred families coping with diet-related diseases and limited access to healthy foods weekly shares of fruits and vegetables.
from local farms at a subsidized rate of five dollars per share. The partnership also offers nutrition education and access to cooking workshops. Participants can use benefits from the Supplemental Nutrition Assistance Program (formerly called food stamps) for payment. And harvests are made available at local health clinics including OHSU Family Medicine at Richmond Clinic and several Multnomah County Health Department health centers.

“This partnership serves families without a lot of resources,” said OHSU-PSU School of Public Health faculty member Dr. Betty Izumi, a registered dietitian and interventionist whose research explores methods of addressing diet-related chronic diseases. “These are families that might be socially isolated, struggling with problems associated with poverty, and they’re managing chronic, diet-related illnesses. They’re also motivated to improve their health, to eat more fruits and vegetables, and to learn about nutrition, cooking, and healthy eating.”

“Dr. Izumi is taking the lead on an essential part of the partnership’s work,” said Mike Wenrick, executive director of Zenger Farm, “which is to evaluate the impact of access to healthy foods and food education on our participating families over the course of three growing seasons. She’s collecting and analyzing data that we hope will demonstrate improved overall health and ultimately drive health care spending on local vegetables and fruits.”

As Mr. Wenrick noted, the social and economic impacts of an unhealthy diet and lack of access to nutritious foods are immense. The Center for Science in the Public Interest estimates diet contributes to nearly 680,000 deaths a year in the US at a cost of roughly $958 billion. Food insecurity, meanwhile, has negative impacts on family stability, workforce reliability, and performance at school.

“Food insecurity is a huge driver of medical costs,” said Dr. Brian Frank, MD, a physician at OHSU’s Richmond Clinic and liaison to the CSA Partnerships for Health project. “And it really costs us as a society. So access to healthy food just makes sense as a preventative measure. Just like exercise does. When people eat healthy foods, their overall health improves. And it’s not just that when they eat well they feel better; a healthy diet has long-term implications that are passed from generation to generation.”

With the aid of Dr. Izumi, the CSA Partnerships for Health project aims to build a foundation of qualitative and quantitative evidence and community support to advance the argument that everyone should have access to healthy foods as a measure to prevent diet-related chronic illnesses, reduce morbidity, and lower the cost of health care. To achieve that aim, the partners hope to translate their findings into policy recommendations that support the goal of improving overall health by increasing access to fruits and vegetables for those with limited resources.

“When you compare the cost of providing families nutritious foods to the costs of treating illnesses like diabetes and heart disease, promoting and subsidizing healthy eating starts to look like a really good idea,” Dr. Izumi said. “We hope our work can contribute to that end.”

Providing families dealing with diet-related chronic illnesses access to locally grown healthy foods and nutrition education as CSA Partnerships for Health does is a common sense solution to a challenge that needs to be met if society is to move upstream of where negative health outcomes adversely affect families and raise the cost of health care. It’s the kind of solution that emerges when community stakeholders come together and leverage their collective strengths to improve public health and act to promote positive changes that benefit all of society.
In September, 2016, Dr. David Bangsberg, MD, MPH, became the founding dean of the new OHSU-PSU School of Public Health, a joint endeavor between Portland State University and Oregon Health & Science University. Bangsberg was most recently Director of Global Health at Massachusetts General Hospital, an affiliate of Harvard Medical School, where he was a professor.

You could work anywhere in the world, so how did the OHSU-PSU School of Public Health lure you back to Portland?

I was raised here in Oregon. When I graduated from Lincoln High School and left to attend college, I never imagined leaving forever. I thought I would go to college and maybe graduate school and then come back. But then job opportunities in New York, San Francisco, and eventually in rural Africa kept me away.

I've always loved Portland and Oregon. My family is here. The prospect of leading a new school of public health in my hometown was very compelling. There's a creative spirit and energy that I think is unique to Portland, which will be great to tap into as well.

What do you see as the particular strengths of the Portland region, in terms of the work you're doing?

Portland and Oregon are very progressive, interested in health and well-being. At the same time, Oregon also has many significant health challenges, including substance abuse, mental health, obesity, cardiovascular disease, and cancer, to name a few. There are challenges related to access, education, and economic opportunity. Portland in particular has struggled with issues of homelessness. All of these are issues important to Portland, Oregon, and the US at large.

I'm very excited that Oregon has been a leader in health care reform and was out in front in terms of trying to create equitable and affordable access to health care with the Oregon health system. So there are fascinating opportunities to explore how policies that
increase access to health care with a public health focus will lead to improved health outcomes while controlling cost.

Your past work has been global in scope. Will the OHSU-PSU School of Public Health focus primarily on this region?

A school of public health in Oregon should focus first and foremost on health needs and health disparities of Oregonians. The school is supported by the state, and the residents of Oregon should be its first priority. That said, in every university across the country, there is a new generation of young people who grew up in the Internet age who are aware of what global health disparities are and who have a real passion to make a difference. With my experience in global health, I can make connections and create opportunities for the students and the faculty.

What are your early goals as dean of the new program?

My first job with this new school is to help bring the faculties from the two universities together. I’d like to foster an environment in which the faculty feels that they can tap colleagues in other disciplines to create innovative approaches to public health. OHSU has expertise in biomedicine, biostatistics, and epidemiology; PSU complements that with health policy and community and urban health.

The second goal is to listen to the stakeholders in Oregon who represent marginalized populations, and who represent health care leadership in the state, whether it’s state, county, or local government officials, members of the business community, or the people themselves. We want to make sure we understand their needs and apply the talent of OHSU and PSU to address the public health priorities of Oregonians.

What sorts of students do you hope to attract to the School of Public Health, in terms of their academic backgrounds and goals?

We want to attract bright, motivated, passionate students who are interested in working in public health and that want to make a difference in the world by reducing health disparities.

How will you combine the faculties of PSU and OHSU?

We look forward to creating new avenues for the faculties of the two schools to work together to develop research projects that cross the disciplines at each school, and also to develop new curricula and new educational opportunities for students.

Bringing a community together requires informal opportunities for people to spend time together. We’re looking for ways for people to get to know the community created by the two combined universities, and to make friends and professional relationships and generate new ideas.

In Uganda, you supported efforts to address economic insecurities and help people generate steady incomes. Are you interested in continuing those sorts of ventures here, either on a local or global level?

I love being entrepreneurial. I look at health through a very broad lens: not only biological health, but also mental health, social health, and economic health. I don’t know what opportunities will reveal themselves in this new school. That will require me to get to know and understand the talent of the faculty and how that matches the needs of Oregon. But we’ll look forward to exploring solutions that have that same broad view and that impact physical, mental, social, and economic health.

First, though, I would like to get to know my new faculty—where are the talents, and where are the passions? And how do we best align those talents and passions with the greatest public health needs of Oregon? I have a lot of faith and a lot of optimism that we’ll come up with really creative solutions, and I look forward to discovering those, in partnership with not only the faculty, but with the students, staff, and community as well.
Simulated Patients Shed Light on Disparities in Access to Health Care

In the wake of the Affordable Care Act, a study led by Dr. Rajiv Sharma asks: has access to primary health care changed for people with different racial, ethnic, and gender profiles?

By Shaun McGillis
Disparities in access to health care faced by racial and ethnic minorities, people living in poverty, and other vulnerable populations in the US are well-documented. The Affordable Care Act (ACA) was meant to change that. Many of the key provisions of President Obama’s signature health care reform law—the Patient’s Bill of Rights, federal investment in primary care training programs, modernizing infrastructure, and insuring more people—were designed to increase access to health care for millions of US citizens. Several years into the rollout of “Obamacare,” researchers are collecting and analyzing data that will help determine whether the ACA has succeeded in narrowing the disparity gap.

Health economist Dr. Rajiv Sharma and his colleagues Drs. Arnab Mitra and Sarah Tinkler of Portland State University’s Department of Economics have broadened PSU’s community health research portfolio with their NIH-funded Longitudinal Access to Physicians study. Their work addresses whether, and in what ways, access to primary health care providers has changed in the wake of the ACA for people of different races, ethnicities, and genders who are privately insured, covered by Medicare or Medicaid, or uninsured.

The Longitudinal Access to Physicians study is the first of its kind to consider the roles of race/ethnicity and gender in relation to insurance coverage and access to primary care. Its design innovations included creating simulated patients with distinct profiles to audit the system and using students posing as family members of the “patients” in phone calls seeking information about appointments from health care providers. These innovations, Dr. Sharma explained, allowed the researchers to control for the low levels of responsiveness and responder bias introduced into similar studies that collect data via surveys and to avoid the problematic data from Medicaid and Medicare payment records that may not accurately represent subgroups within the population.

“In a sense, we’ve taken the pulse of the American healthcare system in the run-up to and after the implementation of some of the major provisions of the Affordable Care Act,” Dr. Sharma said. “We’re measuring how often our simulated patients are offered appointments with a primary care physician or an alternative provider and that is a key indicator of the performance of the system as a whole. Our analysis of the data collected by students during thousands of phone calls can help us answer the question: now that we’ve had this huge overhaul and expansion of health care, is access improving and, if so, for whom and to what degree?”

The team’s initial findings, published in the journal *Economics Letters* demonstrate that in 2013, the year before the expansion of Medicaid, some subgroups of the population experienced far greater difficulties accessing primary care than others. A simulated Hispanic woman on Medicaid, for instance, had just a fourteen percent chance of being offered an appointment during a phone call placed by a student posing as a family member. A white, uninsured male, on the other hand, had a seventy percent chance of being offered an appointment.

In the months following their initial publication, the research team has continued to analyze data. Their investigations have yielded several forthcoming publications and presentations, including one paper that suggests nurse practitioners might be an untapped resource in the nation’s primary healthcare system, and another that examines racial, ethnic, and gender-based disparities in offers of appointments in relation to how generously states compensate physicians who take Medicaid. Future publications, Dr. Sharma explained, will explore whether disparities exist for patients who are obese, smokers, or who live in poverty.

“What we’re starting to see as we analyze the data,” Dr. Tinkler said, “is that access might be improving overall, but some groups are being left behind. That might indicate that if you want to see better access for certain subgroups of the population, a more targeted policy than the ACA may be needed.”

“That is how we hope our work can inform the conversation around reducing disparities in access to primary health care,” Dr. Sharma said. “This research can help policy-makers identify what is working and what is not in the system and direct resources to address gaps in access.”

Recent estimates suggest twenty million Americans have obtained health insurance under the ACA. Much of the research emerging in the wake of the rollout of Obamacare shows that the likelihood of all racial and ethnic groups being uninsured has gone down since 2014. And while those are positive signs for the nation’s healthcare system, narrowing the gaps in access to care faced by racial and ethnic minorities, people living in poverty, and other vulnerable populations will likely require further efforts. Economists like Drs. Tinkler and Sharma are helping to identify places where gaps in access continue to exist and where policy could be directed to remedy them. It will be a long process and there’s still much to be done, but their work is bringing us closer to a healthcare system that ensures, as President Obama recently said in a speech, that health care is not a privilege for the few but a right for everyone living in America.
A new study from Portland State University researchers highlights $240M in health care savings over the first three years of the state’s Patient-Centered Primary Care Home (PCPCH) program.

The PCPCH program was created by the Oregon Legislative Assembly in 2009 to achieve the “Triple Aim” of advancing public health, elevating the patient care experience, and reducing health care costs. To complete this task, the Oregon Health Authority, which oversees the PCPCH program, developed a standards-for-care model. Under the model, community-serving, patient-centered primary care clinics that provide accessible, comprehensive, and coordinated care are labeled Patient-Centered Primary Care Homes by the state. As of the release of the report, the state has recognized over 600 PCPCHs in rural and urban communities throughout Oregon.

The findings from the PSU report show that the state’s efforts to achieve the goals of the Triple Aim have produced positive results and have significantly transformed the healthcare system in Oregon. Clinics adopting the program assumed a “patient-centered lens” and shifted toward population-based strategies to improve health and health care delivery. In addition to the $240M saved, the study reports reductions in total health care expenditures of roughly $120 per person per year. The PCPCH program also resulted in savings in specialty, emergency department, and inpatient care.

Working in collaboration with the Oregon Health Authority, OHSU-PSU School of Public Health professor Dr. Sherril Gelmon and Dr. Billie Sandberg of PSU’s College of Urban and Public Affairs conducted qualitative evaluations of twenty “exemplary” PCPCH clinics around the state to better understand and report on the factors that promote successful implementation of the program. Using data provided by the state, School of Public Health professor Dr. Neal Wallace evaluated the impact of the program on health care expenditures and the use of insurance-covered services.

“PCPCH clinics serve a large portion of the state’s population, including people on Medicare, Medicaid, and state employees,” Dr. Wallace said. “And the evidence shows a correlation between the changes in primary care clinics and what people are spending on specialty care and trips to the emergency room. That suggests that the transformation of Oregon’s healthcare system really is resulting in improved health outcomes and reduced spending over time.”

“The PCPCH program is working,” said Dr. Gelmon. “It’s moving the state toward achieving the goals set up by the Triple Aim. Clinics are embracing the idea of patient-centered, coordinated care and the other standards set forth by the state. We’re hearing it from the people working at the clinics and we’re seeing it in the data we’ve analyzed.”

In 2009, the state set out to improve the health of all Oregonians and reduce costs associated with health care by transforming the state’s healthcare delivery system. The report from Drs. Gelmon, Wallace, and Sandberg shows how that transformation has succeeded and highlights the ways Oregon’s commitment to quality patient-centered, coordinated care at a large scale is producing positive results.

“Oregon’s health transformation efforts are making huge strides toward improving the health of Oregonians and controlling health care costs,” said Lynne Saxton, Oregon Health Authority director in a statement released by the agency. “[This report] demonstrates that a focus on integrated primary care can significantly save dollars for the state and provide the best health care possible for all Oregonians.”
The American Diabetes Association states that American Indians and Alaska Natives (AI/AN) have the highest prevalence of diabetes among all racial and ethnic groups in the US and are more than twice as likely to have diabetes than non-Hispanic whites.

To lay the groundwork to reduce the prevalence of diabetes among AI/AN communities, a study conducted between 2006 and 2009 attempted to replicate the success of a previous clinical lifestyle intervention outside the walls of the clinic in indigenous communities. The resulting Special Diabetes Program for Indians Diabetes Prevention (DP) demonstration project developed, implemented, and evaluated culturally informed and community engaged lifestyle interventions that included 3,369 participants representing 80 tribes at 36 locations across the nation. While the study concluded that it was possible to successfully implement such programs at the community level, it also highlighted challenges in retaining participants.

According to Dr. Kelly Gonzales, a professor in the OHSU-PSU School of Public Health, challenges with participant retention notwithstanding, the dataset produced by the study contains important information on participant experiences of psychosocial stress, which includes discrimination, and other factors that could reveal insights into participant retention investigators had not been looking for when they originally conducted the study. Dr. Gonzales recently received funding from the NIH to conduct a secondary analysis of that data to see if she can identify those insights.

“The dataset from the Diabetes Prevention project is the largest of its kind, which makes it a great tool to work with,” Dr. Gonzales said. “And while the project produced really positive outcomes in terms of better diabetes management and prevention and demonstrated the benefits of creating opportunities for communities to tailor and manage interventions in ways that reflect and address their cultural needs, I think there is more that we can learn from it.”

Dr. Gonzales’s hypothesis is that perceived discrimination is associated with lower levels of participant retention and that certain community-level factors act as a buffer to that discrimination, resulting in improved retention rates. She plans to test that hypothesis by reanalyzing the data with a specific focus on how discrimination impacts participation.

According to Dr. Gonzales, her reexamination of the Diabetes Prevention demonstration project data and other work she’s planning can help us better understand the ways negative factors like perceived discrimination and positive factors like community engagement influence retention in lifestyle interventions that promote health and well-being within AI/AN communities. With that knowledge, policy-makers and public health programmers working in collaboration with communities can develop inclusive, culturally informed approaches to addressing critical health disparities in underserved communities, which is essential to promoting health equity for all.

Addressing Diabetes in Indigenous Communities

Dr. Kelly Gonzales explores relationships between discrimination and retention in a diabetes prevention program designed to serve American Indian and Alaska Native populations.

By Shaun McGillis
Disentangling Factors that Influence the Pregnancy Outcomes of Latina Women

In partnership with the Multnomah County Health Department, Dr. Lynne Messer examines a unique dataset that could inform the development of interventions to improve pregnancy outcomes for Latina women.

By Shaun McGillis

At Portland State University, partnerships are central to how we fulfill our mission to “let knowledge serve the city.” Partnerships enable students and faculty to work within the community developing collaborative solutions to society’s pressing challenges. Dr. Lynne Messer, a social, environmental, and reproductive epidemiologist and faculty member of the OHSU-PSU School of Public Health conducts research that connects the university’s mission to the needs of the region’s underserved communities.

While the relationship between Portland State University and the Multnomah County Health Department (MCHD) goes back decades, Dr. Messer recently partnered with MCHD on an NIH-funded study that will provide health practitioners and policy-makers critical information on how factors like nativity, documentation status, and residential context influence pregnancy outcomes for the county’s Latina population. This data could shed new light on what’s known as the “Latina paradox”—a well-documented phenomenon that suggests pregnancy outcomes for Latinas are nearly as good as those of non-Hispanic white women despite low socioeconomic status and other potential disadvantages. By disaggregating where women were born from their documentation status...
status, from where they live once they arrive in Multnomah County, and from the blanket category “Latina,” the study could identify nuances in the paradox and provide a more granular level of detail to the pregnancy health profile of Latinas. For the MCHD, the study will help community health providers develop interventions that address specific traumas related to country of origin, documentation status, discrimination, and security, and promote the reproductive health of all Multnomah County’s Latina women and the health of their children over the life-course.

To disentangle data related to nativity and documentation status, Dr. Messer is working with state birth certificate data. To incorporate the influence of residential context on pregnancy outcomes, Dr. Messer will also review data from the US Census and the USDA’s Food Access Atlas. An analysis of all the data could identify relationships among a woman’s country of origin, documentation status, residential environment, and pregnancy outcomes, including prenatal weight gain, pregnancy-induced hypertension/eclampsia, preterm birth, and term birth weight within the county’s Latina population.

“The CAWEM-Plus data is the real linchpin in this study,” Dr. Messer said. “Oregon is one of the few states in the nation that supports a program that provides insurance and access to affordable health care to undocumented community members, those whose immigration status precludes them from enrolling in Medicaid, and who are otherwise unable to purchase private insurance. And because Oregon supports this program, we have an incredible source of data that enables us to link information contained in birth records with a mother’s documentation status and neighborhood profile and thereby get a more distinctive picture of the Latina women giving birth in the county.”

Available to qualifying pregnant women statewide through the Oregon Health Authority, the CAWEM-Plus benefits package covers all Oregon Health Plan benefits including labor and delivery, though benefits end at delivery. According to Dr. Aileen Duldulao, MCHD’s Maternal and Child Health Epidemiologist, what makes the data from CAWEM-Plus so valuable is that it’s only available to individuals ineligible to receive Medicaid, which means enrollment can be used as a proxy for documentation status.

“For us at the county health department, there is an urgent need to get more and better information about undocumented Latinas who are pregnant,” Dr. Duldulao said. “At this moment, that data doesn’t exist in the literature. Getting down to that level of detail is why the partnership with PSU is such a great opportunity. In the health department, and in public health generally, we want to develop preventative programs based on evidence. And right now we lack the evidence we need to create programs for undocumented pregnant Latinas. That’s why we’re working with PSU and Dr. Messer. Partnerships like this help us better serve the community. They bring the people and resources we need to achieve the kind of evidence base required to improve public health services and address health disparities faced by many in the community.”

“Data is a tool for action, and we hope the findings of this study will shed more light on the health disparities we’ve seen in our immigrant communities,” said Olivia Quiroz, Senior Policy Analyst and Community Liaison at MCHD’s Equity, Planning and Strategy Division.

According to Dr. Messer, some of the most interesting work that will emerge from this partnership will come after the data has been analyzed and the findings published. Backed with data that suggests if and how a woman’s country of origin, documentation status, and residential context influence pregnancy outcomes, MCHD will be able to develop culturally-informed interventions that promote prenatal health, pregnancy outcomes, and support a healthy start to life for the newest members of our community.
Getting the Message Across

Communicating the importance of the Developmental Origins of Health and Disease

By Shaun McGillis

It’s been three decades since the Developmental Origins of Health and Disease (DOHaD) emerged as a field of scientific inquiry. Since then, an idea has gained traction among many scientists, medical professionals, and community health practitioners: the health problems we experience as individuals and communities actually take root much earlier than previously thought.

Much of the research in the field of DOHaD suggests that social, environmental, and behavioral factors from the time before conception and throughout the first thousand days of life (up to about age two) have a major influence on how vulnerable we are to certain diseases as adults. Epigenetics—the study of interactions between our environments and our genes that result in changes in how our genes express—describes processes which give rise to vulnerabilities that may be passed on from generation to generation. This means that the conditions our grandparents experienced could make us more susceptible to diseases such as obesity, type 2 diabetes, and hypertension.

For many, the ideas emerging from DOHaD ask us to think about health and disease in a very different way that we might be used to. They shift our understanding of what causes certain diseases. They ask us to pay attention to how biology impacts health, but also to consider social and environmental factors, not just within our lifetimes but also across the span of generations. Because DOHaD requires thinking about the origins of health and disease in a new way, one of the major challenges facing scientists and community health practitioners working to translate the science into policy and action is how to communicate the results of studies so as to focus the public’s attention on how addressing issues including poverty, food security,
educational opportunity, and safe and secure housing will improve public health for generations to come.

“Because of this work, we have a new understanding of when chronic disease begins and why we’re seeing widespread increases in disease rates across the US and around the globe,” said Dr. Liana Winett. “That is why it’s so important that we communicate what we’re finding to the public. We need to start a dialogue to help people understand the implications of DOHaD and to engage the public in a partnership to identify the range of solutions we’ll need to address some of the societal-level challenges that result in a higher risk of disease.”

Dr. Winett is an associate professor in the OHSU-PSU School of Public Health. Her research focuses on framing public health issues in media and public opinion. According to Dr. Winett, communicating findings from DOHaD has proved challenging thus far because, outside of the scientific world, we have not yet developed a collective framework in which to situate our understanding of the broader implications of this relatively new science and what it means for how we organize society. And without that framework, it’s easy to hear or read words like “pregnancy,” “prenatal,” “programming,” “behavior,” “neighborhood” “race,” or “ethnicity” and misattribute responsibility for the causes of disease—to mothers, communities, or subgroups within the population—because of associations our minds automatically make when we encounter those words.

“We don’t have a widely shared cognitive model with which to process the idea that our risk for disease as adults may be affected by the food systems our grandmothers were exposed to when they were pregnant with our mothers,” Dr. Winett said. “And without that framework, it’s difficult to communicate the importance of findings from DOHaD.”

In a recently published paper, “A Framework to Address Challenges in Communicating the Developmental Origins of Health and Disease,” Dr. Winett, in collaboration with fellow OHSU-PSU School of Public Health professors Drs. Larry Wallack, Dawn Richardson, Janne Boone-Heinonen, and Lynne Messer, presented a framework that scientists and community health practitioners can use as a starting point in their efforts to translate the findings of DOHaD “from the bench to population-level health promotion and disease prevention.”

The communications model proposed by Dr. Winett and colleagues is based upon the “Haddon Matrix”: a framework from the field of epidemiology that illustrates the relationships between factors that influence the risk of vulnerabilities to diseases and supports decision-making in the design of interventions. It also incorporates the “First-hit, Second-hit Framework” used by health researchers to explain how “lifelong health can be adversely affected by a series of ‘hits,’ or insults, experienced at critical developmental intervals [before birth] and across the lifespan.”

“We developed the First-hit, Second-hit Planning Matrix to support communities and society in looking at the issues that affect DOHaD in a comprehensive way,” Dr. Winett said. “As a communications tool, it works to help us conceptualize the range of sources of risk, from the individual to the societal level. This gives us the opportunity to address all the variables that we think are relevant to health before, during, and after vulnerabilities occur so that we can minimize the likelihood of disease. And it highlights that to truly eliminate the ‘hits’ experienced during development, we will need to improve the social and environmental contexts in which communities operate.”

According to Dr. Winett, DOHaD has changed our understanding of when health and disease begin and drawn attention to how inequity and injustice can actually get under the skin, predisposing individuals and communities to higher risks for disease. But we can reduce those risks. The work scientists and public health practitioners are doing in the field can lead to societal-level changes if we start considering the ways social and environmental factors influence health outcomes and act to improve well-being and quality of life for everyone. But the data don’t speak for themselves. Real change will require communicating the findings from DOHaD to the public, bringing in communities and policy-makers at all levels and assembling the broadest range of voices possible to identify solutions to issues facing society.

“Our message needs to be clear,” said Dr. Winett. “It will require broad societal commitment to address the full range of causes and solutions to problems that impact health over the lifespan. These include problems like poverty, access to healthful food, safety, housing, and social opportunity, which are among the most challenging and urgent issues of our time.”
In the years immediately following the Second World War, the World Health Organization and UNICEF (the United Nations Children's Fund) trained their resources on addressing malnutrition in countries around the world. And yet, while efforts have continued, international groups combating malnutrition still face a global burden of poor nutritional health associated with the deaths of nearly three million children under the age of five every year.

Kwashiorkor is one type of severe acute malnutrition that affects the health of millions. Associated with a diet deficient in protein, its symptoms include the accumulation of fluid in tissue that gives malnourished children a swollen appearance, a form of dermatosis in which skin peels away, and the loss of pigmentation in hair. Before treatments were developed in the early 1950s, forty to ninety percent of afflicted children died from this particular form of malnutrition.

Beginning in the 1930s and through the 1960s, the efforts of scientists and physicians to identify the causes of, treat, and prevent kwashiorkor produced many programs, some of which were great successes while others turned out to be horrific failures. Scientists searching for what caused symptoms used ethically questionable methods to conduct their research. Miracle treatments like protein-rich dried milk that restored health when administered in

Dr. Jennifer Tappan’s research delves into the history of efforts to treat and prevent malnutrition in Uganda.

LESSONS FROM THE HISTORY OF MEDICINE

By Shaun McGillis
hospitals resulted in the deaths of untold children after the program was taken out of the clinical setting. As a result, public trust in treatment centers and biomedical science waned, resulting in even more negative outcomes. But this failure ultimately prompted a different approach, one that engaged with the community, creating a culturally informed intervention focused on nutrition education and empowering women in the promotion of nutritional health.

According to Dr. Jennifer Tappan, a professor of history at Portland State University, the events of those years left a lingering residue in the memories of the communities who are to this day on the front lines of the battle against malnutrition. For the international aid organizations and global health programs whose mission it is to treat and reduce instances of kwashiorkor, that residue accompanies them into the cities and villages where they work. An understanding of that complex history and its impact on communities is essential to the design of future campaigns if they are going to reduce the prevalence of kwashiorkor and minimize morbidity from conditions associated with malnutrition.

Dr. Tappan is an Africanist historian whose work focuses on the history of medicine, public health, and historical epidemiology in Sub-Saharan Africa. She conducts much of her research in Uganda, peering back into the turbulent decades following the Second World War and the end of colonialism where she studies the relationships between the people of Uganda and the scientists, physicians, and aid organizations that worked on kwashiorkor. Her investigations weave critical analysis of historical records and existing scholarship with personal histories recounted by the medical professionals and community members who experienced Uganda’s emergence as an international center for nutritional science in the three decades following the Second World War.

Next summer, the Ohio University Press will publish Dr. Tappan’s first book: The Riddle of Malnutrition: The Long Arc of Biomedical and Public Health Interventions in Uganda. Examining over a half-century of efforts to address kwashiorkor, the book focuses on what led to the development in the 1960s of a community-based intervention that has succeeded in improving public health for decades now. The program, locally known as Mwanamugimu, is an intervention that enlists Ugandan women and emphasizes the preparation of Ugandan cuisine made from nutritious foods found in local markets and household gardens. According to Dr. Tappan, the program empowers women and men in the community to manage the nutritional health of their families. For generations now, these women and men have passed on what they learned, making the intervention an integral part of the daily and cultural lives of the community. It is a remarkable example of a sustainable public health initiative, a program that could be sustained even in the midst of waning donor interest and investment following decades of political violence and unrest.

“The history of medicine and public health is a field of inquiry that helps us chart past efforts to contend with contemporary disease challenges,” Dr. Tappan said. “When you examine historical epidemiology you often find teachable moments, hints as to how past generations made forward leaps, and you can observe the actions that led to unintended consequences. But the history of medicine isn’t necessarily emphasized in public health training. Consequently, many aid organizations and public health practitioners create programs that are not able to take into account what’s been done before and how the community received those efforts. Historians can bridge that knowledge gap and help those working in public health integrate an understanding of the past into their current efforts. And that can have a profound impact on global health programming going forward. It can help us save lives.”
Improving Indoor Air Quality

Diatomix Inc.

By Shaun McGillis
This past February, Portlanders expressed their collective outrage following revelations of dangerously high concentrations of cadmium and arsenic in the air around a Southeast Portland neighborhood.

“What are your younger children and other vulnerable people—people with chronic health problems, elderly people—what are they breathing in?” Susan Beal, a mother of two and resident of Southeast Portland, asked reporter Chris Holmstrom of KOIN 6 News.

Those questions resonate with Lester Lampert, a PhD candidate in the field of applied physics at PSU. A scientist and entrepreneur, Lampert cofounded Portland-based cleantech startup Diatomix with Dr. Haiyan Li, a bioengineer, materials scientist, and former PSU research associate. Diatomix develops technologies that improve the air we breathe—not the fresh air outdoors, but the much more polluted air in our homes, workplaces, and classrooms where we spend as much as ninety percent of our time.

“The EPA has data showing that indoor air quality can be two to five times worse than that of the outdoors,” Lampert said. “There’s radon, smoke, molds, mildew, bacteria, and a surprisingly long list of VOCs [volatile organic compounds] that aggregate in the air we breathe and can lead to negative health outcomes. We want to remove some of those pollutants by incorporating air-purifying technologies into products like indoor paint.”

The technologies that Diatomix develops bridge the gap between nature’s designs and materials engineering. In a lab at PSU, Lampert and Li combined the unique optical resonance properties of a species of diatom—a unicellular organism that lives encased within a cell wall made of silica—with VOC-degrading photocatalytic nanoparticles to create a photoreactive material that uses the energy of visible and UV light to chemically transform harmful air pollutants into benign gases.

“We see the potential to target a number of VOCs that accumulate indoors and affect air quality and health,” Lampert said. “Right now we’re working on breaking down formaldehyde. It’s one of the most common VOCs you’ll encounter in built environments and it’s broadly used in the production of consumer goods.”

“Broadly used” is perhaps an understatement. Formaldehyde is found in cigarettes and e-cigarettes, manufactured wood products, furniture, textiles, air fresheners, cleaning supplies, perfumes, toothpastes, and cosmetics. The Campaign for Safe Cosmetics even found formaldehyde in baby shampoos, lotions, wipes, and other products for children.

So, what’s the danger?

Well, according to the Oregon Occupational Safety and Health Administration, short-term exposure to formaldehyde can result in eye, nose, and throat irritation. Long-term exposure can cause asthma-like symptoms and dermatitis. A handful of other states classify formaldehyde as an asthmagen, and the EPA categorizes it as a probable human carcinogen.

“Indoor air quality is a major health concern,” Lampert said. “And many people may not be aware of the potential risks they’re exposing themselves to when they’re at home, work, or school. That is why we’re developing technologies that will continuously improve the air you breathe and that are no more obtrusive than the paint on the wall.”
A new report from Portland State University’s Institute on Aging suggests that offering health and social services on-site in low-income housing can help residents stay healthier and in their homes longer.

The $1.7M Housing with Services project provides coordinated services in eleven buildings that house 1,400 low-income seniors and adults with disabilities in Portland. The new model of community-based care brings together several housing, health, and social service agencies with funding from state and other sources.

An evaluation by PSU professor Paula Carder found that residents who had contact with the Housing with Services team were more likely to use preventative health and outpatient mental health services, and that they had a small decline in emergency department use compared to residents with no contacts. In addition, food insecurity among these residents declined during the program period.

The evaluation showed that the availability of on-site staff, including health navigators and community health workers, improved residents’ access to health and social services.

The full report and executive summary are available on the Institute for Aging research page.

“Housing with Services provides an excellent example of how housing can be a platform for health among older persons and adults with disabilities who live in low-income apartment buildings,” Carder said. “The collaborative effort by over twenty local housing, health, and social service agencies, along with two resident groups, resulted in measurable improvements in the lives of vulnerable older adults.”

Starting in September 2014, housing and service providers worked together to help residents enroll in health plans, access social services, connect with primary care providers, acquire medical equipment, and follow up on other support. They also opened a health and wellness center on the ground level of the 1200 Building on Southwest 12th Avenue and Jefferson Street for health screenings, social events, and activities such as Tai Chi.

The partners in the Housing with Services project include Cedar Sinai Park, CareOregon, Home Forward, REACH Community Development, Asian Health and Service Center, Jewish Family and Child Services, Sinai In-Home Care, Cascadia Behavioral Health, and LifeWorks NW. They have formed a limited liability company to continue the project.

Funding came from all the partner organizations, a State Innovation Model grant to the Oregon Department of Human Services and Oregon Health Authority, Meyer Memorial Trust, Family Care, Enterprise Community Partners, NeighborWorks and Providence Health System, the Harry and Jeanette Weinberg Foundation, and the HEDCO Foundation.
Students at Portland’s Lincoln High School had something new to look forward to when they returned to classes earlier this fall. Four healthy educational spaces, known as SAGE (Smart Academic Green Environment) classrooms, opened their doors on the campus, providing spaces for academic classes, club meetings, and lectures by community leaders.

In 2015, Portland Public Schools (PPS) selected the SAGE classrooms as replacements for fire-damaged portable buildings at Lincoln High School. Seeking an economical and mobile option, district leaders met with City of Portland officials and determined that the sustainable SAGE classrooms would best meet the needs of the school and its students.

The SAGE classrooms were designed by Portland State University School of Architecture professors Margarette Leite and Sergio Palleroni and a team of students as a healthier alternative to the ubiquitous portable classrooms installed at schools across the country.

These sustainable and affordable buildings are constructed with nontoxic materials and VOC-free paints. They feature efficient energy-recovery ventilators that provide fresh air, vaulted ceilings, and large windows that allow natural light into the room.

Former Governor Kitzhaber declared the project an Oregon Solution in 2011. That designation led to the formation of a multi-partner team of public agencies and commercial entities that supported the development of these remarkable classrooms. The first SAGE prototype was introduced in 2012 at the National Green Building Conference in San Francisco. The following year the SAGE classroom project received a SEED award for Social, Economic and Environmental Design.

A total of fifty-nine SAGE classrooms have been installed at thirty-two schools around the Pacific Northwest.

“We’re so proud that PPS chose the SAGE classrooms for Lincoln High School,” said Professor Leite. “Especially since Lincoln is less than a mile away from Portland State University, where the idea for SAGE was conceived and where so much of the design work took place.”

A team of Pacific Northwest companies came together to bring SAGE classrooms to Lincoln High School. Contractor Pacific Mobile Structures, manufacturer Blazer Industries, Mahlum Architects, and construction firm Ross Builders NW collaborated with PPS to purchase and install the structures.

Leite said she expects future architecture classes at PSU will visit the SAGE classrooms to learn more about healthy, environmentally friendly building methods up close.

“We are so glad that PPS is moving toward healthier and happier learning environments with the SAGE classroom. We are hopeful that we will be able to collaborate with this amazing team again at other Portland schools,” said Leite.
Portland State University announced in November that it had won a Grand Challenges Explorations grant, an initiative funded by the Bill & Melinda Gates Foundation.

With an initial $100,000 grant, PSU biology professor Ken Stedman will pursue an innovative global health and development research project, titled “Point of Collection Silica-Coating and Preservation of Stool,” to adapt the technique he developed for stabilization of vaccines for use in stool samples.

Stedman will apply a silica coating to stabilize stool samples that can then be transported to central locations for analysis for intestinal parasites. As with vaccines, stool stabilization is a considerable challenge for diagnosis, as stool samples break down quickly and parasites develop during transport. The process Stedman’s lab developed for vaccines could be a promising development for local public health workers seeking cost effective stabilization methods that can lead to a more accurate diagnosis and effective treatment.

Grand Challenges Explorations (GCE) supports innovative thinkers worldwide to explore ideas that can break the mold in how we solve persistent global health and development challenges. Stedman’s project is one of fifty-five Grand Challenges Explorations (Round 17) grants announced by the Bill & Melinda Gates Foundation.

To receive funding, Stedman and other Grand Challenges Explorations winners demonstrated a bold idea in one of six critical global health and development topic areas. The foundation will be accepting applications for the next GCE round in March 2017.

Stedman is the founding member of PSU’s Center for Life in Extreme Environments. He has authored or co-authored over sixty scientific publications. In addition to funding from the Bill and Melinda Gates Foundation, his research has been supported by the National Institute of Allergy and Infectious Diseases, National Science Foundation, NASA, and American Heart Association.

Stedman’s current research focuses on viruses that infect extremophilic microbes, unique emerging virus genomes, and applications of his research to vaccine stabilization, particularly for the developing world. He founded the Portland-based biotech company StoneStable Inc. to commercialize the vaccine stabilization technology.
The Association of Public and Land-grant Universities (APLU) has named Portland State University the winner of the C. Peter Magrath Community Engagement Scholarship Award in recognition of its twenty-seven-year partnership with Portland’s Bureau of Planning and Sustainability.

The award, announced on November 13th at the group’s annual meeting in Austin, Texas, honors four-year public universities for extraordinary community outreach and comes with a $20,000 prize.

“Portland State is truly honored to be recognized by the APLU for our longstanding commitment to sustainability and civic engagement—two vitally important missions of the university,” said PSU President Wim Wiewel. “The many accomplishments made through our partnership with Portland’s Bureau of Planning and Sustainability have enabled our faculty and students to truly fulfill PSU’s motto ‘Let Knowledge Serve the City.’”

PSU and the City of Portland’s Bureau of Planning and Sustainability have gained national and international recognition for their long-term partnership that engages faculty and students in education, research, and service. Results of the partnership include:

- Collection of longitudinal data on garbage and recycling that shape citywide waste management policy;
- Climate change research and education that informs the region’s Climate Action Plan;
- Planning and development activities that promote an “Age Friendly City” agenda;
- “Smart Cities” research and development focused on transit access and livability issues; and,
- Placement of Portland State capstone students and interns in local programs and community-based classes that work on Planning and Sustainability projects.

“Community engagement is at the very heart of public universities’ missions,” said APLU President Peter McPherson. “Portland State has established itself as a key driver of progress in the Portland area through its partnership with the City of Portland. We applaud their exceptional community engagement efforts, which serve as a model for institutions across the country.”

Since 2006, APLU and the Engagement Scholarship Consortium, with support from the WK Kellogg Foundation, have partnered to recognize programs that demonstrate how colleges and universities have redesigned their learning, discovery, and engagement missions to become even more involved with their communities. The national award is named for C. Peter Magrath, APLU president from 1992 to 2005.
In late September, bolstered by a $400,000 grant from the Kresge Foundation, Portland State University announced a partnership with the City of Portland and the Downtown Neighborhood Association to increase the area’s resilience to the impacts of climate change in tandem with similar efforts in two other western US cities.

The initiative, known as Climate Resilience in Urban Campuses + Communities (CRUX), is led by national nonprofit Second Nature and involves six campuses and their community partners in Portland, Los Angeles, and Phoenix.

The multi-city partnership will support campus-community task forces to develop pilot plans for adapting to the impacts of climate change, such as more severe storms, hotter summers, and increased flooding, all of which pose increased risks to human health, ecological systems, and city infrastructure.

“Portland State has been committed to addressing climate change by reducing our carbon footprint since 2010, but that’s not enough,” said Jenny McNamara, PSU’s sustainability manager. “The new climate resiliency plan will help us anticipate and better adapt to the climate disruptions that are already happening and will continue to increase.”

The PSU-city task force will use data about projected local impacts of climate change outlined in the updated Portland and Multnomah County Climate Change Preparation Strategy to create a scaled-down plan specific to PSU’s campus and the surrounding downtown community.

The effort builds on other academic-public sector sustainability partnerships PSU has pioneered, like the Institute for Sustainable Solution’s Portland Climate Action Collaborative and Sustainable Neighborhoods Initiative.

“The City of Portland is excited to partner with PSU on this important work,” said Michele Crim, sustainability manager at the Bureau of Planning and Sustainability. “Downscaling preparation efforts from citywide to a neighborhood scale is a critical next step in building Portland’s resilience to the coming impacts of climate change.”

Organizers hope that lessons learned by the six pilot institutions will inform a strategy for increasing climate resilience across the nation through campus-community partnerships.
Combining Research and Advocacy to Improve Air Quality in Oregon

By Laura Gleim

Portland State University’s Institute for Sustainable Solutions (ISS) has partnered with Neighbors for Clean Air and Lewis & Clark Law School’s Northwest Environmental Defense Center to improve air quality throughout the state.

Made possible by a $250,000 grant from Meyer Memorial Trust, the partnership, called BREATHE Oregon, will provide Oregonians clear scientific data and legal analysis ensuring residents and policy makers have the information they need to make decisions that improve air quality.

BREATHE Oregon expands upon a research partnership launched last spring between ISS, the City of Portland, and Multnomah County to assess heavy metal pollution in neighborhoods throughout the Portland metro region.

“The BREATHE Oregon partnership helps ensure that meaningful research focused on local air pollution moves from PSU labs into the hands of community advocates and policy-makers,” said ISS director Robert Liberty.

Linda George, PSU professor of environmental science and ISS fellow, is leading the research efforts.

“In addition to scientific and legal analysis of air quality data and impacts, the Meyer Memorial Trust award funds a series of community symposiums and a number of student interns who will work with local organizations to provide the public information about air quality issues.

“The path toward cleaner air is complex and requires an informed and involved public,” said Mary Peveto, co-founder and president of Neighbors for Clean Air. “Through BREATHE Oregon, we’ll work with those communities most affected by air pollution to ensure they have a seat at the table and access to accurate and relevant information. We’re excited about collaborating with our neighbors, our university, and our state regulatory offices in an effort to improve air quality.”

As directed by Governor Kate Brown’s Cleaner Air Oregon initiative, the Oregon Department of Environmental Quality and Oregon Health Authority are in the process of overhauling industrial air pollution regulations to bring them in line with state efforts to improve public health.

“State health experts and regulators depend on accurate, scientifically sound data and engaged, well-informed communities to protect the health of Oregonians,” said Lynne Saxton, director of the Oregon Health Authority. “We welcome the partnership of Meyer Memorial Trust, PSU, Lewis & Clark and Neighbors for Clean Air to achieve cleaner air in our state.”
A new study from Portland State University shows methane emissions from fossil fuel production have been on the rise since 1984.

The study, published in Proceedings of the National Academy of Sciences, found evidence that methane emissions from gas and oil extraction increased significantly between 1984 and 2009.

The results challenge two previous studies, including one published in Science earlier this year, that suggest that methane emissions from fossil fuels have declined since the early 1980s.

“The results surprised us,” said Dr. Andrew Rice, an associate professor of physics and fellow of the Institute for Sustainable Solutions at PSU. “We anticipated the modeling would indicate what other scientists had concluded, that methane emissions from oil and gas production were trending down globally, but we found the opposite.”

Studies have identified multiple sources that contribute to global methane emissions, including farms, wetlands, and wildfire, as well as oil and gas production. Identifying sources responsible for changes in atmospheric methane concentrations, however, proved more difficult.

“Regulators at agencies like the EPA need a comprehensive understanding of what’s driving the shift in greenhouse gas concentrations if they are going to regulate their emissions,” said Rice.

In addition to increases from oil and gas, the research team identified other anthropogenic sources of methane production, all of which were slightly offset by reductions in emissions from wetland and wildfires.

To arrive at their results, the research team analyzed the isotopic composition of atmospheric methane in air samples collected from sites around the world between 1977 and 1998. The results of that analysis was combined with contemporary data to model changes in methane sources between 1984 and 2009. Findings indicate methane emissions from fossil fuel sources were level in the 1980s and 1990s, but increased throughout the following decade.

The research was funded through support from the US National Science Foundation, the Miller Foundation, and the MJ Murdock Charitable Trust.
The US Department of Education’s Office of Indian Education has awarded $1.2M to Portland State University’s Graduate School of Education to recruit and prepare Native American students for teaching licensure and master’s degrees over the next four years.

This is PSU’s third Office of Indian Education professional development grant in six years. The first award, received in 2010, established the American Indian Teacher Preparation program.

“I am elated,” said project director Maria Tenorio. “I think this grant will help us sustain a lot of the work we want to continue with Oregon tribes—in fact, some of our first teachers are now ready to accept student teachers.”

Portland and the surrounding metropolitan region has the largest Native American population in Oregon, yet very few Native Americans are represented among the ranks of Oregon’s 33,000 teachers. Since 2011, a total of seventeen Native American educators from many tribes and nations have graduated from PSU’s program. The number may seem relatively small, but it is a significant increase in Native American teachers in Oregon’s workforce, who currently account for less than one percent.

“This American Indian Teacher Program award allows us to build on our proud and long-standing relationships with Oregon’s tribal nations,” said Dr. Micki Caskey, associate dean for Academic Affairs in PSU’s Graduate School of Education. “Our partnerships with the Confederated Tribes of the Siletz and the Confederated Tribes of Umatilla Indians will continue to benefit the tribal and non-Native communities alike.”
New findings from Portland State University’s Center for Public Service detail the shocking low voter turnout that is now typical in elections for mayor across the US. For the most recent round of mayoral elections in America’s thirty largest cities, turnout of eligible citizens in ten of them—including New York City, Baltimore, Dallas, and Miami—was less than fifteen percent. In Las Vegas, Fort Worth, and Dallas, voter turnout was in the single digits.

In addition to abysmally low turnout, the Who Votes for Mayor project found that younger voters aren’t participating. In America’s thirty largest cities, roughly forty-seven percent of registered voters over the age of sixty-five voted in the last mayoral election as compared to nine percent of registered voters aged eighteen to thirty-four. The median age of those actually casting ballots—fifty-
seven—was nearly a full generation older than the median age of the eligible voting population. In eight cities, including Houston, Phoenix, Oklahoma City, San Antonio, and Dallas, the median voter age was above sixty. The result of low turnout among younger voters is that older residents have more “electoral clout,” as residents sixty-five years and older are up to fifty-six times more likely to vote than residents between the ages of eighteen and thirty-four.

The study also found that certain neighborhoods have dramatically higher turnout than others, yielding an uneven distribution of voting “oases” and “deserts” within the same city. In Dallas, Texas, for example, nearly one in three residents live in voting deserts, which are neighborhoods where turnout was half (or less) than the citywide average.

“In the vast majority of local elections, young people are ceding decisions for the future to their grandparents,” said Phil Keisling, director of PSU’s Center for Public Service. “There are a number of actions we can take to improve turnout, such as coupling local elections with national elections, increasing voter registration, changing where and how voters can receive and return their ballots, and reeling in the influence of money in politics.”

The Who Votes for Mayor project breaks important new ground in the world of electoral research by combining voting and US Census data from eighty-five mayoral elections in the nation’s thirty largest cities, as well as twenty other smaller communities across the US. Researchers analyzed more than twenty-three million voting records and extensive demographic data from more than ten thousand US Census tracts.

Every day, over half a million local elected officials across the country are making important and influential decisions about core services like police and fire, drinking water, economic development, roads, and public transportation for the more than eighty percent of Americans who live in cities. When voter turnout in local elections is low, a small percentage of residents can have outsized influence in policy choices that have far-reaching consequences across cities and regions.

In three quarters of the cities studied, mayors and other local officials are chosen in odd-number year elections (as opposed to presidential elections and midterm elections), a remnant of decisions made over a century ago when these off-year elections were set up to give voters time to focus on local issues. Turnout is usually much higher during presidential election years, and several cities have moved their local elections into alignment with the presidential contest.

“One person, one vote’ is a core principle of American democracy for a very good reason—when turnout is abysmally low, more attention is paid to the interests of small groups of people instead of community-wide issues of equity and good governance,” said Benjamin de la Peña, Director for Community and National Strategy at the John S. and James L. Knight Foundation. “The danger of such low participation in local elections is the risk that elected leaders will not address serious and pressing issues that disproportionately affect historically disadvantaged communities.”

Who Votes for Mayor is a joint project of Portland State University and Knight Foundation. The study’s research team was led by Dr. Jason Jurjevich and former Oregon Secretary of State Phil Keisling, and also included Kevin Rancik, Carson Gorecki, and Stephanie Hawke.

City-by-city election data from the study is freely available for download on the Who Votes for Mayor website under a Creative Commons license. For more information, visit: www.whovotesformayor.org.

How Cities Ranked

Across the country, cities varied greatly in how many people turned out and how representative of the population voters were. For a full comparison, visit www.whovotesformayor.org/compare

Lowest Voter Turnout

1. Dallas, Texas, 6.1%
2. Fort Worth, Texas, 6.5%
3. Las Vegas, Nev., 9.4%

Highest Voter Turnout

1. Portland, Ore., 59.4%
2. Louisville, Ky., 45.4%
3. Seattle, Wash., 44.5%

Most Voting Deserts

1. Dallas, Texas, 31.9% who live in voting deserts
2. Fort Worth, Texas, 24.8% who live in voting deserts
3. Phoenix, Ariz., 19.7% who live in voting deserts

City-by-city election data from the study is freely available for download on the Who Votes for Mayor website under a Creative Commons license. For more information, visit: www.whovotesformayor.org.
Since I began my position as dean of the College of Liberal Arts and Sciences two years ago, the College has accelerated its research momentum: across our twenty-four academic departments and programs, we have increased proposal submissions by thirty percent and welcomed twenty-two new active research faculty.

As we move forward, our College is working together to advance our interdisciplinary collaborations and create a unified vision for our research direction.

This summer, we seized an opportunity to leverage our research strengths. With eight open positions across seven departments in the natural sciences, communication, and writing, we began to strategize and envision a cluster hire that could bring us to the forefront of a focal research area. Recently, we launched our search for all eight positions around the theme of Environmental Extremes.

Through the collaborative effort led by faculty to identify that focus area, we also uncovered other key research themes that resonate with our current research and scholarship and offer opportunity for continued growth:

1. Pathways toward social justice
2. Community resilience in social-ecological systems
3. Building community capacity and peace in an era of local and global polarizations, extremism, and uncertainty

In the College of Liberal Arts and Sciences, research is our value proposition. There are other universities in Portland, but none that have the capacity to serve students and engage in world-class research and scholarship like we can, and do!

I look forward to sharing more over the coming year about how our faculty and students are realizing a unified and impactful research vision, and how we can continue to work with our local and national partners on ways to strengthen our work in a way that serves our communities and improves our world.

Sincerely,

Karen Marrongelle, PhD
Dean, College of Liberal Arts and Sciences
Artifact rescue at the Walakpa archaeological site in Barrow, Alaska

Dating to at least 1200 years ago, the Walakpa site in Alaska encompasses a major cultural transition in the western North American Arctic: the migration and evolution of Birnirk and Thule cultures. Now, a team of graduate students led by Shelby Anderson, assistant professor of Anthropology, is working against increased coastal erosion and northern climate change to uncover a record of past Arctic artifacts dating back to potentially 4000 years ago.

PhD student named Oregon Sea Grant Natural Resources Policy Fellow

Cat Dayger, a PhD student in Biology, was recently selected to serve under Oregon Governor Kate Brown as an Oregon Sea Grant Natural Resources Policy Fellow for 2016–2017. In her position, Dayger will travel up and down the Oregon Coast talking to communities and helping assess how changes in the built and natural environment, sea and land, might impact the environment, their communities, and their livelihoods.

Extreme Antarctica ice melt provides glimpse of ecosystem response to global climate change

Stationed in East Antarctica’s McMurdo Dry Valleys—a polar desert that’s among the driest places on Earth—Andrew Fountain, a glacier scientist and professor of Geology, along with his research team, studied the effects of massive flooding caused by glaciers that melted during a sudden warming event in the Antarctic summer of 2001–2002. The warming event had lasting effects on the ecosystem across the continent, which could provide clues to how Antarctica might change as these extreme events occur more frequently.

Preventing campus sexual assault

Sexual assault is a critical issue at universities across the country, and Keith Kaufman, associate professor of Psychology, is leading a national effort to address and prevent it. Boosted by a $750,000 award from the US Department of Justice, Kaufman, who has been studying sexual assault and violence for more than thirty years, is assessing student safety risks and developing a prevention manual that can be used by any university.

Examining the transgender experience across the US

Utilizing interviews with sixty-six transgender men across the country, Miriam Abelson, assistant professor of Women, Gender, and Sexuality Studies, examined how masculinities and social interaction are shaped by region, urban or rural locations, and specific places, such as public bathrooms and health facilities.
Buildings, and many of the methods of their construction, are the single greatest collective source of CO₂ emissions in the US. The steel and concrete we use to make the mixed-use, high-density buildings we see all around us account for about eight percent of annual anthropogenic global greenhouse gas emissions and are the first and second largest sources of industrial carbon emissions in the country.

But as it turns out, a green alternative to building with steel and concrete is being produced right here in Oregon. Cross-laminated timber, or CLT, is an engineered wood product that has gained popularity among architects and engineers as a building material. It’s made of layers of wood that have been glued together and pressed. Its strength, durability, and versatility are comparable to steel-reinforced concrete. CLT is sustainably manufactured, and unlike steel and concrete it sequesters carbon.

In Portland, several architecture and engineering firms are already designing and building with CLT, the most notable of which is Lever Architecture, the firm behind the twelve-story Framework building (pictured left), which will be the country’s first wooden skyscraper when completed in 2017.

“CLT has elevated structural timber to new heights,” said School of Architecture professor Corey Griffin. “With CLT we have a plainer, two-dimensional product that is as strong as concrete, fire-resistant, and can be used in floor diaphragms and lateral load-bearing walls like those in the center of high-rise buildings. CLT can open the door to taller, mixed-use wooden buildings that weren’t possible before.”

Griffin’s research focuses on structural systems and green buildings. His colleague, Civil and Environmental Engineering professor Dr. Peter Dusicka, is an earthquake engineer whose research focuses on developing and testing components and materials that improve building stability and promote return to occupancy during and after seismic events. Working together, Dusicka and Griffin are positioning PSU as a major partner in Oregon’s expanding CLT ecosystem.

Griffin has previously studied barriers to the adoption of CLT as a building material and mentored
graduate students whose research focused on building with engineered wood products. Dusicka, who directs PSU’s Infrastructure Testing and Applied Research (iSTAR) lab, works with consultants designing wood components for use in the Framework building, validating the “earthquake-readiness” of their designs. The two recently received a $400,000 NSF grant to address critical system-level technical and non-technical barriers to designing and erecting seismically resilient high-rise buildings with CLT panel structural cores.

The project’s three major components include developing, modeling, and testing system-level designs and components for seismically resilient buildings with CLT structural cores; assessing the current state of nontechnical barriers to widespread adoption of CLT as a building material; and creating educational materials to disseminate the results of their work to industry professionals and students, and to promote building with wood. According to Dr. Dusicka the project includes students from the Green Building Scholars program, an NSF-funded scholarship program at PSU that connects engineering and architecture students with interdisciplinary educational opportunities focused on reducing the environmental impact of buildings.

“The project is representative of PSU’s position as a regional leader for green building research and education,” Dr. Dusicka said. “I think Oregon—and Portland, in particular—is set to become a leader in green building design, construction, and the manufacturing of sustainable building materials, and PSU has a central role to play in that.”

For cities trying, like Portland, to meet the housing needs of a growing population while reducing their carbon footprint, CLT is a promising building material, but there are questions that need to be answered before cities begin approving plans for high-rise wooden buildings. Chief among those questions in regions like the Pacific Northwest are: can a building made with CLT withstand seismic forces during an earthquake, and will that building be safe to reoccupy when the shaking stops?

“There are currently limits on how tall you can build structures made of wood because there are a number of questions that have yet to be answered,” Griffin said. “We want to answer those questions and provide evidence showing you can safely build seismically resilient wooden skyscrapers in places like the Pacific Northwest.”
Awards by Quarter

Proposals by Quarter

Complete lists of awards, proposals, publications, and doctoral degrees conferred can be viewed at www.pdx.edu/research/research-snapshot