Annual Report
2012–2013

Changing the way we think about food – the health of the next generation depends on it.
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The OHSU Bob and Charlee Moore Institute for Nutrition & Wellness was founded about two years ago with the charge to make a lasting impact on public health by accelerating the development and translation of an exciting new body of research known as the Developmental Origins of Health and Disease, or DOHaD. The knowledge emanating from this research – if acted upon – has the potential to profoundly improve the health of future generations by dramatically reducing the prevalence of chronic diseases like diabetes, heart disease and even obesity.

As longstanding advocates for the relationship between nutrition and health, Bob and Charlee Moore invested $25 million in 2011 to establish the OHSU Moore Institute for Nutrition & Wellness. We are deeply grateful for the vision and support of the Moores.

Under the direction of Kent Thornburg, Ph.D., the institute has made exceptional progress over the past year in laying a foundation to meet its public health mission.

Here are a few examples of our progress this past year:

- Recognizing the impact that physicians have on the nutritional habits of their patients, the Moore Institute is working with the OHSU School of Medicine’s M.D. curriculum transformation committee to prioritize, expand and enhance the nutrition curriculum.

- The institute partnered with external strategic communications agencies to begin creative development of a public health campaign that will disseminate scientific knowledge to the public in new and effective ways.

- The Moore Institute Nutrition Consortium brought nutrition organizations and health care workers from across the state together to collaborate on solutions to improve the diets of infants, girls and women of reproductive age.

- The institute continues to forge relationships with local decision makers, informing them about DOHaD issues in order to build support for effective public policy that will improve access to healthy food.

- The institute is preparing educational courses and other tools to share the importance of early-life nutrition in developmental health with schools and other K-12 partners.

The full breadth – and impact – of the important work and plans of the institute are captured in this second annual report. The Moore Institute for Nutrition & Wellness is unified by a desire to change the landscape of health. The OHSU School of Medicine is proud to serve as its home.

Best regards,

Mark Richardson, M.D., MBA
Dean
Building for Tomorrow

Dear Colleagues and Friends:

I am pleased to present the second Annual Report of the OHSU Bob and Charlee Moore Institute for Nutrition & Wellness. This report highlights the institute’s wide-ranging activities and accomplishments for the fiscal year 2012–2013.

We’ve been thinking a lot about the concept of “building” lately at the Moore Institute as it relates to human health. How is a healthy adult built? We believe that the nutrition the embryo receives even before implantation – that is, before a woman is officially pregnant – determines the maturation of the embryo and fetus throughout pregnancy. Its growth trajectory is already being set at that early stage of development, paving the way for the onset of chronic diseases like heart disease, diabetes and obesity in adulthood. Therefore, in order to end chronic diseases, we must create a cultural shift. Every woman in her reproductive years must have continuous access to good nutrition. When we consider what access means, we recognize that there are many social determinants involved in the construction of a healthy adult. Finding ways to combat the detrimental effects of stress and poor nutrition is both a challenge and an opportunity for the Moore Institute.

How is a healthy institute built? As you will see in the pages that follow, our leadership and committees continue to form innovative partnerships and assemble projects to meet and exceed our goals. We have sustained an indomitable spirit as we look forward to growth in all of our missions. Our communications partners have been hard at work conceptualizing concepts and messaging to bring the scientific knowledge in to the public eye and mobilize a public health movement. We are on the verge of translating our ideas into high-impact solutions that will rebuild our health culture and make Oregon a healthier place to live.

As always, I welcome your comments and thank you for your support.

Kent Thornburg, Ph.D.
Director

Mission Statement

At the OHSU Bob and Charlee Moore Institute for Nutrition & Wellness, we believe that reducing the prevalence of chronic diseases throughout life starts by promoting healthy, nutrient-rich diets based on wholesome foods – before conception, during pregnancy and lactation, and in infancy and early childhood.

We support this in current and future generations by offering programs that:

- Engage the community through professional training and community outreach
- Conduct research through human and community-oriented clinical, basic and translational science
- Provide clinical care through the development of new preventive measures and treatments
- Address public policy issues to promote improved nutritional health in the community
Moore Institute marks two years of healthy development

Less than two years after its launch, OHSU’s Bob and Charlee Moore Institute for Nutrition & Wellness has taken a healthy bite out of its ambitious agenda to fight chronic disease through healthy eating. Marking its second birthday at a June 18 campus celebration, Moore Institute leaders reviewed their full plate of achievements to date and previewed what’s next. As befits a good birthday party, the Moore family brought a gift – their latest $1 million contribution to the $25 million philanthropic partnership.

Another highlight was the official announcement that Kent Thornburg, Ph.D., has been named the Moore’s permanent director after serving as interim leader since its inception. Under Dr. Thornburg’s direction, the institute has organized its leadership team and steering committee and established a guiding focus on programs that promote healthy, nutrient-rich diets based on wholesome foods before conception, during pregnancy and lactation, and in infancy and early childhood.

Projects now up and running to advance that goal include a statewide nutrition consortium to create a unified approach to maternal and infant nutrition, a range of international collaborations that give OHSU scientists access to critical population data from other major nutritional studies and innovative community engagement projects. Each of these initiatives creates opportunities for donor participation in the institute’s goals.

“Through the vision and leadership of the Moores, we are already harnessing the knowledge and power of research in ways that will have a long-term impact on communities and the future health care workforce,” Dr. Thornburg said. “The things we’ve already accomplished in our first two years are exciting, but we’re just beginning. We welcome additional partners in this important work.”
Moore Institute in the news

The Moore Institute is promoting healthy, nutrient rich diets and increasing awareness of the impact of nutrition on population health through varied media exposure. The institute’s use of social media has increased, with more coverage on Facebook, Twitter and OHSU blogs such as 96K, allowing the institute to reach a wider audience.

2012–2013 selected news items:

- Dr. Thornburg named director of Bob and Charlee Moore Institute for Nutrition & Wellness – School of Medicine (SoM) News, June 2013
- Nutrition now for a better future – Bridges, School of Medicine Alumni magazine, Spring 2013
- You are what you eat . . . and so is your baby – Metro Parent, June 2013
- Improving public health: global perspective of malnutrition in the womb “makes Black Death look like nothing” – University of Southampton Twitter, June 2013
- OHSU – Improving public health: a global perspective on the implications of malnutrition in the womb – WASHplus Twitter, June 2013
- Moore Institute talks urgency – OHSU CROET: Oregon and the Workplace blog, May 2013
- #Nutrition before pregnancy, too MT @croetatohsu: OHSU’s Moore Institute for Nutrition & Wellness Talks Urgency – SoM Twitter, May 2013
- OHSU’s Moore Institute for Nutrition & Wellness Talks Urgency | Oregon and the Workplace – CROET at OHSU Twitter, May 2013
- Nutrition tips for pregnant women and kids – OregonLive, May 2013
- Food needs to be the first medicine we try – OregonLive, April 2013
- Early life and chronic disease – SoM Facebook February 2013
- Heart health 2013: It’s wired early in life – OregonLive, February 2013
- Fructose ingestion and cerebral, metabolic and satiety responses – Journal of the American Medical Association editorial, January 2013
- Oregon’s new CCOs should take aim at obesity as the top prevention effort – OregonLive, January 2013
- OHSU Health Fair on the Square – SoM Facebook, October 2012
- Lost in the health care debate: Let’s focus on beginnings – OregonLive, September 2012
- Early life diet and its link to chronic diseases – OHSU 96,000 Square Miles blog, August 2012
- Obesity: With one in five grade-school kids obese, researchers look toward the underlying causes – OregonLive, August 2012

"I don't think most people realize that appetite is wired early in life. It's time that we recognize that it is."
– Kent Thornburg, Ph.D., in Obesity

"That’s when babies are most vulnerable and that’s why mothers should be eating as healthy as possible. They’re developing the bodies that will last their children a lifetime."
– Mollie Dickson, The Heart’s Kitchen in You are what you eat . . . and so is your baby
The Moore Institute is meeting its mission to engage the community through training and outreach by participating in and leading events around Oregon and beyond, while translating essential scientific information about DOHaD to the public.

2012–2013 selected events:

**October 30–31, 2012, San Francisco, Calif.**
Panel: How poor nutrition in the womb creates susceptibility to hypertension, diabetes, obesity and coronary heart disease
An interdisciplinary framework: the developmental origins of chronic disease – American Public Health Association

**November 2, 2012, Portland, Ore.**
Talk: The mother’s diet, the fetus’ diet and its future health
Fetal Programming – 36th Annual Pacific Northwest Update in OB-GYN and Women’s Health

**December 3, 2012, Portland, Ore.**
Talk: Nutrition therapy: The new medicine
Science Pub – OMSI

**January 28, 2013, Portland, Ore.**
Talk: The effects of (social) stress on fetal growth and the development of chronic disease in older age
Health, Behavior, & the Social Environment – Portland State University

**February 5, 2013, Portland, Ore.**
Talk: Developmental origins of health and disease
Urban Leaders Breakfast (with Larry Wallack, DrPhD)

**February 11, 2013, Loma Linda, Calif.**
Talk: How to build a healthy heart from scratch
Loma Linda University Center for Perinatal Biology 40th Anniversary

**February 19, 2013, Portland, Ore.**
Talk: The roots of cardiovascular disease – New insights on an old problem
Grand Rounds – Department of Medicine, OHSU

**March 19–23, 2013, Orlando, Fla.**
Satellite Leader: The black holes of fetal programming: Filling the gaps
Symposium – Society for Gynecological Investigation
April 19, 2013, Portland, Ore.
Talk: Food is tomorrow’s medicine
Food for Thought Festival – Jewish Federation of Portland

April 20, 2013, Portland, Ore.
Theme: Using our foundation to build the future (Moore Institute Steering Committee)
Bob and Charlee Moore Institute for Nutrition & Wellness Spring Retreat

April 28–30, 2013, Suzhou, China
Keynote: The placenta programs the heart for adult-onset disease
Institute of Fetal Origins of Health and Disease – Soochow University

May 16, 2013, Corvallis, Ore.
Talk: Diet, epigenetics and fetal origin of adult-onset diseases
Conference on Diet & Optimum Health – Oregon State University

May 18, 2013, Portland, Ore.
Talk: Nutrition through the lifespan – developmental origins (with Susan Bagby, M.D.)
Annual Conference – Oregon Pediatric Nutrition Practice Group (included exhibitor booth)

Talk: The interplay of nutrition in the developmental origins of health and disease (with David Barker, M.D., Ph.D., FRS)
Lecture – OHSU Bob and Charlee Moore Institute for Nutrition & Wellness, OHSU

June 5, 2013, Portland, Ore.
Theme: We’d like to get to know you
OHSU Bob and Charlee Moore Institute for Nutrition & Wellness Nutrition Consortium Forum

June 11, 2013, Bethel, Alaska
Talk: Nutrition in the womb drives adult chronic disease
Grand Rounds – Native Health Corporation

June 20, 2013, Portland, Ore.
Talk: Developmental origins of health and disease
Grand Rounds – Northwest Gynecology Center
Why partner with studies around the world?

Thus far, studies around the world have shown that inadequate fetal nutrition is associated with adult onset disease regardless of the country of origin. There are, however, geographical variations in fetal nutrition and growth and in the pattern of diseases that predominate in different regions of the world. Because it would not be possible to understand these regional disease patterns without being connected to them, the Moore Institute has established collaborations with scientists in many countries across the globe.

During the year, David Barker, M.D., Ph.D., FRS, led several international efforts for the Moore Institute in his role as Director of International Studies. Throughout the year, he maintained close ties with experts around the globe. Primarily as a result of his efforts, the Moore Institute collaborated with scientists in England, Finland, France, India, the Netherlands, Saudi Arabia and Tunisia. Below are examples of ongoing international collaborations that were nurtured by Dr. Barker’s efforts.

The Helsinki Birth Cohort includes 20,000 men and women who were born in Helsinki, Finland, during 1924–1944 who have been followed through their lives. Their records document size at birth, maternal body size, childhood growth, reproductive history, educational attainment and illnesses. Using these data, the Helsinki Epidemiology Team has found associations between maternal, placental and fetal characteristics that predict many chronic diseases, including those related to heart diseases as well as several cancers. This ongoing study has been funded by the National Institute of Aging through OHSU (Principal Investigator, David Barker, M.D., Ph.D., FRS).

The Moore Institute has developed ties to investigators in Holland who follow the Dutch Hunger Winter cohort. This cohort includes 2,000 men and women who were in the womb before, during and after the Dutch Hunger Winter (Principal Investigator, Tessa Roseboom, Ph.D.). The famine began abruptly in the winter of 1944 and ended after 7 months. To date the study has shown that people in utero during the famine have increased rates of cardiovascular disease and type 2 diabetes. Continued investment in the Helsinki and Dutch Famine Birth Cohorts is throwing new light on the early origins of aging and life expectancy.

The Moore Institute also has close links to a network of studies in India (Principal Investigator, Caroline Fall, MBChB, DM, FRCP, FRCPCH). These include the first-ever randomized trial of preconceptional food supplementation among young married women living in the slums of Mumbai, and longitudinal studies of young adults born in Delhi and children born in Mysore. The institute is also associated with studies of placental size shape and function in Saudi Arabia and Tunisia (Principal Investigator, Saleh Alwasel, M.D.).
Community Education and Outreach Committee

The Community Education and Outreach Committee is working with Oregon community leaders to motivate and empower young girls, pregnant mothers, parents and their children to choose balanced whole-food nutrition for themselves, their families and their communities.

**Long term goal:** To introduce a whole-food-based, hands-on, nutrition/culinary science experiences into daily activities of Oregon K-12 schools with concurrent engagement of K-12 parents/families, with active involvement of school food service staff and with sufficient flexibility to be adaptable nationally.

The committee had specific aims for the last year, all of which were met.

- Initiate Core Partnership with FoodCorps to assist with service member training, curriculum development, involvement of parents/families and program outcomes research/evaluation, each to incorporate the importance of early-life nutrition in developmental health
- Initiate Core Partnership with Oregon Area Health Education Centers (AHEC) to develop Nutrition-in-a Box curriculum units for elementary schools that incorporates principles of developmental origins knowledge
- Initiate Core Partnership with Pediatric Associates, Inc. to co-publish parent nutrition-education series, available to non-profit clinical groups for patients and to K-12 families and teachers

In response to committee recommendations, the elementary school level curriculum unit “Teaching Nutrition to Kids” (Book, Activity Handbook, Full curriculum guide on CD) by Connie Evers, R.D.N., a nationally known nutrition curriculum expert, was provided for all 140 FoodCorps Service Members via funding from Bob’s Red Mill Natural Foods. Bob’s Red Mill Natural Foods is also promoting and offering the curriculum unit in their mill store and retail store.

The committee has contracted with Connie Evers to produce a webinar training designed to optimize use of the curriculum materials noted; this will be made widely available to FoodCorps service members nationwide and to schools and teachers in Oregon.

The committee is also working to develop curriculum for the FoodCorps program, and for general use by the Moore Institute. The committee has contracted with Connie Evers, R.D.N., to lead the development of a “Nutrition in the Box” curriculum unit for elementary/middle school, in partnership with Oregon AHEC, which has developed several such modules and currently provides them to Oregon schools. The In-a-Box Working Group has been established and will hold a one-day workshop in December 2013 to bring in relevant stakeholders to shape the process and content of the curriculum. The committee will also add to the nutrition content of the existing In-a-Box series (Gut, Brain, Heart, etc.) where appropriate.

Finally, the committee is partnering (in conjunction with Bob’s Red Mill Natural Foods) with Pediatric Associates Inc. to help complete, publish and make available a seven-part Young Parent-Nutrition Education class for FoodCorps K-12 based parents/families and for young families in pediatric and OB-Gyn practices. Two meetings have been held and a formal proposal is expected in late 2013. The series includes two classes on nutrition during pregnancy plus one each on breastfeeding, transition to solid foods, toddler nutrition and general family nutrition. Pediatric Associates, Inc. will copyright and sell the product. The Moore Institute Community Education and Outreach Committee will help finalize and support publications of the series and is contracting for low- or at-cost access to all components of the program to make it available to non-profit and public health organizations.
Media and Marketing Committee

The mission of the Bob and Charlee Moore Institute for Nutrition & Wellness is sweeping and visionary. The Media and Marketing Committee is galvanized around this historic opportunity to translate essential scientific information about the effect of early nutrition on adult disease to the public in ways that are effective, measurable and repeatable. The potential for positive impact to long-term public health is enormous.

**Five-year goal:** The Moore Institute will be known nationally and internationally as a leader in the innovative use of media and marketing tools to communicate about the developmental origins of health and disease (DOHaD) research in ways that measurably increase awareness of the impact of nutrition on population health in target audiences.

The committee has made substantial progress in establishing the institutional presence and expertise of the Moore Institute through earned media opportunities, leadership speaking engagements, OHSU faculty communications and website development among other activities. It is also finalizing a multi-year marketing, media and strategic communications plan for the Moore Institute in partnership with an external agency.

**2012-2013 selected activities:**

- Contracted with Sockeye, an external creative and strategic communications agency, to develop the multi-year marketing, media and strategic communications plan
- Liaisoned with Real Reason, a cognitive linguistic group, to obtain reviews of proposed public health campaign language created by Sockeye
- Strengthened institutional presence among faculty and students with consistent internal outreach from director and coverage in internal communications news channels
- Updated the Moore Institute website with news, updates, scientific context, events and leadership messages
- Coordinated support of communications and resources for other Moore Institute committees
- Provided informational and promotional materials to create a Moore Institute presence at local health conferences and fairs
- Developed a three-year internal communications plan to further establish the institute's identity with key foundational pieces and actions
Nutrition Education for Healthcare Professionals Committee

The OHSU Committee on Nutrition Education for Health Care Professionals will facilitate the integration of nutrition education, including the key concept of the effect of early nutrition on adult disease, for health care professionals throughout the greater OHSU community.

Our primary, short-term goals are to:

1. Use innovative, step-wise strategies to integrate nutrition education within and across the curriculum and into practice
2. Promote nutrition education as the platform to launch the collaborative OHSU interprofessional education initiative
3. Enhance the ability of health care providers trained at OHSU to efficiently and effectively transfer nutrition assessment and behavior change strategies from the classroom into practice to enhance health and wellness

2012-2013 selected activities:

- Incorporated DOHaD Concepts into 2012 Metabolism Lecture Series for second year OHSU medical students
- Offered SoM Human Nutrition Elective - Instructor: S. Connor, MS, RD. Evidenced-based practice and current controversies in nutrition are discussed; dietary assessment and counseling techniques are practiced, “Behind the glass” tour of Bob’s Red Mill
- Hosted 10-week interdisciplinary Nutrition & Oral Health Seminar Series during the Fall Term, 2012 with students and faculty from the Graduate Programs in Human Nutrition and the School of Dentistry
- Hosted 10-week Community x University discussion series on the PLoS Medicine series on “Big Food” which stimulated enthusiastic debate on the influence of the food industry in global health and how public health professionals can become involved in regional and national advocacy campaigns
- Mentored Nutrition-Focused International Projects in Kenya, Honduras and Belize
- Introduced DOHaD concepts and toured Bob’s Red Mill with incoming class of OHSU dietetic interns and graduate students
- Made ongoing contributions to the Moore Institute pilot research projects, including submission to NIH of “Reducing Gestational Diabetes Risk: The Pregnancy, Exercise & Nutrition Program” and “Developmental Origins of Self-Regulation
- Supported nutrition graduate student thesis projects: Lucy Glaize: “Relationship between Maternal Dietary Fat Intake, Insulin Sensitivity, and Infant Birth Weight” Cassie Graziano: “Fruit and Vegetable Intake and Gestational Weight Gain in OHSU Pregnancy, Exercise, and Nutrition Study Participants”

In the coming year, the committee will be reconvening quarterly and focusing on reinvigorating the Interprofessional Nutrition-focused Student Interest Group; finalizing plans for an Interprofessional Elective Course on Obesity; incorporate patient-centered counseling to follow healthy, nutrient-rich, whole-food diets to the 2013 Metabolism Lecture Series; and “mapping” the nutrition curriculum to identify where nutrition is taught within the university and to link specific concepts to program goals and student learning objectives.
Public Health and Policy Committee

The Public Health and Policy Committee is at a tipping point of activity. It has generated enthusiasm and a sense of urgency about the Moore Institute’s mission, striking a chord with key community leaders and producing additional ideas and connections.

Much of the work of this committee over the past year has focused on two areas: working to build the constituency for DOHaD policy activities and developing a proposal for a policy center to be housed within the Moore Institute.

Building the constituency selected activities

- The committee continued to hold “urban leaders” briefing breakfasts and other activities to inform decision makers about DOHaD issues. One notable activity was a special session on the Best Babies Zone project provided by the program’s national director, Cheri Pies, MSW, DrPH. This is a four-city project funded by the Kellogg Foundation to implement community wide strategies to reduce the number of low birth weight babies.
- Kent Thornburg, Ph.D., and Larry Wallack, M.S., MPH, DrPH, briefed the board of the Northwest Health Foundation during the foundation’s annual retreat. In a three-hour session, they reviewed the DOHaD material and related it to the new strategic plan of the foundation.
- Dr. Wallack made a visit to the Earl Boyles Elementary School in Portland, Ore., to continue to build relationships with the Children’s Institute as a possible collaborator in a comprehensive application of DOHaD concepts. This was followed up with a visit to the Cambia Foundation with Ken Thrasher and other leadership from the Children’s Institute to advance the collaboration.
- Dr. Wallack arranged a meeting with Senator Betsy Johnson and Dr. Thornburg to discuss an upcoming intervention project.

A proposal for a Moore Institute Policy Center is underway. This involves creation of a position to advance community engagement and public policy issues, evaluating different approaches to center development, and development of a policy matrix to organize the various public health areas that a center might address, such as those that impact nutrition and social stress in environments where people live, learn, work and play and cuts across age groups as well. The matrix is the basis for moving toward a “DOHaD in all grants” strategy for local funders and could be the basis for a short-course training for all grantees in Oregon.
The Moore Institute Nutrition Consortium is working to bring Oregon’s nutrition experts together to specifically address the diets and social conditions of girls and women of reproductive age and infants.

The first Moore Institute Nutrition Consortium Forum was held on June 5, 2013, with active participation from nearly 80 participants from organizations such as Partners for a Hunger-Free Oregon, March of Dimes, the Oregon WIC program and Portland Public Schools. The energy and enthusiasm of the group was inspiring and the consortium was excited to learn about the good work of participating organizations and to hear participants’ ideas on how we can join forces to make Oregon the best place to be pregnant and have children. The discussions were rich, and feedback was thoughtful and informative.

Forum agenda
- Welcome from Rachel Bristol
- Slide presentation: Developmental Origins of Health and Disease Science by Susan Bagby, M.D.
- Goals of the Moore Institute by Kent Thornburg, Ph.D., Director
- Table Discussions/Reports: Working together for a healthy Oregon with Christine Wallace, MA
- Building our Future – Role of the Moore Institute with group discussion by Kent Thornburg, Ph.D., Director
- Closing and Evaluation: Rachel Bristol
- Reception

Forum feedback highlights
As a result of attending the forum:
- 78% came up with new ideas about improving the nutrition environment for Oregon
- 73% look forward to future events with Moore Institute’s Nutrition Consortium
- 71% will share what they learned at this meeting with others in their organization or community
- 67% thought about a connection between their work and how it supports policy to improve maternal/child nutrition and wellness in Oregon

Since holding the forum, the Nutrition Consortium has met to review the evaluations and recommendations that came from the small and large group discussions and is in the process of determining what to take on in the year ahead. The consortium has reached out to the Nutrition Council of Oregon for help in creating a database of the wide variety of groups and programs working to improve nutrition and health in Oregon. It is also following up on interest in hosting a forum outside of the Portland area and is supporting efforts to find funding for a full-time outreach manager to help build the consortium. The consortium will continue to work with past and future forum participants in defining the collaborative roles of the Moore Institute Nutrition Consortium.
The Heart’s Kitchen

The Heart’s Kitchen is collaborating with the OHSU Moore Institute for Nutrition & Wellness to improve the diets of young women. This aligns with the Moore Institute goal to educate the public on the important message of maternal nutrition. Reaching the public will not only spur positive action that will translate to better health for future generations, it will also build awareness for the Moore Institute.

Inspired by the latest scientific research on the developmental origins of health and disease, The Heart’s Kitchen was born. Co-founders Mollie Dickson and Jennifer Bryman met at a Northwest Health Foundation conference and immediately began sharing their ideas and passion for food and health. They knew there was great urgency in communicating the message that heart disease, diabetes and several cancers start in the womb and can be prevented by improving the diets of young women. With diverse skills and a common vision, they teamed up to translate this research into action. The Heart’s Kitchen develops recipes that optimize key nutrients for new and expectant moms, provides nutrition education and cooking consultation for new and expectant moms and develops multi-week cooking curriculum programs for scientific research and medical institutions.

The Heart’s Kitchen is well-positioned to take on this work based on the experience of its co-founders:

Jennifer Bryman has 13 years of experience in strategic planning, marketing and sales. She completed culinary school at Robert Reynolds Chef Studio as well as specialty diet programs at San Francisco Baking Institute. Jennifer is vice chair of the board at Upstream Public Health and Treasurer of the board at Portland Culinary Alliance. She enjoys providing monthly cooking demonstrations at Portland schools.

Mollie Dickson has a master’s degree in teaching and a bachelor’s in psychology. Mollie was a Girls Inc leader and designed her own wellness program. She has served as executive director for the Portland Culinary Alliance and on the Education Committee for the OHSU Knight Cardiovascular Institute Center for Developmental Health.

FoodCorps

FoodCorps is a nationwide team of leaders that connects kids to real food and helps them grow up healthy. They do that by placing motivated leaders in limited-resource communities for a year of public service. Working under the direction of local partner organizations, FoodCorps implements a three-ingredient recipe for healthy kids. Service Members:

- Teach kids about what healthy food is and where it comes from
- Build and tend school gardens
- Bring high-quality local food into public school cafeterias

Through the hands and minds of emerging leaders, FoodCorps strives to give all youth an enduring relationship with healthy food.

The organization envisions a nation of well-nourished children: children who know what healthy food is, how it grows and where it comes from, and who have access to it every day. These children, having grown up in a healthy food environment, will learn better, live longer, and liberate their generation from diet-related disease.

The Moore Institute has initiated a partnership with FoodCorps to assist with service member training, curriculum development, involvement of parents and families and program outcomes research and evaluation, each to incorporate the importance of early-life nutrition in developmental health.
March of Dimes

*Working together for stronger, healthier babies*

The March of Dimes works to help babies start life in the healthiest way possible. Through education and intervention, the organization helps moms-to-be learn how to take care of themselves before, during and after pregnancy.

The organization also partners with local medical groups and organizations to establish guidelines for how to care for pregnant women and premature babies. It provides grants to researchers working to understand birth defects, premature birth and infant mortality and to find treatments and solutions. Their goals are to:

- Improve the health of babies
- Support moms-to-be and professionals through its programs
- Offer comfort to families with a newborn in intensive care

Kent Thornburg, Ph.D., presented to the board of the Greater Oregon & SW Washington Chapter of the March of Dimes who subsequently agreed to partner to educate medical professionals about maternal diet. Joanne Rogovoy, Program Director, March of Dimes Greater Oregon & SW Washington Chapter is a member of the Moore Institute’s Community Education and Outreach Committee.

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**It’s been known for decades that what a woman eats while pregnant has a strong influence on the health of her child. But now OHSU research suggests that a woman’s diet affects not only her future children but also future grandchildren! A woman’s diet, even before pregnancy, determines the health of her ovaries, which in turn determines the health of her future embryos, and the health of her daughter’s ovaries in ways that can lead to – or prevent – chronic conditions such as obesity, type 2 diabetes and heart disease.**

**OHSU continues to advance our understanding of nutrition and disease thanks to Bob and Charlee Moore, whose support launched the Bob and Charlee Moore Institute for Nutrition & Wellness in 2011.**
About the Moore Institute Research Projects

One of the Moore Institute's foundational principles is the promotion of clinical and translational science to reduce the prevalence of chronic diseases across the lifespan in current and future generations by promoting whole-food nutrition before conception, during pregnancy and lactation, and in infancy and early childhood. The institute will accomplish this by harnessing existing strengths in research capacity at OHSU in the fields of nutrition and developmental origins of health and disease to create programs that address the complex clinical and social factors related to and arising from poor nutrition defined as poor dietary choices or unavailability of healthy foods.

Shortly after receiving the initial gift from the Moore's, the steering committee issued a request for letters of intent to fund several “founding” projects. Proposals could address any of the main mission areas of the Moore: education, patient-oriented research, clinical care or public policy. Out of 56 proposals representing investigators from multiple institutions across the state of Oregon, six investigators were invited to submit a formal application and three were ultimately selected for funding.

These three projects were chosen for their emphasis on whole food nutrition, targeting of either pre-pregnant or pregnant women, their potential for evolving into a sustainable partnership with the Moore, a strong possibility of achieving sustainable grant funding in the future and the likelihood for having a “high-impact” on the field of developmental origins. Funding for these proposals began in July 2012, and the following are interim reports of their progress.

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**Development of a Team-Based Intervention for Preventing Gestational Diabetes**

Diane Stadler1,2, Joyanna Hansen2, Esther Moe1, Lisa Goldblatt3, Angela Horgan3, Maggie McLain1
1Oregon Health & Science University, Portland, OR
2Portland State University, Portland, OR
3OHSU Bob and Charlee Moore Institute for Nutrition & Wellness

**Objective:** The objective of this study was to develop and assess a paradigm of using a scripted, peer-led, team-centered curriculum tailored to a specific population, in this case women who meet for the 20 weekly PEN sessions.

**Methods:** The scripted curriculum is acceptable to participants, and content included obstetricians, midwives, prenatal employees, law enforcement officers and university/hospital staff.

**Results:** The recruitment, data collection, intervention content and delivery, and data analysis were completed as planned.

**Conclusion:** The scripted curriculum is acceptable to participants, and content included obstetricians, midwives, prenatal employees, law enforcement officers and university/hospital staff.

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**Improving Adolescent Awareness of the Epigenetics of Generational Nutrition**

“Nurture Your Nature”

Jableen Shannon, Ph.D. R.D. & Lisa Marriott, Ph.D.

**Objective:** The objective of this study was to improve adolescent awareness of the epigenetics of generational nutrition.

**Methods:** The research team has developed evidence-based modules and content to be used in schools and community venues.

**Results:** The modules have been developed and are ready to be piloted.

**Conclusion:** The modules have been developed and are ready to be piloted.

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**Looking Forward**

- Dissemination of “Nurture your Nature” around the state and nation
- Future grant funding
- Future grant proposals
- Future research projects
Project 1: Improving Adolescent Awareness of the Epigenetics of Generational Nutrition

Co-Principal Investigators: Jackilen Shannon, R.D., Ph.D., and Lisa Marriott, Ph.D.

This project will result in an educational program about the importance of nutrition and epigenetics in human health for middle schoolers. The program is being developed by Dr. Shannon and colleagues using the resources of the “Let’s Get Healthy!” (LGH!) (www.letsgethealthy.org) program to develop an interactive module for implementation during a community or school fair. The curriculum and module will focus on the following three aims: 1) increase knowledge and improve attitudes toward diet and how diet may play a role in altering DNA; 2) increase intentions to improve or maintain a healthy, whole-foods based diet among middle school children; and, 3) improve knowledge of and attitudes toward epigenetics topics among middle school teachers.

Dr. Shannon has established an advisory group, identified the learning goals for this module, developed story boards of presentation ideas, held focus groups with parents, students and teachers and reached a consensus on the module content and name (“Nurture your Nature”). An artist and programmer were identified to create the module and requests were sent out through the Oregon Science Teacher Association (OSTA) for applications to attend a summer 2013 session to develop the lesson plans and beta-test the module. Applications from 10 teachers were received and five teachers were chosen. The teacher session is described below.

The project combines two priorities of the Moore Institute into one project: that of educating the public on the importance of healthy food choices in pregnancy and conducting research. The latter will be accomplished by utilizing the resources of the LGH! program, which collects feedback data on participants with regard to their own nutritional preferences and provides feedback to teachers and students alike for educational purposes. Once a module design is completed, it can be incorporated into LGH! fairs in middle schools and communities with the possibility of reaching thousands of students statewide and across the country. The program is on track for rollout in fall 2013.
Project 2: The Developmental Origins of ADHD

Principal Investigator: Joel Nigg, Ph.D.

This research project is testing the role of improving the diet of pregnant women with attention deficit hyperactivity disroder (ADHD) on early risk factors of their babies for similar behavioral outcomes. This will be accomplished in three aims: Aim 1: To assess nutrient intake, dietary compliance and effectiveness of changing diet in pregnant women with ADHD; Aim 2: To assess change in maternal ADHD, depression and anxiety symptoms after one month and two months on the intervention diet, as compared to placebo diet; and Aim 3: To evaluate biological and behavioral outcomes in the offspring, including, (a) infant physical health accessed via weight and growth parameters and perinatal health (APGAR score and perinatal complications), (b) infant neural development accessed via MRI (while asleep; no sedation), and (c) infant feeding practices and behavior as assessed by telephone questionnaire at age three months.

Working with the Oregon Clinical and Translational Research Institute CTRC bionutritionists, Dr. Nigg and his team have developed an intervention diet and are recruiting women for study, randomized to either the healthy diet or their usual care. In an effort to increase recruitment of pregnant women with ADHD, the investigators are expanding their efforts, which include a wider distribution of advertisements in the local community and through contacts at the Vancouver, Wash. clinic, which greatly increases their sample population.

Of the three projects, this one most closely hews to the institute’s goal of understanding how the biology of diet effects on imprinting in offspring. By improving the mother’s diet, which tends to be poor in women with ADHD, this study will determine if behavioral and neurologic improvements (through functional MRI) can be detected well before they would normally become clinically manifest in children. The difficulty in recruiting is not unexpected due to the low prevalence of the disorder in women of childbearing age and plans are in place to widen the population they can draw from.
Project 3: The OHSU Pregnancy Exercise & Nutrition (PEN) Program

Principal Investigator: Linn Goldberg, M.D.

The overall goal of this project is to develop and implement an eight-session, team- and web-based educational program, designed to reduce risk factors (dietary and sedentary lifestyle) to prevent gestational diabetes and excessive pregnancy weight gain. Primary outcomes will include assessment of daily dietary intake of fruits, vegetables and whole grains; daily, moderately vigorous physical activity; and self-perceived health. Secondary outcomes include a) weight gained during pregnancy, b) fasting and post glucose challenge measures of glucose and lipid metabolism, and c) parameters of newborn health.

The investigators have worked closely with the Oregon Clinical and Translational Research Institute CTRC bionutritionists to develop a healthy diet and completed creation of the educational program. Recruitment of the subjects have been randomized, with five subjects in each group, to the intervention or usual care groups. Slower than expected recruitment is being addressed through collaborative efforts with the OB-Gyn group to identify women at earlier stages of their pregnancy.

This project combines healthy diet and activity to study pregnancy and baby outcomes. After an initial delay in recruitment, it is expected that project goals will be met and pilot data will be provided on the effectiveness of these behavioral interventions.
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#### OHSU Bob and Charlee Moore Institute for Nutrition & Wellness 2013 Annual Report

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*Please note that Dr. Barker passed away in August, after the fiscal year was completed.
The financial expenses chart presented reflects the second year of operations of the Moore Institute for FY 2013 (July 1, 2012–June 30, 2013). Half of the annual gift revenues received from Bob and Charlee Moore are designated for operations of the institute. The other half of the gift is set aside and invested to support an endowed chair.

The expenses represent leadership and administrative support (infrastructure/payroll), overhead cost allocations, communications, three founding grants which were awarded in the first year of operations to be disbursed over time and other initiatives of the institute, including committee expenses and support for outreach such as symposiums and international collaboration.

*overhead cost allocations
What’s Ahead

Intervention Trials in Rural Communities
The institute is planning programs that will improve the health of Oregon women and address the obesity/diabetes epidemic within the state. It will conduct intervention trials that will address nutrition issues in rural cities in Oregon and compare them to control cities. This work will be coordinated with the Center for Developmental Health in the OHSU Knight Cardiovascular Institute.

International Summit on Maternal Nutrition
There is a need for a regular summit to discuss and implement nutrition policies for countries around the globe. The Moore Institute is planning a biannual event that will take advantage of our close relationship with the world’s experts in the field. The institute will seek joint funding partners among philanthropic groups. The outcome of the meetings will be published reports on the progress of nutritional studies for girls and pregnant women in the U.S. and abroad.

The Basic Science of Programming
Programs in placental and maternal biology will be supported through the institute, in cooperation with the Center for Developmental Health. A center will be formed to understand the mechanisms by which genes are turned off and on in different nutritional environments. The center will align with the current genomics core in the OHSU School of Medicine and the new Center for Biocomputing.

Alignment with the National Institute of Child Health and Human Development
The Moore Institute will work with the NICHD to align institute projects with its strategic plan. The institute will have regular communications with officials and program officers representing the NIH institute.

Program in Nutritional Chemistry
OHSU has an urgent need to develop experts in the chemistry of maternal nutrition. The Moore Institute will sponsor new faculty with expertise in maternal nutrition who will align with existing departments and form a virtual nutritional chemistry program. The hiring of such faculty will depend on attracting new philanthropic support.
David J.P. Barker, M.D., Ph.D., FRS

Dr. Barker, director of international collaborations at the OHSU Bob and Charlee Moore Institute for Nutrition & Wellness and professor in cardiovascular medicine, died Aug. 27, 2013. Dr. Barker had just finished his tenth year as an adjunct faculty member in the Department of Medicine at OHSU and as a member of the Heart Research Center. He and his wife, Jan, shared their time between Portland and their home in southern England, where Dr. Barker was a professor of medicine at University of Southampton.

Dr. Barker became famous for his discovery that chronic diseases like heart disease, high blood pressure, type 2 diabetes and obesity are caused more from poor nutrition in early life than from a “bad” gene code that people inherit from their parents.

His discovery came from a careful examination of birth and death records in England. He found that people born on the low end of the birthweight scale died more often of heart disease than people at the high end. He theorized that people who were smaller were more prone to get the disease because of slow growth before birth. The Barker theory changed the world’s view of chronic disease. The world now thinks differently about the origins of disease and about the care of girls and young women who will bear the children of the next generation.

Dr. Barker received many accolades including notable awards. He was cited by royalty in the United Kingdom and Thailand. He was a fellow of the Royal College of Physicians, the Royal College of Obstetricians and Gynaecologists and the Royal College of Paediatrics and Child Health. He became a fellow of the Royal Society and of the Academy of Medical Sciences in 1998. He received the Prince Mahidol Prize in 2000, the Danone International Prize for Nutrition in 2005 and the Richard Doll Prize in Epidemiology in 2011.

In 2003, Dr. Barker retired as director of the Medical Research Council’s Epidemiology Unit and moved to Oregon to join forces with scientists in the OHSU Heart Research Center and the Division of Cardiology to understand the biological mechanisms whereby poor nutrition in early life can lead to high risk for disease in later life.

During the decade of his presence in Oregon, Dr. Barker helped the Heart Research Center “developmental origins” program grow in size and national stature. Dr. Barker obtained funding from the National Institute of Aging to investigate how early life growth influences the aging process and longevity. He also participated in the National Institute of Child Health and Human Development program studying how the placenta influences the development of the heart.

“Inside [David’s] extraordinary mind, before its untimely silencing, was the brilliance, the insatiable drive for discovery and the greatest repository of knowledge on the biology of human disease the world has ever known,” said Dr. Thornburg.

David Barker was proud to be an Oregonian and he will be more remembered by his Oregon friends for his quick wit, his English sense of humor and his love for Oregon wine than for being an international superstar. His powerful impact will remain for decades to come.
Join the Moore Institute as we create permanent, positive change through nutrition now and for future generations.

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