

WEIGHING IN

The Public Health Impact & Promise of Science in Addressing Obesity CONFERENCE SUMMARY



On October 15 & 16, 2013, this conference explored the public health impact and science of obesity. The topic was examined through presentations and panel discussions by local and national experts.

“Obesity is a lurking iceberg threatening our entire public health system.”

— Dean Larry Shapiro, MD

DAY 1: KEYNOTE ADDRESS

Translating Science to Practice to Improve Population Health

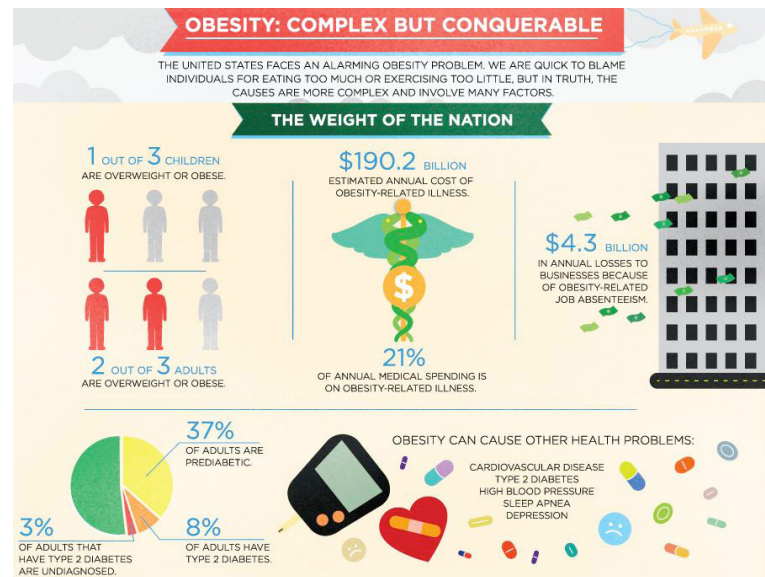
Graham A. Colditz, Washington University | [Video](#)

Obesity is on the rise and a local issue

- In 1990, zero states had an obesity prevalence of 15% or more. By 2010, every state had an obesity prevalence of 20% or more. Twelve states, including Missouri, had an obesity prevalence equal to or greater than 30%.
- The goal of St. Louis City is to reduce obesity by 5% by 2018. Forty-three percent of students attending a St. Louis Public School were overweight or obese in 2010, compared to 33% of students in the US.

The health and economic costs of obesity

- Obesity increases the risk of high blood pressure, high cholesterol, heart disease, type 2 diabetes, osteoarthritis, stroke, liver and gallbladder disease, sleep apnea and respiratory problems, gynecological problems, cancers (postmenopausal breast, colon, esophageal, kidney, pancreas, thyroid, gallbladder), and death.
- Obesity is associated with \$2,741 higher annual medical costs (in 2005 dollars), according to the National Medical Expenditure Survey and Medical Expenditure Panel Survey.



Detail from the Institute of Medicine's "Obesity: Complex but Conquerable" Infographic. For a link to the full graphic see References & Resources on p. 6

How do we address obesity?

- Addressing obesity requires everyone involved to work towards sustained collective impact through a shared agenda and measurement system, mutually reinforcing activities, and a backbone support organization.
- The New York City Department of Health and Mental Hygiene has set a national example for attempting to lower obesity rates through the use of institutional and community initiatives, mass media campaigns, and policy changes.
- Many frameworks exist for describing obesity causes and solutions. However, the adoption rate of effective research-based interventions is often slow. Changing this requires three things: knowledge base, political will, and social strategy.

For additional materials including the conference agenda, program, and videos visit publichealth.wustl.edu/2013.

DAY 1: CHALLENGE SESSION

What is being done to address the issue of obesity in the local community? | Video

- **Debra Haire-Joshu** described ongoing research at Washington University's [Center for Obesity Prevention and Policy Research](#) and the [Center for Diabetes Translation Research](#). Their work focuses on implementing programs and policies to prevent obesity in children and teens. They're also leading a project to assess local policies on healthy eating and physical activity throughout Missouri.
- **Delores J. Gunn** talked about the efforts of the [St. Louis County Department of Health](#) to lower obesity rates. Over 1 million St. Louis County residents are overweight or obese, over 60% of the population.
- **Cindy Mense** explained why [Trailnet](#) advocates for Complete Streets programs, which allow people of all ages and abilities to be more active, as well as make streets and sidewalks safer for walking and biking.
- **Millie Mattfeldt-Beman** described the [Saint Louis University Department of Nutrition and Dietetics](#) commitment to combining nutrition and cooking education. Their Gardens to Tables program, offered to local elementary schools, is a hands-on program that teaches kids to garden, cook, and how to be healthy eaters. They're also involved in a "Farm to School" project to make school lunches healthier by including locally-grown fresh fruits and vegetables.
- **William A. Peck** discussed what Washington University's [Center for Health Policy](#) has learned about the effectiveness of employer-sponsored wellness programs. He cautioned that most programs don't save money in the short term, although they can decrease absenteeism and increase morale.

AUDIENCE QUESTIONS

Here are some selected highlights from the session's Q&A:

What gaps should be addressed to turn the obesity epidemic around?

- We need **more health education and health literacy** so that people understand what it means to be overweight/obese, and how and why to make healthier lifestyle changes.
- Addressing the **built environment and improving healthy food access** is another important issue.
- It is a problem that there is no third-party **reimbursement for nutrition and dietetic services**.
- The quality of **kids' childcare and school lunch options** is another gap. The Institute of Medicine's (IOM) [Early Childhood Obesity Prevention Policies](#) report provides a roadmap for making improvements.



Debra Haire-Joshu speaking during the Challenge Session. Photo by Whitney Curtis

When addressing obesity, what's the balance between individual choice and policy?

- According to Dr. Gunn, "Implementing a policy always infringes on someone's rights. This is appropriate when the policy stands up to science and best practices."
- Creating policies that help support, rather than dictate, healthy choices, can be powerful. Dr. Mattfeldt-Beman cited a successful project placing a farmers market outside of a WIC clinic. The use of WIC coupons at the farmers market increased from 15% to 95%.

What are the legal issues involved in trying to prevent obesity through healthier eating?

- In school lunch programs, too often the food service companies determine what food gets served to students. This makes it difficult to serve locally grown fruits and vegetables in schools.
- Accordingly to Dr. Coldtitz, there is still a challenge in building awareness of scientific consensus. The same marketing firms that worked for tobacco companies are now working for food companies.



An audience member addressing the panel. Photo by Whitney Curtis

DAY 2: MORNING ADDRESS

Obesity Facts & Fantasies

Samual Klein, Washington University

Understanding obesity and the role of metabolic abnormalities

- People who are obese have 100-120 billion fat cells in their body, compared to 40 billion fat cells in lean people, and these cells are larger.
- It's well-documented that obesity leads to an increased risk for heart disease, type 2 diabetes, stroke, some cancers, many other health problems, and death.
- Two-thirds of obese men and women are metabolically abnormal. When they gain weight, they significantly increase the fat in their liver and abdomen. They also decrease their insulin sensitivity even further.

How obesity is treated

- Obesity is treated first with lifestyle changes such as diet and physical activity, second with medicines, and then bariatric surgery.
- Even a weight loss of 1-2% increases metabolic function and has health benefits. Weight loss from liposuction surgery doesn't have metabolic benefits.

Why lifestyle changes are so hard

- The human brain is the Achilles' heel of eating a healthy diet. It regulates food intake and can undermine efforts to change our diet.
- Eating a low-carbohydrate diet results in greater weight loss compared to a low-fat diet, but it's harder to maintain over time.
- Physical activity is very important for continued good health. People who are aerobically fit have a lower risk of heart disease regardless of their BMI.
- Physical activity is less important for weight loss. This is because the levels of activity needed for weight loss are much harder to achieve than "simple" changes in diet. For example, achieving a 300 kcal negative energy balance requires either substituting two diet sodas for two regular sodas or biking 8 miles in 30 minutes.

Challenge: reluctance to treat obesity with surgery and medications although they are effective

- The two most common bariatric surgeries are Roux-en-Y gastric bypass and adjustable gastric banding. Both are effective at helping people lose weight and maintain the weight loss, in addition to helping with diabetes control.
- Two new medicines to treat obesity are on the market. They can help people lose up to 10% of their body weight.

"The human brain is the Achilles' heel of eating a healthy diet."

– Samuel Klein, MD

DAY 2: SESSION 1

Pathophysiology and Metabolic Issues in Obesity

Taking a Metagenomic View of Human Nutrition and Obesity by Peter Turnbaugh, Harvard University | Video

- Studies manipulating gut microbes in mice show there's a link between gut microbes and obesity. "Lean" gut microbes have a protective effect and gut microbes can even predict BMI in humans. Gastric-bypass surgery alters gut microbes within one week in a manner that contributes to weight loss.
- Although human gut microbes have been linked to different diseases and we have the ability to reshape microbes through yogurt, probiotics, and fecal transplants, these aren't yet grounded in a deep understanding of the molecular mechanisms.
- *Next steps:* Can gut microbes be manipulated in humans in order to prevent or treat obesity?

Lipid Synthesis in the Pathogenesis of the Metabolic Syndrome by Clay Semenkovich, Washington University Video

- People who are overweight/obese often have metabolic syndrome, a group of risk factors that raises the risk of heart disease, type 2 diabetes, and stroke
- Fatty acid synthase (FAS) is a protein required for the body to use fat. In mice studies, the actions of FAS change depending on the presence of insulin, which turns cells that store fat into cells that burn fat. When FAS is removed from muscles, there is a protective effect against diabetes.
- *Next steps:* Could the inhibition of FAS be the target of new medicines to treat diabetes and related metabolic disorders?

Obesity and Heart Failure by Linda Peterson, Washington University | Video

- Obesity increases the risk of heart failure. One in 5 patients diagnosed with heart failure will die within 1 year, and 11-14% of heart failure diagnoses are attributable to obesity alone. A higher percentage of obese patients have Heart Failure with Preserved Ejection Fraction (HFpEF), for which no effective treatments exist. When obese patients with HFpEF lose weight, there's not much change in blood pressure but they do show improvement in heart function, symptoms, and metabolism problems.

DAY 2: SESSION 1 (con't)

Pathophysiology and Metabolic Issues in Obesity

- *Next steps:* How can we better understand the biological pathways of HFpEF in order to develop effective treatments?

Implications of Vitamin D and Obesity in Cardiovascular Health by Carlos Bernal-Mizrachi, Washington University Video

- Half of the U.S. population is deficient in Vitamin D and the obese are at particular risk of deficiency. Those with sufficient Vitamin D have half the risk of developing metabolic syndrome and type 2 diabetes. Vitamin D may help to control blood pressure in patients with diabetes, high blood pressure, and vitamin D deficiency.
- In patients with diabetes, Vitamin D may play a role in foam cell formation. Foam cells are a sign of plaque build-up in the arteries, or atherosclerosis. Vitamin D may also affect white blood cell properties that help to reduce plaque build-up in the arteries.
- *Next steps:* What are findings from clinical trials designed to test if Vitamin D plays a role in reducing the build-up of plaque in the arteries and lowering the risk of cancer, heart disease, and diabetes?

DAY 2: SESSION 1 | Panel Discussion

Translating the Science | Video

As scientists we need to understand biological mechanisms, but should we take the bold step of human studies?

- Dr. Klein responded by asking, "How much data do you need to implement policy? We can't wait. We need to bring groups together to solve this multi-pronged problem."
- Dr. Peterson agreed, and suggested trying different things at the same time in a controlled manner so they can be studied.

How can primary care providers halt obesity earlier?

- The panelists identified several action steps for doctors to take. Dr. Bernal-Mizrachi emphasized that teaching and prevention are key, while Dr. Peterson reminded attendees about the opportunity to teach patients how to exercise and change their diet after a heart attack.
- Providers don't feel that obesity is a treatable disease, said Dr. Klein, nor do they have the time to address chronic health issues. He feels this is a policy issue, pointing out the shortage of primary care providers, the lack of obesity courses offered in medical schools, and that treatment of obesity isn't reimbursable.

Is sugar an addiction?

- The answer is not clear-cut for humans, according to Dr. Klein. We have a preference for sweets, salt, and fat and the "reward center" in the brain affects all of our eating. For humans, unlike animals, other cues may be more important.

"The science and the obesity epidemic are advancing at a tremendous rate. We need to address both as aggressively as we can."

– William G. Powderly, MD

DAY 2: SESSION 2

Challenges in Childhood Obesity

Obesity in Children: A Systemic Malady by Gautam K. Singh, Washington University | Video

- In children, a BMI \geq the 85th percentile indicates overweight (32% of children) and a BMI \geq the 95th percentile indicates obesity (17% of children). In addition to sharing many of the same health problems that obese experience, obese children have an increased risk of heart disease. It's not clear if their heart function will improve with future weight loss or how their hearts will function in adulthood.
- *Next steps:* Continue to observe trends the health outcomes of obese children to better understand how obesity affects their health across the lifespan.

Obesity in Special Populations: Characterizing and Treating Obesity in the Mentally Ill by Ginger E. Nicol, Washington University | Video

- One out of every five children has a mental disorder. Children who are obese have a higher lifetime prevalence of mood and anxiety disorders, resulting in a poor self-image, bullying or being bullied, and suicidal behavior. Many mental illnesses are treated with anti-psychotic medications but they cause weight gain and decrease insulin sensitivity. Over 10 weeks, a child can go from being a normal weight to obese and develop decreased insulin sensitivity.
- *Next steps:* What are the best ways to optimize the treatment of mental illness and obesity?

DAY 2: SESSION 2 (con't)

Challenges in Childhood Obesity

Prevention and Treatment of Childhood Obesity: Evidence, Challenges, and Future Directions by Denise Wilfley, Washington University | Video

- Preventing childhood obesity prevents adult obesity. Early intervention is crucial. Family-based behavioral treatment programs are effective at helping children lose weight. When caregivers at all levels – family, peers, school, community, and neighborhood – provide support, children are more successful at maintaining their weight loss. Internet-based programs have the greatest impact and reach when they're offered to a school-based population and targeted to level of risk for overweight.
- *Next steps:* How can we identify who's at risk, integrate effective weight management interventions across multiple levels of care, and tailor the interventions based on children's risk?

DAY 2: SESSION 2 | Panel Discussion

Challenges in Childhood Obesity | Video

What are the biggest challenges we face in addressing childhood obesity?

- Dr. Wilfley identified the larger environment, the built environment, and food cues as important challenges. She also said doctors need to intervene and talk to parents, who often have food issues themselves.
- Dr. Singh recommended changes to the National School Lunch program because it provides 2/3 of daily calories for many children.
- Another challenge is that we still don't have a good understanding of the problem and who's at risk, according to Dr. Nicol. Until we do, we're not able to target interventions that might help. We also need to have systems that incentivize us to treat obesity

Does HIPAA get in the way of sharing patient information among providers to identify or refer those at risk?

- Dr. Nicol and Dr. Wilfley agreed that HIPAA doesn't prevent the sharing of information. Getting the right information is a bigger problem. Many providers don't have an easy way to calculate BMI when they're with patients.

Ultimately, policy initiatives allow us to become healthier. How can we enact policies without stigmatizing the obese?

- The panelists emphasized the need to provide more support for early intervention to prevent and treat obesity. One example can be found in Finland, said

Dr. Singh, which once had some of the highest rates of heart disease and high blood pressure in the world. Among other things, Finland created a health program that starts at two years of age, focuses on children's diets, and provides access to a nurse.

- Dr. Wilfley compared obesity policies to bicycle helmet policies: even when bike helmets are required we would still help someone who's injured on a bike, and we should do the same for someone who's obese.

DAY 2: AFTERNOON ADDRESS

A Systems Approach to Childhood Obesity

Terry T-K Huang, University of Nebraska | Video

A systems view asks not only what but how and if

- Many factors—policies, the physical environment, the social environment, the health care system, family practices, and individual behavior—intersect to contribute to obesity. They can also contribute to the solution.
- Physical and social environments enable and/or constrain the behavior of families and children. How can we enhance and/or disrupt these social networks?

Issues to consider before intervening

- Is the community ready to address this issue?
- How can we best optimize the policy impact?
- What kind of community outcomes do we want?
- How can we integrate sustainability, scalability, and reach throughout the intervention?
- How can we utilize evidence-based practice and practice-based evidence to make the intervention more effective?

Strategies to encourage a systems approach

- Create consumer demand for policy action through media advocacy and effectively framing the obesity message.
- Use tools such as creating policies, enacting regulations, passing legislation, and innovating in order to address childhood obesity.

Systems approach examples

- [SaludableOmaha](#) Latino Health Movement in Omaha, Nebraska is a youth-led obesity initiative with an online, school, and neighborhood presence.
- [Buckingham County Primary and Elementary Schools](#) in Dillwyn, Virginia was designed with students' health and obesity prevention in mind: a visible food preparation area, a teaching kitchen, common areas with chairs that encourage movement, and gardens where students grow some of the food served at lunch.

REFERENCES & RESOURCES

from Dr. Colditz's talk

Salt, Sugar, Fat: How the Food Giants Hooked Us by Michael Moss (2013), Random House, New York, NY.

Obesity: Complex But Conquerable. Infographic from the Institute of Medicine

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<http://www.nejm.org/doi/pdf/10.1056/NEJMoa042135>

from the Challenge Session

Preventing Childhood Obesity: Health in the Balance by the Institute of Medicine

"Preventing Childhood Obesity: A Conversation with Wash U's Debra Haire-Joshu" on St. Louis Public Radio, 11/7/13

<http://news.stlpublicradio.org/post/preventing-childhood-obesity-conversation-wash-us-debra-haire-joshu>

from Dr. Huang's talk

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For additional materials including the conference agenda, program, and videos visit publichealth.wustl.edu/2013.



Poster session participants discussing their work. Photo by Whitney Curtis

CONFERENCE PARTNERS

This conference was organized by Washington University's Institute for Public Health and the Center for Health Policy, in collaboration with the Center for Human Nutrition, Center for Obesity Prevention and Policy Research (COPPR), Center for Diabetes Translation Research (CDTR), and Transdisciplinary Research on Energetics and Cancer (TREC) Center.

CONFERENCE SPONSORS

Conference support was generously provided by the Longer Life Foundation, the Fox Family Foundation, and Washington University's School of Medicine and Center for Diabetes Translation Research at the Brown School.