

CHILDREN FIRST: Promoting Ecological Health for the Whole Child
October 1, 2010
Osher Center on Integrative Medicine
University of California, San Francisco

Summary by Alice Shabecoff

Why are many chronic diseases and disabilities on the rise among America's children? How can we re-envision and integrate different sectors of society—from medicine to education to agriculture—to improve our children's health and well-being? What models are already available to us that are prevention-focused, evidence-based, and systems-oriented that we could develop further? These questions were central to the "Children First: Promoting Ecological Health for the Whole Child" symposium held October 1, 2010 in San Francisco. The organizers and speakers, who are prominent leaders from diverse fields, made it clear there is no one answer. Only through collaborative partnerships, they emphasized, can we design integrative approaches and interventions towards creating an ecological health system that better protects current and future generations.

After Dr. Margaret Chesney, director of the Osher Center on Integrative Health, warmly welcomed participants, Elise Miller, MEd, director of the Collaborative on Health and the Environment, the nation's premier forum for raising the scientific and public dialogue on environmental health research and its implications for human and ecological health, explained the impetus for her to work with Dr. Lawrence Rosen and Dr. David Becker to organize this symposium. "The stressors on our children are manifold and interrelated, so the interventions must be, too. We're trying to build common ground among a range of disciplines so that all children can reach their full potential."

"Exposures to toxins in the environment, as early as fetal development, can be major stressors for a developing child," Ms. Miller explained. "Those exposures also interact with socioeconomic factors, nutrition, and gene-environment interactions in complex ways. The emerging science indicates these varied environmental influences are associated with the increasing rate of chronic diseases and disabilities among children. Childhood cancer, once a rarity, is now the leading cause of childhood death. Obesity among children has swollen by 45% over the past ten years, while adult onset diabetes, which afflicted only 5% of our children just a short time ago, is up 50%. One out of six children suffers from a learning, developmental or behavioral disability, with one out of 110 children now diagnosed with autism." Further, Ms. Miller added, "New research suggests that a number of chronic diseases that show up later in life may be the result of exposures in the womb and early childhood."

"This unacceptable state of affairs cannot be addressed by a piecemeal approach to health care," she concluded. "Instead, we need to integrate the wide array of evidence-based practices spearheaded by the holistic care movement into traditional Western medical models."

Dr. Lawrence Rosen, a lead organizer of the conference and founder of the Whole Child Center, took the podium after Ms. Miller. He explained, “The conference’s primary purpose is to create a broad-based and ongoing coalition among diverse sectors concerned with addressing all aspects of children’s health.”

Using his practice as an example, Dr. Rosen described integrative pediatrics as a wellness model, focusing on the child’s innate balance of health and on the pediatrician’s relationship with child, the family, and the community in which they live. “Improving the care of children, our most precious resource, will improve the world. This must be a priority,” he urged. Dr. Rosen noted, “Conventional western medicine is about fixing disease after the fact, usually one disease at a time, and it’s fragmented, reflecting the values of the current health care system, not of the individual. The precautionary principle – essentially, first do no harm - seldom guides today’s health care policy.”

Linking Environmental Health Science and Children’s Health

Dr. Cynthia Bearer: The gene-environment interaction

“Few disorders are purely genetic in origin,” explained Dr. Cynthia Bearer, Chief, Division of Neonatology at the University of Maryland School of Medicine, Department of Pediatrics. “Rather, they are the result of the interaction between genes and environmental factors, especially during fetal life and early childhood.”

“During the 1950s, when thalidomide was prescribed for pregnant women to prevent nausea, the result was tragic.” If taken during the gestational time in which limbs develop, those babies were born with deformed arms and legs. That was one of the first hard lessons about the effect of chemicals on the fetus. Yet, Dr. Bearer pointed out, “Only 15%, not 100%, of the exposed babies ended up with a limb disorder. That was one of our first clues to the influence of the parent’s genetic disposition.”

“But how is it that identical twins, who share identical DNA, don’t continue to be identical as they grow up?” she challenged. Recently science has begun to understand that conundrum: “Because, as the children grow and develop, their exposures are different, and each of those modifications changes the way the child’s genes express themselves.” (The process of gene expression is also known as epigenetics.) Dr. Bearer offered an example of gene expression, noting, “A worker honey bee fed royal jelly as a larva will become a queen bee. Similarly, if a mouse is fed a diet containing BPA, its coat color deteriorates...but if folic acid is added to this BPA-loaded diet, the coat retains its natural color; both are the result of gene expression.”

“This new understanding of epigenetics explains why interactions with the world are so important to how we become human beings,” Dr. Bearer emphasized. By understanding epigenetics, we can understand how influences such as diet or heavy metals or toxins result in an internal dose that alter the function of cells and lead to different outcomes. But, Dr. Bearer added, “Epigenetic changes also result from influences other than

chemicals, such as witnessing violence or experiencing wilderness or listening to music; these changes are behind the development of a criminal mindset, the appreciation of music, the development of language, or of leadership.”

“Nurture can in fact trump nature.”

Dr. Kathy Shea: The impacts of climate change on children’s health

“No change in the natural world will be more severe than global climate change,” according to Dr. Kathy Shea of the University of North Carolina-Chapel Hill. She was the first author on the first major report on climate change and child health, which was released by the American Academy of Pediatrics in 2007. “Climate change is the most urgent symptom of the way humans are living on the earth in an over-consumptive, dangerous, unsustainable way. The impacts on health and the health of future generations have been substantially ignored.”

The threat is gravest to our children because they are among the most vulnerable. Rather than being a cause of new illness, climate change is an effect modifier that will exacerbate several categories of health problems. It will make things worse, with both immediate and long-term consequences. Dr. Shea warned that we can expect more heat-related deaths and illnesses, increased injury and death from weather events, as well as more death and disease due to increased air pollution, water-borne, and food- and vector-borne infections. She said that the World Health Organization estimates that 80% of the harm will be borne by children in low latitude, poor countries, in the poorest parts of the globe, but all populations will be affected.

“We need to change the way we live at all levels of society, to make iterative changes in our personal, professional, and political lives. We need to change what we consider desirable. If we work together in our communities, we can create a critical mass of committed people who collectively will be able to make change.” Practicing what she preaches, Dr. Shea is a leader not only in her professional work, but also in her own town, working on a plan for transitioning to a lower-energy, carbon neutral community.

Dr. Barbara Sattler: Nurses spearheading holistic health practice

The nursing profession is leading the way toward a more protective and holistic practice of health care. The recently-organized Alliance of Nurses for a Healthy Environment, reported Dr. Barbara Sattler, its founder (and director of the University of Maryland School of Nursing), is now building a movement to make sure that environmental health is part and parcel of nursing education, practice, research, and policy. Rather than offering one separate course at a nursing college or university, the Alliance is working to integrate environmental health into all aspects of the nursing curriculum across the country. They are making their profession’s voice heard on policy issues such as the urgent need to reform our nation’s regulation of industrial chemicals.

The Alliance is also working to devise ways to make sure that America's health care institutions, from hospitals to hospices to the expanding network of community health care centers across the country, integrate environmental health into their work, recognize environmental health care as a "green job," and make their facilities green. "We look forward to the day when our nation builds cancer care centers that are free of the chemicals that cause cancer, and carbon neutral. And pediatric clinics free of chemicals that trigger asthma." Of course, there are challenges. For one: nurses should be taking each patient's environmental history, a time-consuming step, which at this point is not reimbursed. But, as Dr. Sattler emphasized, the nursing profession has unusual strengths to succeed at this work. "We are seen as people who are trusted, people who fix things."

Creating the framework for optimal healing environments

Dr. Wayne Jonas: Shifting from sickness care to healing and wellness

"The very way we think about health care must change," said Dr. Wayne Jonas, president of the Samueli Institute and a long-time leader in complementary medicine. "Our whole framework has become unbalanced—we look only to 'the cure' of a particular condition with a particular intervention. We must transform sickness care to include healing and wellness, tapping into the inherent capacity of the body to repair and return to health." Since the mid-1990s, when many scientists considered complementary medicine as quackery, Dr. Jonas has been moving the field to understand the science and mechanisms that underlie healing, and to incorporate these elements into health care practice. "We must make healing as important as curing."

The definition of an optimal healing environment (OHE) that has emerged from Jonas' work is "a system and place, comprised of people, behaviors, treatments, and settings that will stimulate and support the inherent healing capacities of the participants." The physical surroundings of treatment set the stage: when you enter a hospital emergency room, you become a sick person, a patient, disempowered. In contrast, the expectation and hope of recovery results in major clinically proven healing effects. The built environment—such as one suffused with natural light—is another factor, and the power of interpersonal relationships can also heal. For example Dr. Jonas said that the emotional effect of a communication from a doctor, whether positive or negative, can have a large impact on outcomes for a number of conditions.

Healing also needs to include prescriptions for diet, behavior, and relaxation. Dr. Jonas added that few Americans currently follow these prescriptions.

Restoring Children to Nature

Richard Louv: Recognizing the healing power of nature

The way our children's lives are organized these days excludes spending time playing and simply being in nature, in those special calming and restorative places we adults recall from our own childhood. This disconnect is in essence a radical experiment that

has grown worse over the past 30 years. “For all of human history,” said Richard Louv, author of *Lost Child in the Woods*, “children have been outside playing or working.” Now they are in essence “under protective house arrest.” The hours children spend plugged into their computers has sharply risen from 44 hours a week just three years ago, to 53 hours in 2010.

Louv has coined the term “nature deficit disorder” for the harm done to children by a lack of exposure to the natural, outdoor environment. This lack of exposure has been found to contribute to mental and physical problems, as well as obesity and depression. In contrast, contact with the natural world has been found to reduce ADHD symptoms, reduce stress, improve motor capacities, and increase creativity.

Underscoring ideas proffered by E. O. Wilson and others, Louv explained that people are hard wired for nature, and we and our children have a human right to nature. “Humans and nature are not separate; nature is not ‘the other.’”

In response to this trend toward “nature deficit disorder” some parents and communities have begun to deliberately and proactively reconnect children with nature. Parents are forming “Family & Nature” clubs, developing “green” exercise programs, and setting up gardens on school grounds. All of these activities bring an awareness of how humans are part of the natural world. Louv stresses that such steps offer hopeful models in the face of many stressors to our children’s health.

Fritjof Capra: Educating children for sustainability

“Implementing K-12 curriculum that underscores the need to support and protect the earth’s inherent ecological systems is critical to our efforts to create a sustainable world,” explained Dr. Capra, founder of the Center for Ecoliteracy, a leader in the ecological education movement. “We believe that education plays a pivotal role in moving us beyond our growing environmental crises and toward a sustainable society.”

The Center has, over the past two decades, developed the framework and tools to accomplish this goal. The Center’s seminal program, “Smart by Nature,” includes the development of school gardens, changes in school food, and strategies for greening campuses, creating green curriculums, and conducting environmental audits.

Students explore questions such as: Where does our food come from and how is it produced? How does culture shape our food choices and behavior? What is the relationship between food choices and health? And what are the links between our food and the environment? Responding to these questions can help transform schools into models of sustainable communities as well as ensure that students graduate from high school not only literate in reading, writing, math, and science, but also literate in ecology and sustainability.

Dr. Capra sees this as an essential part of education, given that today's young people will inherit a host of pressing—and escalating—environmental challenges. They need to learn how “think ecologically, understand the interconnectedness of human and natural systems, and have the will, ability, and courage to act.”

Joel Kreisberg: Creating a sustainable vision

Dr. Kreisberg discussed how the intellectual framework for complementary medicine developed through his Teleosis Institute can help transform health care—or as some say “sick care”—into prevention-oriented care for the whole person.

Drawing from his research and the Institute's programs, he shared that “cultivating sustainability requires a commitment not only to making change but also an understanding of why we seek to make change. We need to form learning communities built on the pillars of integrity and mutuality, capable of continuing transformation towards great social justice and harmony with the natural world.”

He then led the group through reflective exercises to emphasize that our own health care begins by simply being attentive to our present experience.

Nutrition and Children's Health panel

No ingredient could be more basic, more essential for nurturing a whole child than nutritious, unprocessed, whole foods. But that's not such an easy prescription. Dr. David Becker, professor in the University of California-San Francisco Department of Pediatrics, and the third lead organizer of the conference, quoted a recent *New York Times* headline: “Told to eat its vegetables, America orders fries.” He added, “Though the national recommendation is five to nine servings of vegetables and fruit a day, the latest survey finds that less than 25% of our adult population eats three or more.” He elaborated, “Americans eat by a different set of standards: before we want health, we want taste, convenience and low cost. Despite what we know about the science of nutrition and what contributes to our health, simply saying this clearly isn't working—just look at statistics about nutrition-related illnesses, such as obesities, diabetes. This means we need to figure out how to creatively address this problem—and this panel of experts will describe some successful models that are being established across the country.”

Daphne Miller: Using all possible domains to make change for healthier eating

As a primary care physician who has searched the U.S. and overseas for models to get Americans to eat more wisely, Dr. Miller, of U.C. San Francisco's Department of Family and Community Medicine, showed that, “We have a wide range of opportunities to make changes in different domains.”

“Let’s start with food stores and food labels. There’s no quagmire more frightening than a walk down the aisle of our conventional grocery store. Our labeling system, so poorly controlled by the FDA, is not working, except to sell products. So we can work with organizations, such as Oscar Guardado’s [see below for Guardado’s presentation], and we can help patients by telling them what to look for on labels.” Dr. Miller added that she keeps samples in her office to show people what real food is. She also suggested that we ask stores to arrange healthier foods in more eye-catching places—for instance, where the cigarettes used to be.”

Packaging is a domain in and of itself. A Yale study showed that if food comes in a package embellished with a cartoon character, kids will like it more even than if it’s the exact same as food in a cartoon-free package. Dr. Miller’s tongue-in-cheek advice: “Paste cartoon characters on packages of healthy foods in your office. Or just don’t let kids watch cartoons.” Calculating the calorie count for a food item does succeed (somewhat) in decreasing calorie consumption, Dr. Miller reports. This fact inspired her to get a local tearoom to tally the calories on its menu. But, she added, the information “is not always acted upon.”

Dr. Miller discussed the importance of collaborative partnerships. She gave examples, such as the National Heart and Lung Institute (a federally-funded group) that has implemented a “We Can” program which scores foods as “Go” foods (vegetables), “Slow” foods (eat a bit less of items such as full fat yogurt), and “Whoa” foods (ones to avoid completely). She noted that this would be a fine mechanism if the food choices were better than the ones in the institute’s listing. “This is another opportunity for integrative health professionals to shoulder with patients to construct their own pyramid using a list of foods they like.”

Simple changes can be introduced to public venues, such as parks and public lands. For example, Dr. Miller suggests taking soda and candy out of vending machines and substituting healthy items. Hospitals are another important arena in which a now international coalition named Health Care Without Harm is encouraging hospitals and local farmers to work together. “Kaiser now discharges patients with a box of vegetables instead of a month’s meds,” Dr. Miller noted.

Other opportunities Dr. Miller described include: connecting people with their local farms through farmers markets; partnering with churches to bring food from farms into low-income communities; growing food right in the middle of town as community gardens; and building boxes large enough to grow some foods right in people’s backyards. Hands-on farming experiences, such as HealthBarn USA (see presentation below) and “Edible Schoolyard” projects that can change kids’ knowledge base and behavior are also important. “They get kids to eat foods like Diakon radishes—something they never would have otherwise, and now these kids will eat Diakon radishes for life.”

Oscar Guardado: Making nutritional change through family and community outreach

“The food we select is influenced by the social, economic, and cultural environment in which we live,” Mr. Guardado, bilingual health educator in low-income communities in Marin County, reminded the symposium participants. “And that includes cost, availability, and advertising.” In the San Rafael communities where he provides nutrition guidance, he finds, “Healthy habits learned at school are not supported at home. Many parents are working two jobs. They are stressed, and their choices of cultural legacy foods are sometimes unhealthy. Advertising also creates a strong desire for unhealthy food. Parents need to be positive role models.” Observing these challenges led him to develop a new model for change.

The new initiative Mr. Guardado developed and implemented includes cooking classes for parents and offering nutritional information and cooking advice with a focus on local and seasonal fruits and vegetables. These classes provide participants with cookbooks containing easy-to-prepare healthy recipes. Gardening instruction is another part of the model program.

The program also tries to connect parents and their families with nature. For example, taking families walking on park trails: “We find ways to link our walk with talk about nutrition.”

His initiative extends further. “We try to transform the food environment by working with retail stores to improve the foods they stock as well as how they display the food.” The community’s local radio and public access TV participate as well, even using familiar cartoon characters to get the message across about healthy food.

He ended optimistically by emphasizing, “We can succeed. Where there’s a will, there’s a way. Si, se puede.”

Stacy Antine: Learning nutrition by growing brussel sprouts

HealthBarn USA is just such a model, devised by Stacey Antine. Her program takes city children and their families out to a working farm in the countryside where they learn about eating and enjoying nutritious food by getting their hands in the soil, growing their own fruits and vegetables, and then cooking what they’ve grown and picked. “It takes place on a farm. It’s experiential, it’s fun.” So far 30,000 kids have participated in the program.

“This kind of work,” Ms. Antine pointed out, “is fueled by the urgency of knowing that this is the first generation of kids who will likely not outlive their parents because of poor lifestyle habits.”

“I’ve found we have an epidemic of picky eaters, which means they eat only chicken nuggets and pasta with butter. There are so many hysterical parents terrified because their kids won’t eat vegetables.” Ms. Antine noted that these challenges stem from the fact that many parents are tired of the battle, no one likes to cook any more, and everyone is

overscheduled with non-family activities. “They’re not together as a family, including they’re not eating as a family. Do parents eat vegetables? Do they reward with Dunkin Donuts?” She is concerned that even skinny children suffer from high cholesterol, based on their diet. Her advice: “Get rid of the Doritos and eat a balanced diet.”

Because she has found that most nutrition education is either antiquated or doesn’t exist, her program includes training for dieticians. She discovered that professionals who are trained in nutrition “usually don’t cook themselves and can’t recognize vegetables when they’re growing out in the field.”

“It’s amazing to realize kids are afraid to eat brussel sprouts where they’re not afraid to eat a neon green Gogurt.”

The kids will likely start choosing more brussel sprouts and other nutritious food after they’ve grown their own food. The HealthBarn program creates opportunities for kids to make a meal together, and there is a model grocery store where they learn to read labels and can recognize the difference between artificial and natural food. In addition, they learn about composting—they quickly realize that Gogurt doesn’t compost. They collect leftover foods in school assemblies and take them back to the farm to compost.

“Good healthy eating is the one thing that will have greatest impact on their health. It’s not complicated; it includes lifestyle changes such as getting a good night’s sleep, planning family meals, eating together.”

Like Mr. Guardado, Ms. Antine believes we can make these changes: “Let’s not be fatalistic about problems and instead put out the message that there are great examples out here.” HealthBarn is one of them.

Tieraona Low Dog: The greening of medicine

“You can’t talk about whole children if you don’t talk about how they came into the world,” Dr. Tieraona Low Dog said in the final session the conference. “How do we want the world to be for them? What kind of environment would be suitable? If we could answer that question, we could build a blueprint of what we would like to work for.” Yet, the reality of what our children encounter in today’s way of birth and life is much at odds with our dreams for them. Dr. Low Dog showed how, through the stages of our children’s lives, the reality falls far short of the blueprint we envision.

We conceive our children in a sea of pollutants. “The first environment that you and I ever lived in, the womb, is becoming more and more contaminated. Two hundred chemicals were found in the umbilical cord of babies, fresh from the womb,” Dr. Low Dog said, referring to a study by the Environmental Working Group. “The fact that this doesn’t disturb people on a really deep level disturbs me ... What we are exposed to within this first environment affects us throughout life. Scientists have begun to recognize this phenomenon, which they refer to as ‘the fetal origin of adult disease,’

which causes changes in genetic expression.” But indigenous peoples have understood the importance of the maternal fetal connection for centuries if not millennia. Dr. Low Dog described how, when she once went to consult a Navajo Healer for a chronic health condition, he told her that she needed to bring her mother. Without hearing her mother’s story of her pregnancy, he would be unable to help her. “He wanted to know what she dreamed, what she ate, what she feared, if she was in good relationship with her loved ones. He told me that the story goes back to what happened inside my mother.”

Dr. Low Dog then asked the audience to consider the environment in which birth takes place in the United-States. “Imagine how our children come into the world. We have absolutely medicalized the birth process.” Caesarian section rates were roughly 4.5% in 1965, when the rate was first measured. Now it stands at 32%. “There’s no question that we’re doing harm.” And why is this? Some of it can be traced to the growing problem of obesity (which makes vaginal birth harder). But, Dr. Low Dog asserts, “A large part of our early inductions are done for convenience, whether for the mother or the clinician.”

Elective inductions, especially when performed before the cervix is ready, almost always lead to a cascade of events, including continuous fetal monitoring that restricts the mother’s movement and increases her pain; more pain management; and more C-sections. It takes longer for the mother to heal and is more difficult to initiate breastfeeding.

“Breastfeeding for four to six months can help reduce the risk of infections, obesity, and diabetes for the child and breast cancer for mother. As a breastfeeding mother, I can tell you, there is nothing quite like knowing that I was giving life and nourishment to my child.”

Another barrier to breastfeeding is, again, the pressure of time. The mother of a newborn gets six weeks off from her job, at best. And pumping, too, is made inconvenient by the arrangements and attitudes of our society.

“If we really value children, why are we doing this?”

When our children begin to eat solid foods, here too our current practices do harm. Dr. Low Dog calls us to consider the vast use of antibiotics. “Seventy-one percent of antibiotics now are used in the ordinary production of livestock in factory farms. This is a rising threat to our health as 60,000 Americans die each year from infections that are resistant to antibiotic treatment.” Pleading for limiting the non-therapeutic use of antibiotics in animals, Dr. Low Dog went on to the broader question of how we might envision treating infection. “What if, instead, we gave equal weight to discovering and using therapeutic measures that nurture the immune system and enhance our innate resiliency?” She pointed out that herbal medicine might be a particularly useful resource.

As our children grow, they encounter a world rife with unnatural stresses. She spoke of the hours of homework assigned to her young daughter in fourth grade, leaving little time for play, downtime, and imagination. Longer days in school, less time outside for recess,

lack of physical education in upper grades, poor diet, and a hectic family life all create pressures that lead to millions of psychoactive medications for children, especially young children.

“What we heard today, we heard hundreds of years ago from our parents, our grandparents, and their parents. Eat right, let our children play; stop scheduling their lives away. Unplug, go for a walk in nature, and find your voice again. Never leave the house without telling your children you love them.”

Summing up the day, she said that she felt re-inspired. “This day has been a gift.”

Organizers, co-sponsors, funders and resources.

This symposium was hosted and organized by the Osher Center of Integrative Medicine of the University of California San Francisco, the Whole Child Center, and the Collaborative on Health and the Environment. For more information on the event’s co-sponsors, funders, and speakers as well as resources and audio recordings of presentations, please see: <http://www.healthandenvironment.org/news/conference>

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