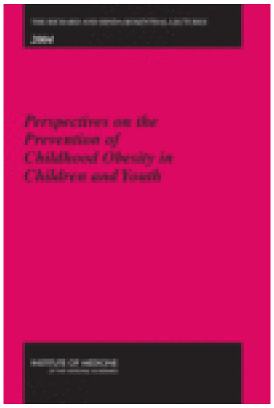

The Richard and Hinda Rosenthal Lectures 2004: Perspectives on the Prevention of Childhood Obesity in Children and Youth

Institute of Medicine

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THE RICHARD AND HINDA ROSENTHAL LECTURES
2004

Perspectives on the Prevention of Childhood Obesity in Children and Youth

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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Foreword

In 1988, an exciting and important new program was launched at the Institute of Medicine (IOM). Through the generosity of the Richard and Hinda Rosenthal Foundation, a lecture series was established to bring to greater attention some of the critical health policy issues facing our nation today. Each year a subject of particular relevance is addressed through three lectures presented by experts in the field. The lectures are published at a later date for national dissemination.

The Rosenthal lectures have attracted an enthusiastic following among health policy researchers and decision makers, both in Washington, D.C., and across the country. Our speakers are the leading experts on the subjects under discussion and our audience includes many of the major policymakers charged with making the U.S. health care system more effective and humane. The lectures and associated remarks have engendered lively and productive dialogue. The Rosenthal lecture included in this volume captures a panel discussion on the IOM report, *Preventing Childhood Obesity: Health in the Balance*. There is much to learn from the informed and real-world perspectives provided by the contributors to this book.

I would like to give special thanks to our Dr. Jeff Koplan and the committee. In addition, I would like to express my appreciation to Bronwyn Schrecker, Jennifer Bitticks, Jennifer Otten, Shira Fischer, Cathy Liverman, Vivica Kraak, Linda Meyers, and Shannon Wisham for ably handling the many details associated with the lecture programs and the publication. No introduction to this volume would be complete, however, without a special expression of gratitude to the late Richard Rosenthal and to Hinda Rosenthal for making this valuable and important education effort possible and whose keen interest in the themes under discussion further enriches this valuable IOM activity.

Harvey V. Fineberg, M.D., Ph.D.
President
Institute of Medicine

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Welcome

Harvey V. Fineberg

DR. FINEBERG: Good evening, and welcome to the Institute of Medicine (IOM) and tonight's Rosenthal lecture program. It is a pleasure to welcome all of you to this evening's event. We have a tradition, now going back 16 years, of annual lectures funded by the Rosenthal Foundation. Richard and Hinda Rosenthal are great friends of the IOM. Richard Rosenthal had been very active in the President's Circle of the National Academies until his passing some years ago. His widow, Hinda Rosenthal, continues to this day to be actively interested in the work and activity at the IOM.

This lecture series, named in Richard and Hinda's honor, is part of the program and effort of the IOM to reach out to a little larger public to discuss issues of great moment and consequence in health and health care. We are very privileged this evening to be able to talk together with a marvelous panel on the subject of preventing childhood obesity. As I think all of you are aware, this topic was the subject of a report that was released by the IOM the end of September. It is a report that was the product of many months of work by a very active and energetic committee, chaired by the chair of our program this evening, Dr. Jeffrey Koplan, whom I will introduce in just a moment.

I want to acknowledge and thank Dr. Shirley Watkins and Dr. Shiriki Kumanyika, in addition to Dr. Koplan. Also with us this evening we have several members of our Food and Nutrition Board who oversaw the effort to create the report. Members of our Board on Health Promotion and Disease Prevention are also with us tonight. We are very happy to have all of you with us this evening as well.

This project was made possible by a number of funders from both the government and the private sector. They include the Centers for Disease Control and Prevention (CDC), the Office of Disease Prevention and Health Promotion in the Department of Health and Human Services, the National Institute of Diabetes, Digestive, and Kidney Disease, the National Heart, Lung and Blood Institute, the National Institute of Child Health and Human Development, and the NIH Division of Nutrition Research Coordination.

We also were very fortunate to garner support from the Robert Wood Johnson Foundation. Not only has the foundation played a part in the support of the project that led up to the report, but it has also undertaken with us an activity to promote the ideas generated by the report to solve the problem of childhood obesity in the United States and to work together to eliminate and reverse this epidemic.

The obesity epidemic hasn't always existed, but it is an epidemic that has emerged so rapidly that it is stunning when you think about its impact in demographic terms. In the last 30 years in the United States, the prevalence of obesity has more than doubled in children aged 2 to 5 years; in adolescents, age 12 to 19 years, it has also doubled. In children aged 6 to 11 years, it has tripled. The frequency of the problem has increased in very dramatic terms. Defining the scope and nature of the problem, describing the multiple approaches necessary to solving it, particularly the importance of approaching the problem simultaneously as a community and population-based activity, was a hallmark of the work of the committee that Dr. Koplan chaired.

Dr. Koplan is an individual whose preparation for this work was as ideal as one could imagine. His own background in medicine and public health includes work in the United States and overseas on a whole range of disease and health promotion concerns. Dr. Koplan also served as the director of the CDC and Prevention from 1998 to 2002. In recent years, I have been especially privileged to be able to closely work with him because of his agreement to serve, and his election to, the council of the IOM. Because of his many capacities, and particularly tonight, for his leadership of our committee on preventing childhood obesity, it is a real pleasure to introduce and to welcome Dr. Koplan.

Overview of Preventing Childhood Obesity: Health in the Balance

Jeff Koplan

DR. KOPLAN: Thank you very much, Dr. Fineberg. Thank you all for coming out in inclement conditions and spending some time with us to talk about what we think is an important subject. I am sure you think it is important as well; it is the reason you are here.

We are calling this a lecture, and it *is* officially a lecture, but it is really a group of speakers sharing thoughts. We would like your active involvement in the discussion afterward as well.

Looking around this crowd, I see people with true expertise in this field and in germane fields as well. I think such a mix will enrich our evening, and we hope to have plenty of time for everyone to ask their questions before the evening is over.

I want to review the nature of this obesity epidemic in children, some of the factors that put us where we are, and then I want to spend some time discussing the report's recommendations for leading us out of this problem we've found ourselves in and what we need to do to reverse the epidemic.

I think a striking aspect of the epidemic of obesity in children is that for most all of our lives we have lived in a period of continual advances in health and health outcomes, both for children and adults.

We have had intermittent setbacks, some of them major, such as the ongoing HIV/AIDS epidemic. There are, obviously, problems that we have not yet conquered, but overall, our life span and our quality of life has, for the most part, increased, and increased in a rather remarkable way. You only have to think about vaccines and their impact, seat belt use, the control of tobacco, fluoridated drinking water, and decreased infant mortality to realize the progress we have made. These improvements have all had huge impacts on our life span and our quality of life. Now we have an epidemic of obesity, which is unique and alarming.

If you will indulge me for a few moments as part of this discussion, I would like to reflect a bit on the concept of being healthy. Only recently do we have some kind of scientific parameters to offer for what healthy is, and we are still learning more about how to better define this. The concept of being healthy has changed remarkably over many decades, largely based on a mixture of unscientific opinion, cultural preferences (our people do this and that is why we are healthy), and occasional elements of data and fact. What does healthy mean in terms of where we live and how we live, what and how much we eat, how we look at ourselves, and how we look at others? This has been an evolving concept, and it continues to evolve.

Similarly, the concepts of overweight and obesity has been seen in different ways by different cultures at different times. It is an aesthetic issue; in some cultures being overweight is seen as a sign of prosperity and well being, and in other cultures it is not. The concepts of health, obesity, and being overweight change with time and place.

Where we live and what makes our living environment healthy has shifted. There was a time when cities were seen as the least healthy of places to live: too much smoke, overcrowding, inadequate sewage and water facilities, and so on. People started moving to the suburbs because they were seen as being more healthy. But one of the things we will talk about is the built environment: living in the suburbs may now be far less healthy, at least in terms of physical activity, than living in the city. The suburbia of *Leave It to Beaver* and *Father Knows Best* is not the suburbia that is currently being developed. The structure and the nature of community affect the health habits that directly lead to childhood obesity.

Diet has obviously changed as well. A healthy diet in 1900 on a farm in Wisconsin would not seem very healthy to us today:

lots of whole fat dairy, lots of red meat, bacon, eggs, and so on. It is making me hungry.

Now, I would like to use my own exemplary youth as an illustration to help you reflect on how our life styles have changed. I would urge you just to think about your own growing up and some of these changes that have occurred since then.

It is not so much what we did, but the elements of the American lifestyle have changed and have contributed to where we are now in this epidemic.

Growing up in the 1950s, I lived in a suburban neighborhood of Boston. In this neighborhood the streets were laid out in a grid, and sidewalks ran on both sides of the street. The neighborhood was near a golf course that was used for outdoor activities.

All throughout our school lives, we walked to school in relative safety. Car pools were an unknown commodity in our community, and there was no busing to school.

Gym class, unfortunately, was a regular part of our school days. I detested gym and, to this day, I don't see what climbing a rope to the ceiling of the gym has to do with fitness. I thought gym class was made to torture students, of which I was one. I abhorred it and feared it every day.

We had recess and played games. Even though I was one of the last children picked for all sports teams, I have retained an interest in physical activity.

We walked to and from school, and to and from the library, and used public transportation. In fact, by fifth and sixth grade my parents let me take public transportation all over Boston.

From where we lived south of Boston, I would walk to a bus stop, take a bus to Matapan, pick up what is now the Red Line in the Boston subway system, take it into downtown Boston, wander around all day, and come back the same way. This makes the point of how using public transport is healthy. The people who promote public transport are partners with us in public health in promoting physical activity and combating obesity.

When I was in Boston, I went looking for stamps on Bromfield Street, which I collected. Every trip I couldn't help but stop at

Little Jack Horner's Joke Shop for the latest hand buzzer and whoopee cushion.

The children in the neighborhood were of various shapes, sizes and interests, but after school everyone was outside. There was nothing to do in the house. Children went outside. I want to emphasize that I was not an athletic child; you know the type, glasses in the third grade, bookish, not excelling in sports. It didn't matter. Everybody went outside, and you stayed out until it was dark. In the winter, we played in the snow and threw snowballs and built forts and sledded. In the other seasons, we got into trouble at building sites, trespassing, and generally creating mayhem. In any event, we were outside, and it wasn't like our parents were saying, “You have to stay in.” When we came in, we were usually tired, and it was just time to eat when we came through the door.

I am not trying to paint this as an idyllic, wonderful time. I think many things are much better today than they were then. What I’ve just described are features of society and life from 50 years ago that are different now. You can begin to see, as you think of your own times and things you did, how society and the culture were different, and how some of the changes that have occurred might contribute to an epidemic of obesity.

A highlight of my youth was being named to the safety patrol in the sixth grade. My single duty was to walk around and make sure the other children walked to school safely. I can still remember that I was given a special belt. I put it on and was really excited. I haven't seen one of those white belts in years. I think they are used as trusses in the hospital now where I work.

Our television was a 7-inch Philco. There were a couple of hours of programming a day to watch. No DVDs, no CDs, nothing. We also had a radio for music and such. There was never any competition between watching or listening and doing other things.

The diet I described for that farm in Wisconsin was not much different from the diet in our home. If someone were to say to my mother, “Why isn't there margarine in the refrigerator?” do you think she would have said, “I don't care for trans-fatty acids”? She didn't know anything about trans-fatty acids.

There was little snacking. For one, there were very few commercial products for snacking and, in addition, they just weren't in the house. Carbonated, sweetened beverages were not part of our daily life. There were treats to be had at some places and at some times, and when you had them, the portion sizes were much smaller than today's—the Pepsis were 8 ounces and no more. If you went to a movie, the popcorn serving you had was a couple of cups. It wasn't the 20 gallon bucket that is served today.

People make a point about cultures and how some cultures are at odds with issues that would promote leanness and physical activity. This is not unique. I come from a culture, basically middle European Jewish, in which eating is a way in life and social events involved eating. My culture had a starvation background. Every time my grandmother saw me, even if she had seen me five minutes before, she would say, "You are so thin. You need to eat something."

"But Grandma," I'd say, "I just ate!"

"It doesn't matter," she'd say. "I made this for you special."

In many of our traditions there are some long-standing issues about both physical activity and food. Physical activity was not encouraged by my family and the culture. In fact, some members of my family considered sweating to be a preterminal event.

The result of all these social and characteristics of the times was that we ended up having lots of activity in our lives. Our community was designed, unintentionally, in a relatively healthy way to promote that. But there was lots of eating, and many of our concepts about food and diet were not particularly healthy ones, even then.

There wasn't an epidemic of obesity at that time. That epidemic, as Dr. Dietz will show during his talk, has occurred in a very short period of time in a very dramatic fashion.

I think, for all of us, it has been a learning experience over the last decade or so to realize that weight has a significant negative impact on a wide range of health parameters. It has also been a shock to realize that all segments of our population are becoming increasingly obese, especially children, and this change has occurred in an epidemic manner

Myself and other epidemiologists don't use the term *epidemic* lightly. If an epidemic is defined as an unpredicted and unexpected increase in the occurrence rate of a certain illness, then obesity is clearly an epidemic and continues to be one.

Obesity has crept up on us as a major public health problem, and it has left us, unfortunately in many instances, seeking simple and uni-dimensional causes and, thus, answers to the problem. We have seen frequent articles in the press or scientific papers that would make the case that one element or another is the cause of the obesity epidemic: carbonated, sugared beverages, vending machines, lack of physical education, nontraditional family structures, El Niño, liberals, immigration, or whatever. Actually, as the report emphasizes, the obesity epidemic is a multifactorial problem.

We have developed what is, in many ways, an unhealthy environment for children to grow up in: not enough physical activity and a poor diet. This is a striking difference from the trend in health over the last 100 years. We have made great strides toward promoting health and having a healthier environment for our children, whether it is in regard to safety, nutrients, or a wide range of things. We have failed in this particular regards, with dire outcome.

What has changed in the last 30 years? American society and American lifestyles have changed. Portion sizes are larger. Families are eating more meals outside the home and fewer meals together at a table. There are more televisions and video games in the average home. More time is being spent sitting in front of a screen. Children are not walking or biking to schools with the same frequency. There is no physical education in many schools. The changes in the types of foods and beverages being offered, promoted, and consumed are remarkable, and this is true in schools as well. There are competitive food options in schools that did not previously exist.

These are considerable changes in the lifestyle, environment, and behaviors of children, and they have had the impact that we are talking about today.

One of our society's reactions has been a certain sense of helplessness, not so much for the individual, but for the problem as a whole, a feeling like "There is nothing we can do;" "This is the way modern life is;" or "This is beyond our control."

I think such helplessness is one of the things this report can remedy, because such statements of futility are just not true. There is plenty we can do.

We have a track record of over 100 years of public health that proves we can solve what previously seemed to be insurmountable problems. When we grew up, there were no seat belts in cars; there was no sense of safety. Drinking and driving was simply considered the way you sometimes drove. Those concepts have been changed, and with remarkable differences in health outcomes. Tobacco is another example. If you were to examine the early days of anti-tobacco efforts, you would see the same kind or reactions we get now when we talk about childhood obesity: "Americans like to smoke;" "It is part of our culture;" "It is part of our economy;" "There are huge economic forces against it;" "That is just the way life is here;" or "You are trying to alter our sociocultural values by combating smoking."

You will hear the same thing about the obesity epidemic, and we all should reject such statements. There are things that we can and will do about obesity. And the sooner we do it, the better. That is what this report is about. It is to set a blueprint for all our efforts to come. I want to briefly mention some ideas in the report. You will hear about them in much greater detail from our panelists.

One of these ideas is the nature of the epidemic. As Dr. Fineberg said, it is a doubling and, in some age groups, a tripling of obesity in children. It is an outbreak that occurs across the nation. No region is safe from it. It occurs in all ethnic and racial groups. It occurs in all ages. We are focusing on children, but it occurs in all ages. It is rampant and growing at a remarkable rat, as Dr. Dietz will show in his slides.

The committee's approach was to gather as much evidence as possible, assemble it in a range of different subtopics around obesity, and sum everything up with a set of recommendations for how to deal with the epidemic.

I think a striking aspect of the report is that we identified what is known, and we identified what is not known but would be helpful to know, but we didn't limit our recommendations by saying, "Until we learn about this, we can't do anything." We rejected that as being an irresponsible approach. Being responsible means we have to act as if there were a SARS epidemic starting in this community: we don't know much about SARS, but we have to take some steps to combat it.

What we don't know about the childhood obesity epidemic we will learn as we make attempts to deal with it. We will make improvements as we go along. That is why careful evaluation is a feature of everything we advocate.

There are many recommendations in the Institute of Medicine's (IOM's) report for stakeholders. There are recommendations for parents and families: encourage children to engage in regular physical activity, provide them with healthy foods, and serve as good role models. We recommend that parents limit TV and other recreational screen time to no more than two hours a day.

There are recommendations for schools, from preschool through high school. They should implement nutritional standards, set at the national level, for all foods and beverages served on school grounds, including those dispensed from vending machines. Schools should also expand opportunities for their students to engage in at least 30 minutes of moderate to vigorous physical activity every day.

The report calls on the food, beverage, and entertainment industries to develop innovations related to healthier food and beverages. The report calls for changes in packaging and providing clear and consistent media messages about the energy contents. Further, the report calls for the relevant industries to voluntarily develop and implement guidelines for advertising and marketing directly to children. There is some controversy over this. Some people feel that the industry is not going to make these changes on their own. Some members of our committee felt that way. Here is an opportunity to engage in a partnership, to encourage a collegial approach before resorting to more regulatory means. But, if necessary, regulations may be imposed over time.

The report calls for a stronger role for community organizations and state and local governments. They should expand their programs and coordinate them with programs run by other organizations. These organizations can lead the way by looking at the built environment, including bike paths, sidewalks, and playgrounds, and make the necessary changes through capital investment and local zoning.

There is a huge economic play in this. We either make the investment up front, which would be relatively modest, or we will pay huge prices down the road in health care costs.

Of course, health care professionals have a role to play, much as they did in controlling tobacco or when pediatricians addressed injury prevention. There is a history of successful interventions by health care professionals, and we urge them to play an active role in combating the obesity epidemic.

The federal government must provide the leadership needed to make all this work. The federal government needs to go beyond rhetoric and allocate resources to fight this epidemic. Because so many departments of government will have important roles in combating this epidemic, coordinating the efforts of the departments of Transportation, Education, Defense, Housing and Urban Development, Health and Human Services, and others will be an absolute necessity.

There are no easy solutions to the problem of obesity. That is why the report is more than three or four pages long. Unfortunately, the danger of many recommendations is that everyone will wait for some other group to step forward and act. However, it is exciting to already see some of the activities and efforts that are underway, both before the report came out, and some that have begun since the report, particularly at the grassroots level.

It has helped that, much as we have made changes in the social norm and other aspects that have made our society healthier, the changes in the social norms will take place in food consumption and physical activity as well.

We will flesh out this overview of the report with more specific discussions from our panelists, and each will be providing a somewhat different perspective.

My colleague on the report, introduced briefly by Dr. Fineberg, is Dr. Shiriki Kumanyika, an international expert in obesity. Dr. Kumanyika is a professor of epidemiology at the University of Pennsylvania. She is also associate dean for health promotion and disease prevention. She has been working in this area for years and has been a very effective person on a wide range of government panels, including U.S. dietary guidelines advisory committees, IOM's Food and Nutrition Board, and the National Institutes of Health's clinical obesity task force. She is a member of the IOM and was extraordinarily important in crafting the report. So, let me turn the podium over to Dr. Kumanyika.

Framework for Prevention and Perspectives on Addressing Health Disparities

Shiriki Kumanyika

DR. KUMANYIKA: Contrary to Dr. Koplan's feelings about physical education, I loved physical education, but we had to wear green bloomers. Anybody here who is old enough knows what I mean. The rest of you, you are just lucky that you came along after the green bloomer phase.

It is nice to have a chance to give some perspectives on the report and to discuss where I think our challenges lie. These are challenges that are implied in the report and perhaps left open for the community to address as efforts to combat obesity in youth move forward. If we are going to realize the potential that is in this report, I see three challenges ahead of us.

My perspective is that we are in the honeymoon phase now. We have created a report that has made a lot of people happy. There have been some criticisms of it, but it is good to see people say, "Now we have the full story all together, and we are ready to go forward." But there are going to be some challenges.

Dr. Koplan gave an excellent overview of our situation, so this will be a quick summary of what I think we have actually accomplished by creating the report. We emphasized in the report a population health perspective. We need a broad base of intervention in the population at large to succeed in stopping this epidemic. This is not a medical problem that is going to be solved by the doctors, and everybody else can forget about it. On the very first page of this report, the high-risk groups are mentioned, the ethnic minority populations: African Americans, Hispanics, Native Americans, and children in low-income families. There are groups in the population that have more than their share of this problem, and any solution we implement has to especially address these populations.

After reading the report, many people have said, "We know all these things, but where do we start? How do we get our arms around a problem this big?" We offer an ecological model to not only interpret the problem, but to manage the complexity of the problem as well. We lay out the layers that are global or national in their influence on the obesity problem by influencing the environments in which choices are made about eating and physical activity.The ecological model can show how everything filters down and relates to the balance of energy at the base of the problem. What we have to ultimately affect in growing children is the balance of energy going in and energy going out.

We have offered the ecological model as a useful tool, and I think it really is helpful as a way of thinking about how it all fits together. We also included in the report the concept of social transformation, not social reform. We are not going to turn society upside down, but if this action plan on childhood obesity is going to succeed, it is going to both require and drive changes in social norms. In that sense, even though we talk about the solution playing out in the long term, we don't back away from the idea that we are talking about social change. Again, we are not talking about a technical solution that can be kept in a box and that is going to flow out and spill over and affect everybody.

By analyzing the efforts made in the past to increase automotive safety, to recycle wastes, and control tobacco use, we learned that, indeed we can accomplish widespread changes and transformations.

We took an inclusive approach, which Dr. Koplan called a "collegial approach." We avoided trying to determine who was to blame by spreading the responsibility for the problem and its solutions as widely as possible across society. Yes, there are some obvious players here, but all sectors of society contribute to the causes of obesity. So, we all have to be a part of the solution.

To show how you to go about thinking through these different environments in the ecological model, we use two levels.

There is the micro level, or micro environment, which encompasses the behavioral settings in which people actually make choices and live. Next, there are the macro environments, which control the micro environments. These include the physical, the economic, the policy or political, and the social or cultural environments.

This is from Boyd Swinburn[1] and his colleagues in Australia and New Zealand, the ANGELO model, which is an analysis grid of influences and stands for an Analysis Grid for Environments Linked to Obesity. The idea helps us to organize the environmental influences is where the environment is affecting the problem of childhood obesity. The solutions, then, will be different depending on which environment you examine. If you put the problem in the physical environment, the solutions are going to be different from those found in the economic environment. Policy and political environments are different from social and cultural environments, which often can't be changed directly but require changes in social norms.

In the micro environment, for example, the policy makers are the parents. There are lots of policies and rules in the home that affect how children eat and whether they are active. There are many examples in the report of how the different environmental factors become operational when you start thinking about where to intervene. And, of course, all the factors are related.

The ecological model is being used globally to help find where we have leverage or where the low-hanging fruit is. Is there something going on in one of these environments that we can use to influence the obesogenic environment?

As I said, there are three challenges I want to point out. The first one deals with private sector issues, and I put here a "committee of dreamers." We have been criticized the most by health advocates and policy analysts, observers who think that we were naive

[1] Swinburn B, Egger G, Raza F. Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. Prev Med. 1999;29(6 Pt 1):563-70.

and too optimistic because we did not ask for regulatory solutions or because we did not try to force changes to happen tomorrow.

I like to think that if we were a committee of dreamers, we might also have been a committee of visionaries. We decided not to recommend new laws to force changes. We decided that the solutions have to be seen as win/win situations by a broad base in society, including the private sector. When you look at history, there was always a sector or sectors of industry that saw a profit in the changes that led to the healthier environment. That is why we laid out our recommendations in a more positive way. Time will tell if we were naive or visionary, and it is going to be incumbent upon us, we who think that this is a good plan, to make sure that the recommendations aren't viewed as just something that bought a certain vested interest more time to avoid taking the steps they need to take.

The second challenge is the high-risk populations, and I think we need to apply this term both to the traditional minority populations and to the new immigrants arriving in this country. It is very clear that moving to this country is fattening for people. There is a report titled *The Future of Our Children*[2] that shows that children of immigrants are heavier in succeeding generations and have the health problems that go along with obesity.

We have to think of the minority populations as they are now characterized as being at high risk. What are the factors that determine the excess risk? What is it about these factors? Is it quantitative factor? Do minority populations simply have more problems and fewer safe neighborhoods? Or are there qualitative differences in life in these communities that is driving the problem? These are important questions. But even if we think it is simply a higher-intensity version of the problem that we have in the mainstream community, the way that we go about changing it may be very different. For example, if you were in a low-income community and were finally able to afford fattening foods and beverages, you wouldn't see the problem in the same way as somebody

[2] Fuligni AJ, Christina C. Preparing Diverse Adolescents for the Transition to Adulthood. *The Future of Our Children*. 2004; 14(2):99-120. www.futureofchildren.org

who says that you are not supposed to have it. Or think of the low-income family that has been saving for three generations for a car or to find jobs in which the work was not physically intensive, the idea of running around in spandex or gym shorts exercising and to be healthy doesn't make a much sense. We have to look at the different world views, the different life perspectives, that families in this communities might have.

The third challenge has to do with how the epidemic of childhood obesity is linked to the epidemic of adult obesity. I think we focused on children because the epidemic of childhood obesity was the only thing we could agree on where we would take action.

We have left latent this whole problem of obesity in adults. The questions that came to my mind were: Can we solve the problem in children without addressing the problem in adults? Or will our attempts to solve the problem in children inadvertently solve the problem in the adult population? One way or another, I think we have to have a plan for dealing with the obesity epidemic in the adult population at some point in the future. As I said, we are in the honeymoon phase.

It may be that the adult population will wake up and realize that this is going to affect their lives too, not just the children's. There could be a backlash. I don't think that we can assume that the adults who are targeted in all of these recommendations are going to not notice that their lives have to change too. We have to make sure we are ready for when that happens.

We talk about changing food programs, subsidies, reviewing subsidies, advertising, and building coalitions. Adults do all of these things. The recommendations are for children, but adults are in control of all of these things. Do we need an action plan for how to get adults to accept that doing this for children is something that is worth changing their own behavior?

What have we accomplished so far? If we ask this question jumping forward to 2010, I think the answer will depend on how well we meet these challenges in the area of the private sector, the high-risk populations, and the linked epidemics of children and adults. These are interrelated problems. Eighty percent of black women are overweight, and 50 percent are obese. Obesity is rising faster in African American children than in the rest of the population.

So, in the very communities where we are talking about making a change in the children, the adults model the problem to an extreme degree, and their own behavior is going to have to be a part of the solution.

Thank you.

DR. KOPLAN: Thank you, Dr. Kumanyika. I think I would have enjoyed gym more if I had worn green bloomers.

Our next speaker, offering a slightly different perspective, is someone who has been active in the food industry for many years. He is currently the senior vice president for new growth platforms and chief innovation officer for PepsiCo. Brock Leach is responsible for identifying and developing new platforms for business growth beyond those already in PepsiCo's operating units, and for building new capabilities to support innovative work in all divisions. He previously held the positions of president and CEO of Tropicana Products. He is a member of the national board of the YMCA and works for many children's agencies in Florida. We are eager to hear him and glad he could join us.

Industry Perspective

Brock Leach

MR. LEACH: Thank you. It is a privilege to be here tonight, and it is a real opportunity to share an industry perspective. I say that because I suspect I may be the first industry representative who has ever been at a Rosenthal Lecture. I hope that after tonight I am not the last, but I will let you be the judge of that.

I want to open with two things. The first is a caveat, and the second is a commendation. On the caveat side, I am going to share the industry perspective through the lens of one company, PepsiCo. I do that knowing that what we are doing is a drop in the bucket; it is the tip of the iceberg. I can tell you from my work on the grocery manufacturers committee that this is going to be the kind of thing that most of the leading food companies are going to take on. I can see that starting to happen as we speak. I am going to present what we are doing at PepsiCo as a case study, but be aware that it is not the only company that is doing these things. Most of the other leading companies are doing similar things.

The second point is, I want to commend you on the work that was completed here, and actually the work that is beginning. I think this is a fantastic piece of work. The diligence with which all the facts were brought to bear, the comprehensiveness of the recommendations, the fact that they have come so far down the path toward implementation—these are all huge steps in the right direction. For those of us in the food business, we want nothing more than to see real solutions take hold.

Tonight I will talk about what our role in those solutions can be. We are at the beginning of the game. I hope you will be proven right in your judgment that you are visionary, not naive, in thinking that the private sector has a role to play, if for no other reason than that we know how to make healthy products attractive, and we know how to market them in ways that make people want to adopt healthy lifestyle habits.

Let me give you a sense of how we are thinking about that right now. For those of us who have spent our careers in the food business, obesity is the largest issue we are ever going to deal with. No doubt about it, it is revolutionizing the way we think about our business. It is also the largest opportunity to add value. Wellness is the largest opportunity to add value that we have in front of us.

Let me tell you about the way food companies think about adding value. We recognize the population is getting more diverse. We recognize that time constraints are putting a bigger premium on convenience. By the way, wellness, not only the obesity epidemic but the aging of the population and what we see as a shift toward prevention, is creating opportunities to add value.

So, my job is to figure out new growth platforms for the company. I am looking for things that offer wellness in convenient forms that are accommodated to specific individual needs and tastes. That is my role. We think convenience has probably been the largest driver of growth in the food business over the last 15 years. We think wellness is going to be bigger than that for the next 15 years. So, we are working on it with everything we have got.

About three quarters of what we are doing in product innovation qualifies as being good for you. And that is just the beginning.

This is a context problem and, within a food company, it is easy to get distracted and not be sure what to do. So, we have some simple things we say in the office. First of all, we say, "There is a solution to obesity, and it is called energy balance."

It is no more complicated than that. It is about helping people get the right mix of foods, and it is about helping people pursue the right activities. The challenge is that it is an individual choice.

What is our role in helping individuals make the right choices? There are lots of things that can be done to clean up the environment—better marketing practices and what we do in schools, for instance.

What is really going to help is to offer healthy products that people are excited about consuming, market them in a way that promotes a healthy lifestyle as well, and for the products to provide the emotional benefits to support making the changes that are required.

That is something we know how to do. That is something we have of years of experience doing. That is why we think we can be at least a part of the solution.

Now, a lot of people say, "Okay, PepsiCo, what do you know about health and wellness?" In reply, I have to explain a little bit about who we are. In North America today, about 38 percent of our business qualifies as better for you or good for you, *better for you* meaning it has reduced amounts, according to the FDA standards, of sugar, calories, fat, and so on. It is *good for you* means it is made out of essentially healthy ingredients that would meet the FDA requirements for healthy. The most important fact is that in the first half of this year that part of our business collectively grew 10 percent. It was almost 60 percent of our revenue growth in North America.

Is there a business case for health and wellness? Absolutely, and that is why we are putting the resources into it.

We also have the three best brands in nutrition from a consumer's point of view: Quaker, Tropicana, and Dole, along with Gatorade, which is number seven. We also have leading share positions in a lot of these market segments, which is why we are willing to go after it, because we have an opportunity to further our share position.

Our whole approach is about determining what we can do that is at the intersection of business interest and public interest. Our approach is about marketing healthy products in conjunction with healthy lifestyles. Our expertise is making consuming a product more attractive, easier, and more fun. That is what we know how to do across our product portfolio.

I am going to give you a very quick snapshot of the kinds of things we are doing and have done this year, beginning with healthy choices. Starting about two years ago, we set the goal of having half of our new product revenues come from better for you and good for you products. We have far surpassed our goal. Right now, a little more than 70 percent of our products that will be available in three years will qualify as either good for you or better for you.

We have had a lot of successes. For example, Quaker Breakfast Squares supply all the nutrition of a bowl of oatmeal in a square, and Propel fitness water was one of the largest beverage introductions a year ago. A lot of the work is manifesting itself in some good ideas. One of my challenges is to figure out how do you get value-added proteins, whole grains, fruits, and vegetables into convenient forms. It can be done. It's not easy or it would have been done long ago, but it can be done. Food technology, packaging technology, and distribution technology has advanced to the point where it can be done.

To improve the healthfulness of our existing products, we pledged we would go through and look for things that needed to be changed. Our first and largest target was eliminating trans-fats. We did that at Frito-Lay. We took 55 million pounds of trans-fats out of the American diet, not just the oil, but the actual trans-fats. We did it because we didn't want to be the poster child for trans-fats as the issue progressed over the next 10 years. The science was compelling. We actually think it has helped our business too. Now that people are more aware of trans-fats, they are looking for choices that don't have them, and we offer those choices. It was not a small decision to change the oils, but it is one that was a calculated risk that we felt was worth taking.

We have done some work around nutrition standards, which I will address. We are currently proving to ourselves and others that portion control can be sold. People are willing to pay for convenience and portion control. One example of this are the 8-ounce cans that we are putting in multipacks that we are selling at Wal-Mart. We cannot keep them in stock.

We are selling the same number of ounces of soda per multipack as a single large container, but at a slightly higher price because of the packaging costs, and people are buying it because they want to be able to limit their consumption to 8 ounces.

Another example is in Frito-Lay, where we offer 12 sacks, which are 12 ounces in individual 1-ounce bags. Women, in particular, are saying, “I want to be able to control the amount of chips I am eating in one setting.” That section of the business is growing by leaps and bounds.

We are one of three companies to say we are going to go to total calorie labeling on all of our single serving products, and that will be up to three racks or four racks, depending on what category it is, but we are in the process of putting that in place.

We are doing a lot in schools, but the emphasis on schools is getting our healthier products in distribution. So, some of that is new product SKUs, stocking keeping units, of about 30. Some of that effort are our specifically designed products for schools. We have a product called Sobe Synergy that is 50 percent juice plus filtered water and Splenda fortification. It’s actually better nutrition than 100 percent juice and has fewer calories. We have a similar milk product that is a 12-ounce can that has only 130 calories. It is flavored, it has Splenda, and test results put it on parity with Nesquik or Hershey Chocolate Milk, which have much more calories. So, progress is being made in getting the formulations right.

There is a lot of effort to get water and Gatorade in vending machines, and our policies continue to evolve about what we recommend selling in schools. We want 100 percent of what we sell in elementary school cafeterias to be better for you and good for you products, because children don't have a choice anyway. Because there is a question about what is the right developmental age to give them a choice, we don't vend foods in elementary schools as a policy. For secondary schools, we would like half of the vending slots and half of the a la carte placements to be our better for you and good for you products.

We are also working to promote healthy lifestyles for children. We have worked closely with youth sports over the years, recognizing, however, that by and large our efforts are not reaching the children most in need of help.

So, we have been working on how can we help children understand about energy balance. We became a presenting sponsor of America On The Move, founded by Jim Hill in Colorado, and we continue to do a lot with that.

The largest application is taking the principle of energy balance into a curriculum, called Balance First that we have distributed this fall. We set out to have 2.5 million children sign up for this curriculum, and we have 3 million signed up.

We are also working closely with food service workers. All of these things I've mentioned are just an indication of the kind of changes we've made this year. Many of our accomplishments have centered around reducing fat in our products, but we've also been adding protein and doing things like adding fruit and nuts to oatmeal. The majority of what we are doing now is reducing the sugar in most if not all of our beverages, bars, ready-to-eat cereals, and instant oatmeals. We are also offering sugar reduction options. Splenda, it turns out, is a great performing product, enabling many people to reduce their sugar intake.

Another one of my projects has been to make fruit more accessible. We are currently testing this in Whole Foods stores in the northeast.

The idea here is this: what if we took fruit and put it in convenient packaging? It turns out, by the way, there is a fair amount of consumer dissatisfaction with fresh fruit, especially when the consumer is on the go. How many times have you had an apple, and it didn't taste as good as it looked? How many times have you been in an airport and you were reluctant to pick up the orange, because you weren't sure who sneezed on it or who touched it, or where it had been? That's why we are developing a method to put nothing but the fruit in convenient forms, have it taste very good, and have it be consistent and hygienic. We are off to a good start. It is too early to claim victory, but we are heading down the right path.

Two years ago we realized there was a lot we don't know about how to deal with this problem and opportunity. So we decided to find some people who could advise us. We had a terrific list of people. What we tell them is, you don't have to go out and stump for us. You don't have to be a spokesperson.

Instead we asked them to tell us what we needed to hear before we heard it elsewhere, and they have been bold in doing that. Reducing the trans-fats in our products came about partly because Dr. Cooper and Dr. Reiner said, “You have to do this.” We knew that, but they were the impetus to get us moving. They told us, “You have to confront this, and you have to do it fast.”

I would say, across everything we are doing, this has been a really good idea. We are yet to have any reason why we thought this was a problem. One of the first things they said is, okay, you guys are doing good stuff, but what are you doing to take this mainstream? What are you doing to take your marketing muscle and help people make healthier choices? Those questions evolved into a program that we launched September 1, that we call Smart Spot. The idea is putting a simple device on our better for you and good for you products that will allow consumers to make healthier eating selections. The way this works is a little green dot is placed on the front panel of all these different products. On the back panel is a box that says, “Tropicana light and healthy,” for example, “is a smart choice because it has half the sugar of regular orange juice.” It also states that the product is one of more than 100 smart choices from PepsiCo, and if you want more information, go to Smartspot.com, where you can learn about healthy lifestyles, nutrition information, or government standards, and so on. A lot of people want to know more, so we provide them more information through the World Wide Web.

We held 20 focus groups on this idea, and we performed four quantitative studies, the last of which was with 1,600 people. Over and over we heard the same thing: Keep it simple. We looked at star systems, we looked at stoplight systems, some of which we weren't excited about, I will say at the front end. Consumers repeatedly said, “Just direct me to a good choice, tell me why it is a good choice, and then encourage me. Keep it on the positive side.” So, that is what we have attempted to do.

We are in the process of putting this on all of our packaging. We will be finished by the end of the year. That is 230 items. It is a total business worth $6.5 billion, so it is taking us some time to change the packaging.

This is the way we are advertising it. We are doing it in the context of our brands. It is a delicious way to help lower cholesterol, it is a family tradition that warms you all over, is it the Smart Spot, the symbol of smart choices made easy. You can find Smart Spot on Quaker oatmeal: "Proven to help lower cholesterol after just 30 days as part of a healthy diet. It's one of over 100 smart choices from PepsiCo." The marketing all follows the same format, but is highlighted differently on different products.

We are getting ready to do our first ever PepsiCo-wide Smart Spot program at retail. We have lined up all 16 of our largest retail customers to do this program. It is going to be, for the most part, in the first two weeks after the Super Bowl. We are going to be out there doing a national insert at 50 million newspapers that introduces smart spot and healthy life styles. We are going to be on display with pamphlets that talk about getting started, the simple steps to getting started, with access to signing up for America On The Move, as well as products.

It is our first attempt. We haven't done a test market on this. We are not exactly sure how it is going to be received, but it is our first attempt to market simple, good choices and a healthy lifestyle.

These are the products we are going to feature in schools, both in the programming and in the vending locations and so forth. To do it, we recognized that we had to be real; we had to have standards. This is somewhat controversial in a food company at the front end, because people say, we are doing a lot of good things that are healthy, like we took trans-fats out and we have natural and organic and so on and so forth. But we wanted to be provably genuine. A product has to be truly good for you or it has to be better for you to qualify for Smart Spot. To accomplish this, we referred to authoritative statements from the FDA and supplemented those with reports from the National Academies.

There are three ways a product can qualify for Smart Spot. The first way is for the product to be healthy—meaning the FDA definition of healthy. The only changes we made to that definition were that the product had to have zero trans-fats, and we set a sugar limit by using the National Academies 25 percent added sugar limit. Then we applied that to our different categories of food. Interesting things happen when you do that, by the way. Items such as chewy granola bars, which people think of as healthy, do not qualify because they have too much sugar and too little granola. Almost our entire pretzel line was disqualified because it has too much sodium. Our pretzels may be low in fat, but they have too much sodium. Our Twister juice drink was disqualified because it has too much added sugar, which is caused by the fact that it has too little juice.

We felt that our standards passed the common sense test. Another way for a product to qualify for Smart Spot is for the product to have a functional benefit confirmed by significant scientific agreement. That would typically be a food that the FDA claimed was beneficial. Whole grains are an example. It can't be any worse in any other regard, and with this, meeting FDA standards for reduced sugar and calories.

We want the Smart Spot program to be robust. We don't think there is anything that qualifies for the designation that you would question. We are supplying complete information about our nutritional standards on the Smart Spot website. We ultimately want smartspot.com to be a portal for consumers who are not otherwise aware of healthy choices and healthy lifestyles to come in and begin learning about staying healthy—think of it as a paint-by-numbers approach that could really help the average consumer.

As part of buying media on Discovery, they are going to run public service announcements with healthy snacking reminders. These will run at 3:00 p.m. across all six of their channels. It is the first time they have done that. They are going to run healthy breakfast reminders during prime time as well. We are sponsoring such efforts as their National Body Challenge that are held during Fit TV's Fit Family Week held in March.

One of the things I am really excited about is they are going to take our Balance First curriculum into every middle school in

America as part of their schools distribution program. It is a way of bringing media scale to the activity.

We are incorporating these efforts in our internal operations to unite all of our health and wellness efforts, including a new program for our employees called Health Rows. It is powered by Web MD and provides individualized interactions after an employee completes an online health assessment. We have 60,000 U.S. employees. Twenty thousand of them have taken the health assessment so far, and many of them are active in the program.

My wish, as a marketer, is that we can bring economies of scale to the effort to persuade people to adopt healthy lifestyles. We think about new product introductions. We want to be unavoidable. We want our message to be seen everywhere. I would encourage everyone who is interested in this issue to help figure out how can we bring economies of scale to this message. I know that the messages pertaining to diabetes, heart disease, and cancer are working. How can we work together to create a message that we all can reiterate? Similarly, how can we widely disseminate interventions such as America On The Move. How can we take the great work that has been done in the Institute of Medicine's (IOM's) report and build a consensus around the key implementation strategies for schools? Right now, every school district in every state is encouraging healthy lifestyles, but each one is doing it in a different manner. Can we build some consensus around what is the best way to do that well?

We are actively looking for ways to pilot interventions in African American and Latino communities, particularly in the inner city. Our Latino and African American advisory boards told us, you don't know what you are doing when it comes to marketing health in these communities. You need to get some practical lab experience. We would like to do some marketing lab work at the same time that we are doing intervention lab work. So, we are investigating ways to accomplish that.

We are in favor of anything that helps bring economies of scale to the message and to the solutions. I hope that gives you a sense of where we are in our efforts. A year from now it will look differently, but the journey continues.

DR. KOPLAN: Thank you, Mr. Leach. Our final speaker is Dr. Bill Dietz. Dr. Dietz is the director of the Division of Nutrition and Physical Activity at the Center for Disease Control and Prevention (CDC). Prior to coming to the CDC, he was professor of pediatrics at Tufts School of Medicine and director of clinical nutrition at the floating hospital in Boston. He is a past president of the American Society for Clinical Nutrition and past president of the North American Association for the Study of Obesity. He is a member of the IOM and an international figure in the fields of nutrition and obesity, and we are delighted to have him here.

Government Perspective

William Dietz

DR. DIETZ: Thank you, Dr. Koplan. It really is a pleasure to be here with you this evening at the Rosenthal lecture.

I would like to comment on my agenda item. I am not going to give you the entire "government perspective," but rather, the perspective of the Center for Disease Control and Prevention (CDC) on this problem. What I am going to try to demonstrate is that one of the CDC's most important functions is to catalyze change. Many of our efforts in the field of obesity, I think, have been directed toward that end.

I would like to begin by comparing the obesity epidemic with the spread of tobacco, which can be divided into three phases. This first phase was a rapid increase in the use of per capita tobacco consumption. The second phase was a plateau in tobacco consumption, which occurred when tobacco became a visible health problem. The third phase was a decline in tobacco consumption that was driven by multiple overlapping interventions.

From the perspective of the CDC, our efforts have paralleled in some respects the developments that led to the decline of tobacco. Our first efforts focused on increasing the visibility of this problem. In our second focus, we focused on the disease burden, which has particular implications for the pediatric population. The third effort, we began to identify interventions and to develop the partnerships necessary to move those interventions forward.

Those are the main areas which I would like to focus on tonight. Our efforts to increase visibility began with a series of maps which I think are known to many of you. We published these maps beginning in 1999, when Dr. Koplan was the chief author of an editorial announcing that obesity was epidemic. As you know, all of these maps look the same. There are the obesity trends among U.S. adults from the Behavioral Risk Factor Surveillance System, a state-based annual survey. Prevalence estimates are down here. An estimate of less than 10 percent is this light blue, 10 to 14 percent is this medium blue, and the dark blue is 15 to 19 percent. As the epidemic progressed, the number of states that were affected rapidly increased until 2003. There was no question in anyone's mind that this was an epidemic. The impact of this series of maps has been striking. More than anything else, it has made this epidemic visible.

You don't have to look further than the issue of *Time* magazine that followed the *Time*/ABC conference in Williamsburg. In addition, who would ever have thought that *National Geographic* would have an issue on obesity, or that *Sports Illustrated* would begin to talk about obesity and physical fitness, or that *Vogue* would address obesity in a lengthy, but somewhat scary article for women who are afraid of turning into the shapes that *Vogue* included in this particular article.

All of this has accomplished the goal of making the obesity issue visible. That is behind us. Now, in many respects, I think we are confronting an even bigger challenge, and that is, what do we do? How do we begin to change behaviors that lead to obesity?

Our focus, with respect to the pediatric population, has been to look hard at what the implications of pediatric obesity are for adult disease.

These are data from Bogalusa, Louisiana; they are the only data of their kind, which looked at the course obesity in childhood and its impact on adult disease. I think you can see that only 25 percent of adults were overweight children but, among overweight children who went on to become obese adults, there was a disproportionate representation of that group among the severely obese. Half of the all adults with a BMI over 40—that is, half of all adults who are 100 pounds or more overweight—were overweight prior to eight years of age. In our view, that is a disproportionate contribution to the burden of disease. Ultimately, whether childhood onset obesity that persists into adulthood it is more expensive than adult-onset obesity is not yet resolved, but the contribution of childhood onset obesity to adult obesity provides a sound rationale for dealing with obesity in children.

Over the last four years, we have channeled funds to 28 states to develop interventions. Five of these states are funded at a basic implementation level. These states are looking for solutions. At the same time, the Steps Program, which is a program initiated by Secretary Thompson, is focusing on dealing with diabetes, obesity, and asthma through nutrition, physical activity, and tobacco control.

So, what do we recommend? What actions does the evidence justify today? We spent a lot of time, and more needs to be spent, in identifying reasonable efforts that are likely to be effective for this problem. The most evidence exists for the role of physical activity, which reduces obesity-associated comorbidities. That is, if you were overweight, hypertensive, and inactive, and you become active, then your blood pressure would improve. Physical activity has a relatively modest impact on weight loss, and the dose of physical activity necessary to prevent obesity is not known. Nonetheless, physical activity is a strategy that we can employ today, if only for its impact on the comorbidities. We also have a sound evidence base included in the *Guide for Community Preventive Services*, with recommended strategies to increase physical activity, both at the individual and community level.

Television viewing was mentioned earlier. There is a strong relationship of television viewing to both the prevalence and severity of obesity in children, and there is increasing evidence that reductions in television time reduce childhood obesity.

Finally, children who were ever breast fed and children who were breast fed for longer periods of time have a reduced risk of early childhood overweight. Although the effects of breastfeeding may be confounded by other variables, for all the other reasons for which we should be supporting breast feeding, weight control may be an additional strategy, particularly insofar as it may affect those children who are most vulnerable and most likely to go on to severe adult disease.

These are promising interventions. We have less evidence to support these interventions, but they can be rationally and logically implemented with no adverse effects.

In addition to all the reasons we support fruit and vegetable intake, consuming fruits and vegetables may also have an impact on obesity.

Satiety seems to be regulated by volume, not by calories, and foods that have a large volume and are relatively low in calories may reduce subsequent caloric intake and, thereby, reduce obesity. Soft drink consumption accounts for about 13 percent of daily caloric intake for adolescents, and reductions in soft drink intake or substitutions of low-calorie beverages seems a logical strategy to reduce obesity. Already mentioned by Dr. Koplan and Dr. Kumanyika is the strategy of reducing portion size.

Because of the urgency of the epidemic, we can't wait, in these areas, for the substantial body of randomized clinical trials necessary to meet the evidentiary standards of something like the *Guide for Community Preventive Services*. The strategy that we are now pursuing is nicely summarized by this quote from Larry Green: "To obtain more evidence-based practice, we need more practice-based evidence." We need to understand the impact of the natural experiments that are going on around us. When a school changes the products in its vending machines, or eliminates vending machines, what impact does that have on the quality of the diet or on weight? When the Texas school system reintroduces physical education in its elementary school programs, what impact does that have on weight? To build more evidence-based practice, we need more practice-based evidence.

We have also been actively looking at interventions delivered through different venues. The first of these is medical settings, which we still see as a public health intervention, because medical settings are where the 16 percent of children and adolescents who are overweight are going to go to obtain their health care. We have partnered with Kaiser Permanente to begin to explore how to change the delivery of care for a chronic disease such as obesity. The chronic care model involves changing such things as the information systems available in medical settings so that BMI, or body mass index, becomes a vital sign, and is entered in the medical record just like blood pressure but, in this case, could be linked to an algorithm for the care of obesity.

Changes in decision support are represented by this poster, which Kaiser Permanente developed and posted in all their pediatric examining rooms. It is designed to engage children and parents in conversations about how to get more energy. Notice that it is about energy, not about obesity. Many of the recommendations that I emphasized, such as being physically active for 60 minutes a day, reducing television time, substituting water for soft drinks, and increasing fruit and vegetable consumption are reiterated in this poster. In addition, along the bottom of this poster is a scale for readiness to change, which the health care providers can use to engage patients in discussing behavior change around these behaviors.

Increasingly, medical systems are recognizing that changes in the medical system delivery alone are not sufficient to achieve optimal patient self-management. The most recent development has been the recognition by enlightened groups such as Kaiser Permanente and Blue Cross Blue Shield of Massachusetts that they need to partner with public health systems that address nutrition, physical activity, and obesity in schools, at work sites, and in communities. As a result of this recognition, Kaiser Permanente has partnered with a number of the Steps Program applicants, and is actively partnering with some of those recipients to develop community-based approaches. These partners have introduced a community health initiative that provides funds for communities to invest in nutrition and physical activity interventions to address obesity in schools and communities.

Blue Cross Blue Shield in Massachusetts has developed a program called 5-2-1 in collaboration with our state program in Massachusetts. 5-2-1 stands for five fruits and vegetables a day, two hours or less of television a day, and one hour of physical activity a day.

These kinds of partnerships, I think, are going to be essential to achieve optimal patient self-management. Not only will this require shifts in the medical system, but complementary shifts in the environment as well if those changes are to be achieved.

I am not going to talk about schools. You have already heard something about this from both Mr. Leach and Dr. Kumanyika, and we can talk about more of this in the discussion.

I want to spend the last two minutes on communications strategies. One of the most important deficits that I feel we have in this field is that we don't have redundant messages about weight control.

The strategies I outlined earlier need to be heard both in the health care provider's office, in schools, and echoed in work sites and communities. We need that kind of redundancy and consistency.

One of the most important CDC efforts in this arena has been a campaign known as VERB. This is a media campaign aimed at "tweens," children ranging from 9 to 13 years old. It is called *VERB* because there are 10,000 active verbs in the English language. You can run, jump, swim, play, throw, and so on. The campaign is aimed at getting children to pick their own verb. One of the most important aspects of this campaign is that it is a paid advertising campaign. It is a paid media campaign rather than a campaign that relies on public service announcements. At its outset, the campaign had sufficient funding to do the kind of necessary focus group work to develop specific ads aimed at the five major groups of children in the country. So, there are ads specific for children who are Caucasian, African American, Mexican American, Native American, and Asian American children.

I would like to show you one of these ads. This is the ad for Native American children.

[Video shown]

The VERB campaign has been one of the more effective advertising campaigns, probably because it has been one of the most well supported. There have been very significant improvements in physical activity levels among target populations who are considered most vulnerable, namely, girls, inner-city children, and children from low-income families.

In closing, I think we know some of the things we need to do. Now the challenge is how do we begin to implement these strategies more broadly?

I think that the quote that summarizes our challenge and commitment best is this quote from Margaret Mead who said: "Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has."

My belief is that we have a small and committed group of people who are focused on the issue of childhood obesity, and this is a world that can change. My belief is that it will not take us the 80 years it took the Red Sox to win the World Series. Thank you.

DR. KOPLAN: Thank you, Dr. Dietz.

Discussion

DR. KOPLAN: We are at our time's end. Does anyone have comments or questions for our panelists?

DR. FINEBERG: I have a question about economies of scale. I want to get back to that point, Mr. Leach that you made. Economies of scale require resources, coordination, and a broad scope. Just out of curiosity, Dr. Dietz, what is the entire investment that has gone into the VERB program? And Mr. Leach, I would be interested if you could share with us what your company—admittedly a big one—invested in the first year of your program.

DR. DIETZ: In the first year, the VERB campaign received $125 million. To give you a sense of scale against other products aimed at children, $100 million annually is spent on Barbie. In the second year, I think we received $70 million, and in this year's budget we have $45 million.

DR. KOPLAN: A quick comment on this: Congressman John Porter, a visionary, saw the need to fund the VERB campaign, though it was not called that at the time. His belief, and I think it is one that is shared by public health people, was to compete against state-of-the-art advertising and marketing agencies with pro bono work or efforts that were not state of the art was a losing cause. That funding permitted Dr. Dietz and his colleagues to hold a competition. They had the best advertising firms in the world working on this effort, and were able to pay for the advertising to be placed crucial times of the day. The VERB campaign had adequate support with Chairman Porter. It had somewhat adequate support the next year, but you can see what is happening to a successful campaign in the amount of funding that it is retaining.

DR. DIETZ: Let me just add that two of the partners, the Disney Channel and Nickelodeon Channel, provided additional advertising at their cost, pro bono.

MR. LEACH: I would just say that $125 million is a really strong advertising effort. There are not too many brands that are spending at that rate. There are a few, but that is a high figure. This year we are going to spend about $26 million on our Smart Spot program. We are budgeting for this campaign as we would for any new product launch. Obviously, in addition to that, we are doing a whole lot of brand advertising as well.

We have big brands. Tropicana has a $50 million advertising budget. Gatorade is well over that. AquaFina is significant. I don't know what Quaker oatmeal is, but it is far more than that. If you look at it collectively, we are spending a slightly disproportionate amount on our better for you and good for you brands. That effort, in particular, is like a $25 million budget.

PARTICIPANT: I just want to compliment you. Dr. Fineberg, this is the best Rosenthal Lecture I have been to, and I have been to a number of them. I just think it is terrific.

My question is this: It is my understanding that this epidemic is hardly limited to the United States. It seems to be a global problem, or at least in well-developed countries. Is that true? If so, how are other countries waging battle against this problem?

DR. KUMANYIKA: I will answer that. One of my other roles is chair of the prevention group of the international obesity task force. There is a lot of interest in countries, not just the affluent countries, but in lower-income countries, because the health budgets in some of the countries where obesity is beginning to emerge cannot support the care for the comorbidities associated with obesity. Diabetes shows up very soon after you begin to get high rates of obesity, and it is a very costly disease to treat.

So, yes, indeed, it is global, and there is a lot of interest. WHO has taken this on. They had a report in 2000 on the global epidemic, getting together 20 or so countries, including some of the ones you wouldn't expect. It is very interesting. Because this is a socially embedded problem, the culture and the economy of each country determines the types of solutions they choose and what types of things they will do.

All the marketing and multinational issues do link the problem across the globe, but within each country there is a filter of culture that determines what can be done with advertising or whether, for example, people actually ride bicycles, and so forth. It is very interesting to look at and compare efforts across societies.

DR. DIETZ: In China the rates of obesity in the major cities along their eastern seaboard has more than tripled in the last decade and is increasingly seen as a health problem there.

PARTICIPANT: You don't have to go too far. In Mexico, in the 1990s, the rate of obesity in women tripled. So, you have a big problem there. Do you think it is nature or is it nurture? Or perhaps more important, does it really matter? Is that an academic question from the point of view of public health interventions?

DR. KUMANYIKA: I think that there are genetic predispositions. I mean, the ethnic groups are not considered to be genetically defined categories. It is combination of certain gene frequencies and a common history and a common environment. There are genetic predispositions to obesity generally. I don't think that we have identified any factor that predisposes these groups to obesity so strongly that it is stronger than the environmental factors. So, the baseline risk is there, but there are counterparts of all these populations that are not obese and that have the same genetic make up. In black girls, for instance, obesity was not a problem in the 1960s, but it has increased yet the genetics have not changed. I think we agree that there is a predisposition, but it is really a combination of these environmental factors that is causing the excess risk, and it is much easier to explain it systematically on the basis of your environment than it is on any kind of genetic factor, even though people have been looking.

PARTICIPANT: I would just like to know what you think of these diets that emphasize high protein intake. An example is a granddaughter of ours who runs on the fat side, unlike her parents, who are slim. She went on this diet, the original Atkins diet. It was effective before she started college. Then she started college and she blew up worse than she ever did.

DR. DIETZ: Actually, the comparison of carbohydrate-free and carbohydrate-containing diets was the topic of my thesis, and I only wish that I had renamed my findings the "Dietz Diet." There are a couple of relevant points. The first is that the putative mechanism that explains why carbohydrate free diets cause more weight loss is not correct. That is, the mechanism that is proposed is that, in the absence of carbohydrates, insulin levels fall. That means you rely more on fat for your metabolism and you lose more weight. That is not true.

That is not to say these diets aren't effective. I think they are, and they are effective for two reasons. First, they are boring. You can only have eggs and bacon, or eggs and ham, or steak and eggs for breakfast so many times before it really gets tiring. People get tired of eating the same food over and over again. In addition, protein, which is at the heart of these diets, is very satiating. It makes you full. There is no other food that makes you as full as protein. So, people lose weight on those diets.

I think that one of the remaining questions is that although lipid levels—cholesterol levels—improve on these diets, it is not clear that the improvement is more than you would expect for the weight loss that is achieved.

Now, that said, the way these diets are used in practice is that nobody really stays on them for a long period of time. People go on and off them. To me, the much more important concern is how one achieves weight maintenance after loss, because people lose weight all sorts of different ways. However, they tend to use a narrower base of strategies to maintain their weight over time. People who have lost weight and sustain those weight losses tend to eat breakfast, they consume a low-fat diet, they are physically active for about 60 minutes a day, and they monitor their weight on a regular basis. Those, I think, are the more important long-term strategies than whatever it takes for people to lose weight.

Now, with respect to children and adolescents, I think that there are potential hazards of these diets, because children and adolescents are growing. Our data shows that there can be sustained protein losses on these diets. I worried a lot when I used these diets clinically.

PARTICIPANT: [Question off microphone.]

DR. DIETZ: Yes, paradoxically enough. Protein utilization is a function of energy intake as well as protein intake. If you lower the energy, you have to raise the protein, but even under those circumstances, some of the adolescents we studied had very sustained protein losses. I always worry about adolescents who follow this diet for a week or two and then suddenly have a carbohydrate binge, because of the potential electrolyte shifts that could occur. The salts in the blood might shift in and out of the heart muscle and cause an arrhythmia. That is a theoretical problem and one which I never saw, but I always worried about it. I think in the case of adolescents, it is not an appropriate diet, unless they are under the care of a physician who knows what he or she is doing with respect to management of these low-calorie diets.

PARTICIPANT: I also would like to commend the panel and Dr. Koplan for what I thought was an excellent report and an excellent presentation. I had two points: One, I was surprised there was no mention about the effects of stress and sleep on obesity. I'm an uninitiated person in the world of obesity, other than having personal experience. I would think that stress and sleep seem to be related to obesity. I wondered if you could comment on that.

The second part is, Dr. Dietz, when you mentioned the need for redundancy in the messages to think more about obesity, it makes me think about anorexia and eating disorders, which are very, very prevalent. I would think it is hard to find a college population where less than half the people are not bothered by that. I wonder what you think about balancing the need for redundancy of the message and, on the other hand, the bad effects of too much message, or what might be the bad effects of too much message.

DR. DIETZ: The first articles related to sleep just appeared, and I haven't actually read them, but they show that reduced sleep may be associated with increased obesity and that leptin levels are decreased and ghrelin levels are increased, which tend to drive food intake.

The role of stress may have a greater impact on where fat is deposited than on the deposition of fat, because it really depends what you are consuming and how much. In fact, the epidemiologic data that suggests that stress is related to obesity is pretty sparse. There are biochemical or metabolic explanations for how that could happen, but not a lot of good data.

In reply to your second point, the focus on the redundancy of those messages doesn't say what those messages should be. It only says they should be heard in a variety of places. Mr. Leach, I think, from his marketing perspective knows better than I how one can craft a message like Pepsico has done and McDonalds is doing, which talk about what is good for you or wholesome and that focuses on the benefits of healthy behaviors and not weight control as the reason for adopting these behaviors.

MR. LEACH: We are learning that encouraging people to get started in simple ways is really important. The majority of people are overwhelmed at the prospect of radically changing their diet and radically changing their physical activity. So, if you can get to them with a message that says, “You can do this. It is simple. Just get started, and you will feel better,” you can have a real impact. At least, that has been the findings of our market research. The right kind of message can reach a large number of people who are contemplating behavior changes. That is what we have learned so far.

DR. KOPLAN: I know we have other good questions here. I am sure the panelists will be glad to stay and chat, but to preserve your own caloric intake tomorrow; we want you to get enough sleep tonight. Dr. Fineberg, do you want to make a closing comment?

DR. FINEBERG: I would just like to add my thanks to each of the panelists, and to you, Dr. Koplan, for your work here tonight, and for the things that you have done over the years in your respective capacities to bring better nutrition and better lifestyles to children and to everyone in our country. I want to thank all of you.

I also want to acknowledge particularly our staff, Cathy Liverman, Vivica Kraak, Linda Meyers, and Rose Martinez.

DR. DIETZ: Howie and Ron were responsible for that video running. It took us four computers to get it to go. So, thank you.

DR. FINEBERG: Well, done, and thank you.

Biosketches

William H. Dietz, M.D., Ph.D. is the Director of the Division of Nutrition and Physical Activity in the Center for Chronic Disease Prevention and Health Promotion at the Centers for Disease Control and Prevention (CDC). Prior to his appointment to the CDC, he was a Professor of Pediatrics at the Tuft's University School of Medicine and Director of Clinical Nutrition at the Floating Hospital of New England Medical Center Hospitals. He received his B.A. from Wesleyan University in 1966 and his M.D. from the University of Pennsylvania in 1970. Following an internship at Children's Hospital of Philadelphia, he spent three years in the Middle America Research Unit of the National Institute of Allergy and Infectious Disease in Panama, studying insect borne viruses. After the completion of his residency at Upstate Medical Center, he received a Ph.D. in Nutritional Biochemistry from Massachusetts Institute of Technology. He served as a councilor and past president of the American Society for Clinical Nutrition and as past president of the North American Association for the Study of Obesity. In 1995, he received the John Stalker award from the American School Food Service Association for his efforts to improve the school lunch. Dr. Dietz served on the 1995 Dietary Guidelines Advisory Committee. In 1998, Dr. Dietz was elected to the Institute of Medicine. Dr. Dietz's research has focused on the epidemiology of childhood obesity, the clinical consequences of childhood and adolescent obesity, optimal dietary therapy for overweight children and adolescents, and the implications of reduced energy expenditure for the development of overweight in children and adolescents. He is the author of over 150 publications in scientific literature and the editor of three books, including *A Guide to Your Child's Nutrition*.

Jeffrey P. Koplan, M.D., M.P.H. is the Vice President for Academic Health Affairs at the Woodruff Health Sciences Center at Emory University in Atlanta. He received a B.A. from Yale College, an M.D. from Mt. Sinai School of Medicine, and a M.P.H. from the Harvard School of Public Health. He is board certified in internal and preventive medicine. From 1998 to 2002, Dr. Koplan served as the Director of the Centers for Disease Control and Prevention (CDC). He worked in the area of enhancing the interactions between clinical medicine and public health by leading the Prudential Center for Health Care Research, a nationally recognized health services research organization. In his 26 years at CDC, Dr. Koplan worked on a broad range of major public health issues, including infectious diseases such as smallpox and HIV/AIDS, environmental issues such as the Bhopal chemical disaster, and the health toll of tobacco and chronic diseases, both in the United States and globally. Dr. Koplan is a Master of the American College of Physicians, an Honorary Fellow of the Society of Public Health Educators, and a Public Health Hero of the American Public Health Association. He was elected to the Institute of Medicine (IOM) in 1999. He has served on many advisory groups and consultancies on public health issues in the United States and overseas and authored more than 185 scientific papers. Dr. Koplan chaired the IOM Committee on Prevention of Obesity in Children and Youth.

Shiriki K. Kumanyika, Ph.D., M.P.H., R.D. is Professor of Epidemiology in the Department of Biostatistics and Epidemiology, Associate Dean for Health Promotion and Disease Prevention, and the Director of the Graduate Program in Public Health Studies at the University of Pennsylvania School of Medicine. She received her B.A. from Syracuse University, M.S.W. from Columbia University, Ph.D. in human nutrition from Cornell University, and

M.P.H. from Johns Hopkins University. The main themes in Dr. Kumanyika's research concern the role of nutritional factors in the primary and secondary prevention of chronic diseases with a particular focus on obesity, sodium reduction, and related health problems such as hypertension and diabetes. She directs an NIH-funded EXPORT (Excellence in Partnerships for Community Outreach, Research, and Training) Center that focuses on reduction of obesity-related health disparities. Dr. Kumanyika is the lead investigator or a collaborator on several federally-funded studies of obesity prevention and treatment in adults and children, of which some focus specifically on African Americans. She has served on a number of expert panels, including the 1995 and 2000 U.S. Dietary Guidelines Advisory Committees, and she served on the NIH Advisory Committee for the National Children's Study in 2002-2003. She was vice-chair of the Joint WHO/FAO Expert Consultation on Diet, Nutrition, and the Prevention of Chronic Diseases in 2002, and also chaired the 2002 WHO Expert Consultation on Appropriate BMI Standards for Asian Populations. Dr. Kumanyika's current activities include serving on the Institute of Medicine's (IOM's) Food and Nutrition Board, the NIH Clinical Obesity Research Panel, and the Prevention Group of the International Obesity Task Force. She was elected to the IOM in 2003. Dr. Kumanyika served as a member of the IOM Committee on the Prevention of Obesity in Children and Youth.

Brock Leach is Senior Vice President, New Growth Platforms and Chief Innovation Officer for PepsiCo, an assignment he undertook in March 2003. Mr. Leach is responsible for identifying and developing new platforms for business growth beyond those already being pursued by PepsiCo's operating units and for building new capabilities to support the innovation work of the divisions. As part of this responsibility, Mr. Leach also directs the company's strategic focus on health and well-being, in partnership with Dr. Ken Cooper of the renowned Cooper Clinic, Dr. Dean Ornish, and other experts, to broaden PepsiCo's offerings of nutritious products and to encourage healthy lifestyles. Previously Mr. Leach was president and CEO of Tropicana Products, Inc. and was responsible for overseeing the operations of the world's largest marketer and producer of branded juices. Prior to that, he was president of the Frito-Lay Development Group, a global team focused on the company's innovation and development. He has also served as the president of Frito-Lay North America, the largest operating profit segment of PepsiCo and the largest manufacturer and distributor of snack foods with $7.5 billion in sales in 1998. Mr. Leach joined Frito-Lay North America in 1982 as assistant product manager and assumed positions of increasing responsibility in marketing and sales, including vice president of brand marketing and senior vice president of marketing. Mr. Leach is a member of the National Board of the YMCA and serves on the boards of several Florida children's agencies. He received his Bachelor's degree in Economics.