Policy and Environmental Changes Related to the Prevention and Treatment of Childhood and Adolescent Obesity

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Policy is defined as an “organizational guideline intended to modify behavior.” Historically, the most effective strategies for preventing nutritional diseases have relied on policy or environmental changes. For example, environmental changes—such as fortification of milk with vitamin D—provided an effective strategy for preventing rickets. In those cases, fortification of the food supply promptly eradicated existing disease and provided effective prevention of new cases. Although obesity is a more complex problem, because excess energy consumption relative to expenditure has not been linked to a single product, it appears worthwhile to explore environmental strategies that promote reduced energy intake or increase energy expenditure.

The current worldwide epidemic of obesity and its associated effects suggest that the time has come to begin to identify and implement policy and environmental changes that effectively address the epidemic. Several caveats are essential at the outset of this discussion. First, changes in policy and the environment should be science based, to the extent that is possible. However, because the epidemic of obesity has progressed so rapidly and because its consequences are severe, it may be necessary to implement some changes based on their logical association with obesity before compelling evidence becomes available. Second, because the causes of obesity and its cultural context may vary from country to country, policy and environmental changes that are effective in one country may not be so in others. Third, because political systems differ from country to country, the changes proposed for one country may not be appropriate in others. The suggestions presented here reflect my own views, not those of the US government, but necessarily address conditions in the United States.

FAMILY PRACTICES RELATED TO OBESITY

As discussed elsewhere in this volume, childhood and adolescent obesity occurs in a family context. Although the familial clustering of obesity may have a genetic basis,
it may also reflect family patterns of food availability, preparation, or consumption. Strategies within families for preventing obesity are shown in Table 1. These include promotion of breast-feeding, the control of television time, and the division of responsibility between parents and children over meals. Each of these will be considered in turn.

Breast-feeding has not been consistently associated with a reduction in the risk of obesity. However, until recently, most of the studies that examined this relation included unreliable measurements of the duration of breast-feeding. Two recent studies (one published [1,2]) with large samples, reliable measures of breast-feeding, and sound follow-up found that breast-feeding reduces the incidence of childhood obesity in a dose-dependent fashion. At least two potential mechanisms could mediate the relation between breast-feeding and obesity. First, in breast-fed infants, the duration of feeding and the quantity of breast milk consumed are almost exclusively under the infant’s control, in contrast to bottle-feeding, where the parent may continue to prompt the infant to feed until an expected quantity of formula has been consumed. Second, infants who are breast-fed adapt more readily to the introduction of new foods (3), probably because the taste of breast milk varies in response to the maternal diet. As a result, infants who are breast-fed may consume a more varied diet or a diet higher in fruits and vegetables. No data are available to confirm either of these hypotheses. Nonetheless, because breast milk is the best food for infants and may prevent obesity, breast-feeding should be promoted as the most appropriate choice of feeding for most infants.

As shown in other chapters in this volume, the duration of television viewing is associated with the prevalence of obesity in the United States (4) and other countries (5). Furthermore, reductions in television viewing time appear to be an effective means of preventing obesity (6) or reducing obesity in those who are already overweight (7,8). These data emphasize the fact that parental control of television time may be an effective strategy for preventing or treating obesity.

The final family-based strategy depends on the division of responsibility between parents and children with regard to meals. Parents should be responsible for what children are offered, and children are responsible for whether to eat the foods that are offered (9). This approach addresses many of the practices that discourage the intake of certain foods or impair the child’s capacity to regulate energy intake. For example, the more children are encouraged to eat a food, the less likely they may be to do
POLICY CHANGES IN MEDICAL SETTINGS

Because parents of young children represent the most appropriate target for these efforts, the most appropriate individual to engage parents around these strategies is probably the primary care provider. Another potential change agent is the dietitian who counsels families in the Supplemental Foods for Women, Infants, and Children (WIC) program, the program in the United States that provides supplemental foods to low-income children and nutritional education for their parents. Primary care and WIC clinics offer access to children and parents. Thus, children at risk of developing obesity can be identified and parents can be counseled around preventive strategies. Children at risk are those whose BMI is the 85th centile or more, or who have at least one obese parent (14). As indicated earlier, reasonable strategies for prevention in primary care settings are parental control of television time and the division of responsibility for feeding between parents and children.

The most important shift necessary to increase the promotion of these strategies by primary care providers is the acceptance of the BMI cutoff point for identifying children at risk of obesity and the demonstration that counseling about television time and the division of mealtime responsibility between parents and children are effective strategies for preventing obesity. However, before the effectiveness of anticipatory guidance can be tested, the interaction of families and physicians may require revision. Providers must be educated about how to counsel families in these areas. Current counseling usually consists of the provider expressing concern about a problem and telling parents how they should respond. This approach does not acknowledge the important role that feeding interactions or television may play in family functioning, and provides little incentive for families to change. More effective mechanisms to engage families about the need to change these behaviors must be established. For example, conflict resolution around eating may be a more effective way of promoting the division of responsibility than concern about the development of obesity. Likewise, concern about televised violence may be perceived as a greater concern than exposure to food advertising on television. Thus the implementation of these strategies will require alterations in the training of medical students, junior doctors, and practitioners. Likewise, changes in WIC practices will require specific directives to address these issues.

Because 10% to 15% of children are already overweight, effective treatment protocols are also essential. An expert committee in the United States has already
recommended an approach to the evaluation and treatment of overweight children (15). Nonetheless, because few managed-care organizations consider the treatment of childhood obesity to be a member benefit and few insurance companies reimburse for the care of overweight children or adolescents, compensation for providers is a major barrier. The time required for treatment will probably require changes in the policies of insurance or managed-care companies, either to provide such counseling as a member benefit or to reimburse for it. Reimbursement will depend not only on demand, but also on the demonstration that treatment is effective. However, the efficacy of the guidelines recommended by the expert committee has not been examined in a randomized controlled clinical trial. How one should define effective treatment for children and adolescents also remains unclear. Because obesity-associated hypertension, diabetes, or dyslipidemia in children and adolescents is less prevalent than in adults, remission or improvement of these comorbidities cannot be used routinely as measures of effectiveness.

Although reimbursement and effective programs represent important barriers to treatment, a significant question remains about who should best provide these services. Although pediatricians play a major role in the delivery of anticipatory guidance, it is unclear that they represent the most cost-effective providers of treatment. The role and effectiveness of nutritionists or nurse practitioners should also be explored.

**POLICY AND ENVIRONMENTAL CHANGES IN WORK SITES**

One of the most important factors that appears to reduce the duration of breast-feeding in the United States is the return of the employed mother to work. Sustained breast-feeding after a new mother returns to work requires either child care facilities in the work site, with policies that permit the mother to feed her child during the work day, or facilities and policies that enable the mother to pump and store her breast milk during the day. Maintenance of breast-feeding is not a high priority for many businesses in the United States. Additional data showing that maternal absenteeism is lessened because of the reduced frequency of illness in the breast-fed child or that mothers who can continue to nurse after they return to work are more satisfied may provide important incentives for businesses to support breast-feeding.

**POLICY AND ENVIRONMENTAL CHANGES IN SCHOOLS**

Schools offer an important setting in which to modify children's food and physical activity patterns. Children spend substantial amounts of time in school, and in the United States they may consume two meals a day in school, often provided by the school without cost or at a low price. Furthermore, schools usually have the facilities to support PE programs and provide opportunities for physical activity as part of the curriculum, as well as before and after school. Nonetheless, neither the food nor the physical activity environments within schools are optimal for the prevention of obesity. I will consider each of these areas in turn.
Food Environment

As indicated earlier, schools are an important source of food intake for children. High-energy-density foods have become a staple in many schools, through à la carte foods available in cafeterias and through the choices available in vending machines. As shown in Table 2, the major items sold in cafeterias and vending machines are foods of high energy density. Lower-energy alternatives are rarely available. For example, in California, a student survey disclosed that 24% of students reported that their school cafeteria regularly served fast foods from commercial vendors (16). Furthermore, children who reported eating fast food on a typical school day consumed twice as many high-fat snacks as students in schools that did not serve fast food. Although at present no data link these practices to an increased prevalence of obesity, such observations suggest that the provision of fast foods in school feeding programs may be associated with an increased energy intake and with a less healthy eating pattern.

The financial viability of many school feeding programs is heavily dependent on the sales of à la carte and vending machine foods. Therefore environmental strategies to provide lower-energy choices must be cost-neutral. The availability of alternatives to the high-energy-density products sold in cafeteria lines and vending machines provides one important strategy. Subsidies provided for fruit and vegetables, as well as more attractive alternatives offered in cafeteria lines, have been associated with increased consumption of those foods (17). A similar strategy applied to vending machines increased the consumption of lower-energy alternatives (18). A variant of this approach has been instituted in a novel program known as the Farmer’s Market Salad Bar (19). In this project, the school food service purchased fruits and vegetables directly from producers twice a week and offered them in an attractive salad bar as an alternative to the school lunch. Data from the first several years of the project indicate dramatic increases in fruit and vegetable consumption, even among children in poorer communities. Although no data yet link consumption of fruit and vegetables to lower rates of obesity, these observations indicate that food consumption patterns can be modified either by manipulation of prices or by the provision and

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<th>TABLE 2. Foods and beverages most commonly consumed in school cafeterias (à la carte) and vending machines</th>
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<td>A la carte cafeteria foods</td>
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<td>Juices and juice drinks</td>
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promotion of attractive lower-energy-density alternatives. The Farmer’s Market Salad Bar also provides an important example of how agricultural production can be directly linked to healthy eating patterns of children.

Strategies that rely on financial subsidies cannot be considered cost-neutral as long as financial subsidies are required to modify patterns of consumption. A potentially viable alternative may be to increase the price of higher-energy-density foods, thereby making the prices of the fruits and vegetables more competitive. Although this approach has not been rigorously tested, data from the Santa Monica School System suggest that the strategy may maintain a high level of fruit and vegetable consumption without affecting the total revenue from a school feeding program (Taylor R, School Food Service and Nutrition Director, Santa Monica-Malibu Unified School District, personal communication, 2001).

Physical Activity

Physical education (PE) programs in schools provide an important opportunity for children to be physically active. Nonetheless, in the United States there has been a sharp reduction in the number of schools that offer daily PE programs. For example, in 1991, 42% of schools offered daily PE programs, but by 1999 only 29% of schools did so (20). Even when state policies recommend PE programs, school systems are not obliged to follow the state’s recommendations. For example, in California, 17% of children reported that they received no PE classes in school, and on average the number of PE classes and time in PE was only about half of the state’s recommendation of 200 minutes every 10 days (16). A second strategy within PE programs is to make them more active. In many schools, PE programs are not taught by trained instructors. Furthermore, estimates suggest that children are not moving for much of the time they are in PE class. The use of strategies that keep all children engaged in physical activity, rather than the typical activities that engage small numbers of children while the remainder of the class are spectators awaiting their turn, will increase physical activity levels further in schools that have retained PE classes.

As with the strategies outlined previously to address food practices in schools, few studies suggest that strategies to improve the frequency or character of PE programs effectively prevent obesity. In fact, in comprehensive school-based cardiovascular risk reduction programs that included both PE and food-based strategies, no effects on obesity rates in children were observed (21,22), despite self-reported changes in behavior. One of the potential problems with these programs was that obesity prevention was not targeted as a primary goal.

In contrast, when obesity was the principal target of school-based interventions and when reduced sedentary behavior has been included as a strategy, the prevalence of obesity decreased (8) or less rapid rates of weight gain were observed (6). Several important differences distinguished these two school-based interventions from those addressed earlier. First, obesity was an explicit target in both interventions, whereas in earlier studies obesity was only one of a number of cardiovascular disease risk factors. Second, reductions in television time and other media use were a prominent
feature of both interventions. These represent the first interventions directed at reductions in sedentary behavior rather than increased physical activity.

POLICY AND ENVIRONMENTAL CHANGES WITHIN COMMUNITIES

Communities offer additional opportunities for the design and implementation of strategies to reduce obesity.

Food Intake

Although no data yet link specific dietary practices with obesity, various strategies may be employed to make lower-energy foods available to children. It would seem logical that high-energy-density foods are more likely to be consumed when they are the least expensive and most readily available foods, and that the converse will be true for foods of low energy density. For example, fruit and vegetable consumption is unlikely to be substantial in neighborhoods that lack large supermarkets where attractive and varied fruits and vegetables can be purchased at reasonable practices. Likewise, unless access to inexpensive fruit and vegetables exists in poor neighborhoods, campaigns to promote their consumption are unlikely to be successful. Nonetheless, almost nothing is known about the relation of the availability of high-energy-density foods to either their consumption or the risk of obesity. Despite these limitations, there are ample reasons for promoting fruit and vegetable consumption and for exploring strategies to reduce the barriers that limit fruit and vegetable consumption as potential community strategies for health promotion.

Physical Activity

There is more justification for promoting physical activity as a strategy to address obesity. For example, sedentary behavior promotes the development of obesity (23), and increased physical activity in adults improves many of the comorbidities associated with obesity, such as diabetes, hypertension, or hyperlipidemia. Thus community strategies to increase physical activity may be effective in the prevention and treatment of obesity. Several sources of data suggest that community design may be associated with alterations in physical activity. Recent studies of travel behaviors in the United States show that less than one-third of children who live within a mile of school walk to school (Ham S, personal communication). Furthermore, although 25% of all trips in the United States are less than 1 mile, 75% of those trips are taken by car (24). These observations probably reflect recent changes in community design in the United States. For example, car use is inversely related to the age of communities, and directly to population density. Many newer suburban communities in the United States lack sidewalks and centralized shopping facilities or schools, although other facilities to support physical activity may be available. We currently lack data that provide insight into the relative contribution of these elements to daily physical activity levels among the residents of such communities.
Communities with resources like parks or recreation facilities that support physical activity are also more likely to have physically active residents. The development of a series of walking trails in the Bootheel area of Missouri has been associated with an increase in self-reported walking (25). Strategies to make walking trails or increase the use of recreation facilities include better urban planning and the use of schools for community physical activities after school hours. Facilities are also needed to provide alternatives to television viewing in children, as viewing is unlikely to be reduced unless alternatives are available. Nonetheless, the effects on physical activity of making schools available for physical activity after school hours, developing walking trails, and building new parks or recreational facilities have not been carefully examined.

A final strategy involves changes in building design to promote physical activity. Stairs offer a daily opportunity for activity, and studies in adults show that frequent stair use can have beneficial health effects. Furthermore, several studies have now shown that signs promoting stair use increase the use of stairs as opposed to that of escalators or elevators. These observations suggest that locating stairs in a central position and promoting their use may represent an effective strategy for increasing physical activity.

The incentives to introduce such shifts remain unclear. However, several potential strategies might be pursued. For example, housing developments that support physical activity such as recreational facilities are viewed as highly desirable by new-home buyers (26), which suggests that linkages of public health practitioners with developers and builders may be mutually beneficial. The role that alternative forms of transport could play in the reduction of car use and the consequent reduction of air pollution suggests that nontraditional allies in the transportation industry may share an interest in walking and bicycling. Increased interest in living in communities with cluster housing, central shops, and central schools has implications for urban design. Community projects that encourage adults to help children identify and use safe routes to walk to school are promising strategies for increasing physical activity as part of daily living (27) and may enhance community livability. A notable example is California, which provided $22 million for building sidewalks to enable children to walk to school.

**Communication Strategies**

The rapid increase in the prevalence of obesity is unlikely to be arrested by any single strategy. One of the first steps necessary to prevent obesity is to understand how families perceive excess weight and how to engage them in the need to avoid or lose excess weight. Several recent focus groups conducted in children of different ages suggest that excess weight is not defined in terms of where the child appears on a growth chart but by whether the excess weight affects the child’s self-esteem. Under these circumstances, the parents may not share a provider’s concern about the child’s weight. Although we know little about how children and adolescents perceive the risks of obesity, a recent study conducted by Discovery Health and the American Heart Association (28) showed that less than 30% of adults recognized that obesity,
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inactivity, and high blood pressure were associated with increased risk of cardiovascular disease. Because few obese children and adolescents develop an acute complication of their obesity and because so many of the health effects occur in adulthood, concerns about the health effects of obesity may not motivate children and parents to change their behavior in relation to food intake or physical activity. Unless providers and parents agree that a problem exists, efforts to change diet or physical activity are unlikely to succeed. Similarly, communication campaigns will require an improved understanding of the public’s perception of obesity, its risks, and the strategies necessary to prevent it. Because of the risks of stigmatization of overweight children, it seems unlikely that obesity will be the focus of any media campaigns.

CONCLUSIONS

The epidemic of childhood obesity is unlikely to respond to any single approach. Starting to make healthy choices easy will require additional research into efficacy and a great deal of creativity. Identification of causal behaviors will be essential. However, in contrast to adult obesity, where preventive strategies remain uncertain, several strategies in children and adolescents appear promising. These include increased rates of breast-feeding and a reduction in television viewing time. However, to achieve these strategies, policy and environmental changes will be required in medical settings, schools, worksites, and communities.

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DISCUSSION

Dr. Uauy: I’m surprised that you did not include the food aspect. I know that physical activity is probably just as important, but what can we do to orient consumers toward healthy foods and healthy dietary habits in a world where the opposite is being promoted?

Dr. Dietz: That’s a good question. The only food-related strategy that I think we can implement at the population level for chronic disease prevention is the promotion of fruit and vegetable consumption, although there are no published data showing that fruit and vegetables consumption is related to reduced obesity. Although there have been various changes in the food supply that have accompanied the epidemic of obesity—such as fast foods, increased soda and sugared beverage consumption, skipping meals, or greater variety of foods available to us—there isn’t yet any evidence that these are causal. For implementation of policy change at the governmental level, we need that evidence. It may be coming. We have seen the one study that shows that soda and sugar beverage consumption is linked to obesity (1), and we have evidence that family meals provide better food choices not yet linked to obesity. Part of the problem is that the traditional means of analysis has focused on nutrients and not on food patterns, but that is starting to change.

Dr. Bellizzi: In relation to breast-feeding, our experience in Scotland shows that the initiation and continuation of breast-feeding needs a multisector approach. Many women start to breast-feed but then stop long before they even begin to go back to work. Thus, although I would agree that workplace policies are essential, we need to look at other areas. For instance,
in the health sector, the primary care setting is important, but we do not have the resources to enable health professionals to support women for the long period they may need that support—which may involve just sitting there and giving confidence. Nonprofessional peer group supporters may even be better at helping nursing mothers to continue breast-feeding. Indeed, research shows that women who are having problems with breast-feeding would rather not talk to health professionals, but prefer to talk to friends or family members. Those are important groups that we need to access in order to help with the promotion of breast-feeding.

Children can also be targeted. We recently had a poster competition on breast-feeding in our region, and it became clear that there were children who actually did not know that babies can be breast-fed. That is perhaps not surprising when children are given dolls that come with bottles, and that’s all they are exposed to.

We should also try to influence the media. There was a study in the BMJ looking at the media and how they portray infant feeding in the United Kingdom (2). This showed that in the soap opera programs on television, when there was a baby involved it was usually being bottle-fed. On the occasions when a baby was being breast-fed, the scenario was usually one in which there were problems with the feeding. I really believe that a multifaceted approach is needed in order to improve breast-feeding.

Dr. Dietz: I agree. I did not mean to imply that one single strategy was going to be effective. The broad outline that you have given is helpful. Thank you.

Dr. Kumar: The Malaysian practice is to provide education and counseling about breast-feeding from early on in pregnancy, as early as the first trimester. Intensive promotion extends the period of exclusive breast-feeding for up to 6 months to 1 year.

Dr. Dietz: I’m not sure I would want to promote exclusive breast-feeding for a year, but early counseling makes good sense (3,4).

Dr. Rolland-Cachera: You mentioned that environmental changes are essential, so we should build sidewalks, parks, and so on. But we have those, so what else can we do to promote change?

Dr. Dietz: I think what we lack is promotion for physical activity in the way we promote other types of behavior. We know from our own experience in Atlanta, for example, that just rebuilding a park, or putting in a walking path or bicycle trail, or redecorating stairways is not enough to get people to use these facilities. They really need to be promoted. I would like to know more about the reasons why children are watching a lot of television in Paris, where there are alternatives, compared with other areas where there are not. My examples were taken largely from the United States obviously, where many neighborhoods lack sidewalks or bicycle trails or central parks, and in those neighborhoods there is no alternative but to get in your car and drive somewhere—and that’s not the best way to facilitate physical activity. What we need from around the world are studies of urban and rural environments that begin to examine more closely why children are watching so much television and what kinds of alternatives are available. I don’t pretend to have the answer, but I do think that’s a strategy we can employ.

Dr. Dulloo: As students, we learned from the energy balance equation that if you increase energy expenditure intensively, by being a lumberjack for example, your food intake will also increase. Bringing this to the community level, you have focused almost entirely on the energy expenditure side by trying to encourage physical activity, creating parks, and so on. But one could argue that as people go outside and take more exercise, food consumption will increase in parallel. The tendency will be to maintain static weight and the problem will not really be solved.

Dr. Dietz: That’s a good point. I think we know more about the relation of the physical environment to physical activity than we do about the food environment and food consumption.
One of the strategies we are now funding is to begin to look at the infrastructure of communities and how this relates to food consumption and physical activity. Dr. Gortmaker has made the point that it makes little sense to go out for a walk if the only place you are walking to is a McDonalds! I think that’s a sound point, but we actually don’t know the relation between the availability of fast food restaurants and fast food consumption. I suspect the manufacturers do, but we don’t. We have some evidence that the food environment affects food-related behaviors—fruit and vegetable consumption, for example, which is reduced among inner-city populations that lack access to large supermarkets where fruits and vegetables can be purchased inexpensively. So I think this is a logical direction to follow in terms of a research agenda. I contend that we have more information about the relation of the physical environment to physical activity than we do about the food environment.

**Dr. Maffei:** Has the relation between the breast-feeding duration and the prevalence of obesity in children been controlled for obesity in the mothers?

**Dr. Dietz:** In the two studies I quoted the answer is yes.

**Dr. Maffei:** What about the variation in the BMI of the mothers between parturition and the point at which the obesity was assessed in the child?

**Dr. Dietz:** We don’t have those data. The offspring of the Nurses’ Health Study were linked to maternal obesity at age 18 and subsequently. The Hain study only had obesity of the mother at the time the survey was conducted. The children in that study were younger than the ones in the Nurses’ Health Study, so they weren’t exactly comparable in terms of age.

**Dr. Endres:** In relation to maternal weight and breast-feeding: mothers who breast-feed for longer—that is, more than 6 months—lose a little more weight than mothers who breast-feed for 4 months or less. They also store more iron, because they are amenorrheic and do not lose so much blood.

**Dr. Dietz:** The other problem related to breast-feeding is that overweight mothers initiate breast-feeding less often and breast-feed for a shorter time. So it’s really a circular problem: if the mothers are overweight, they tend not to breast-feed, and I think will have children who are more likely to be overweight, and so the cycle continues. That cycle can be broken.

**Dr. Ma:** The Chinese Academy of Preventive Medicine is undergoing reform. Later this year, it is to be replaced by the Chinese Center for Disease Control and Prevention. I would like to know what role the CDC plays in the United States in developing health-related policies.

**Dr. Dietz:** The CDC is the United States agency for prevention, but in order to be effective it needs resources that are either allocated by the administration—the president and his staff—or by Congress. One of the things that has changed dramatically in the last 3 years is the awareness of obesity as a public health problem, and the willingness of Congress to begin to fund it. Three years ago, our budget was $2 million a year specifically for obesity; last year it was $16 million. The increase in our budget indicates that Congress is responsive to these needs. At the end of this year, we will be funding 12 states for nutrition and physical activity programs to prevent obesity and other chronic diseases. Our strategy is not simply to focus on obesity, because many of the physical activity and nutrition strategies act across a variety of diseases—they are just as effective for diabetes and cardiovascular disease control as they are for obesity. So we are moving toward what is really for the first time an effective nutrition and physical activity program based in state health departments. The question is, “How do we make those as effective as possible?” What we are trying to do is to build linkages between public health departments and universities, so that not only in the design but also in the evaluation phase there is more science brought to bear and we can begin to identify promising models that can then be disseminated.
Dr. Nguyen-Howles: We have heard about the key role of parents. How else can we promote education on nutrition and physical activity?

Dr. Dietz: One area that is very promising and was mentioned earlier in this meeting is the development of daycare centers. Such centers provide care for children and in many cases are just as important as the parents in terms of promoting physical activities and appropriate foods for the children. One of the things we have thought about but don’t have a model for is using daycare providers not only as a locus for intervention but as people who can teach parents about their children and their children’s needs. The other advantage of thinking about daycare is that daycare policies relating to nutrition and physical activity already exist in the United States, and if policies exist they can be examined and modified to affect the health of the children who are participating in those programs. At the moment all of that is theoretical, but I think it is a promising direction in which to move. As far as schools are concerned, my understanding is that there has been difficulty in getting parents to come to meetings to educate them. A final thought is that, as with smoking, children themselves may be effective agents for change. We haven’t heard about that, and I’m not sure if we have any models in the nutrition/physical activity area, but some of the models in the smoking cessation field have promise. If children learn about physical activity or fruit and vegetable consumption as part of their curriculum, they may bring home those attitudes and change their parents’ practices.

Dr. Buenaluoz: A measure that could be adopted would be that would-be parents, such as high school students, could be enrolled in a health promotion curriculum, so that they would be taught about the principles of child care, with emphasis on health and proper diet. In the Philippines, we have many teenage pregnancies and the young mothers usually have no knowledge at all about the advantages of breast-feeding and proper nutrition, or even how to cook. They only know about buying foods already cooked, and nothing at all about their nutritional value.

Dr. Dietz: I think that’s a good point. We are raising a generation that does not know how to cook in the United States. That plus the shift in lifestyle has increased the reliance on fast foods.

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