

Personal Health Maintenance

Personal Health Maintenance for Children

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The foundations for lifelong responsibility for personal health maintenance are laid down in childhood. Personal health maintenance for children is important for a healthy childhood, for a healthy adulthood and for the development of positive values about health, personal health responsibility and the use of health services. Present knowledge in this area is weak but growing. Five areas of development are highlighted: (1) the cognitive understanding of health and disease, (2) a psychological sense of control over health, (3) parental and media influences on health behaviors, (4) school health education and (5) training by health professionals about self-management of childhood illness and health services usage patterns. Implications for current practice are developed.

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The health of children in the United States has undergone dramatic improvement since the turn of the century. Because of the applications of our rapidly increasing knowledge through personal and public health practices, sharp reductions have occurred in infant mortality, morbidity and mortality from the infectious diseases, malnutrition, diarrheal diseases and the complications of many metabolic disorders.¹ The revolution in biology has resulted in a revolution in child health.²

These advances present new challenges. The dramatic reductions in morbidity and mortality of the recent past contrast with further improvements that will come more slowly; additional new approaches to fostering child health will be necessary. Personal health maintenance—the theme of this special issue—now becomes a major objective for children, as well as for adults. The pursuit of this goal offers the possibility of further improvement in the quality of life and longevity.

As we turn our attention to health promotion and disease prevention for children, four issues merit consideration:

1. Personal health maintenance is important for a healthy childhood. Children's own health promotion activities, or those provided for them by their parents or other caretakers, can have an impact on fostering improved health during childhood. For example, some major health threats to childhood health are amenable to preventive approaches:

- fluoridation and oral hygiene to reduce dental caries,
- safety belt use and alcohol abstention to reduce automobile injuries,
- immunizations to retain the gains and to reduce further the major childhood infectious diseases.

2. Personal health maintenance for children is important for healthy adulthood. Although information is quite limited, there is a consensus that the origins of many of the illnesses of adulthood have their roots in the health behaviors of childhood and adolescence. Dietary habits, physical fitness levels, smoking and substance abuse all have their roots primarily in childhood.

3. Personal health maintenance for children is important for the development of positive values about health and personal health responsibility. Although education does not stop in childhood, childhood is the developmental period in which society sanctions the formal education of its members about health and sickness. Through families, schools and communications media, society shapes a child's view of what to expect about health, what are solutions for health problems and what are consequences of behaviors. Attitudes about health issues—such as fluoridation, health insurance, pollution control—are heavily shaped in childhood.

4. Personal health maintenance for children is important for the development of responsible health service usage behaviors. The origins of many adult patterns of health services use appear to develop in childhood.³ For example, adult asymptomatic (preventive) dental care is most strongly associated with regular family dental visits as a child.⁴ The well-known pattern of overusage of primary care resources by a small percentage of adult clients already has its parallel in the overusage of school nurses by some elementary and high school students.^{3,5} Adult usage behavior is at least partially shaped during childhood.

Despite the seemingly obvious importance of this topic to

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society, there have been relatively limited research and demonstration programs. Several factors have contributed:

- The limited research base of adult health promotion and preventive medicine has yet to be extended into the childhood years. A developmental framework for health promotion and disease prevention is still lacking.

- The developmental changes in a child's first 20 years prevent a singular approach. Personal health responsibility for infants and preschoolers differs from that of school age children, which differs yet again from that of adolescents. These rapid changes in children's capacities hinder systematic formulations.

- There is ambiguity concerning who has the responsibility for "personal health maintenance for children." Certainly children should be encouraged to assume responsibility appropriate for their developmental levels, but, to a large extent, parents and society are responsible for the personal health maintenance of children. Much of children's health promotion material is directed at parents. One may ask whether personal health maintenance is *for*, *with* or *by* children.

- Child health professionals have relatively little training in fostering personal health maintenance and most devote little time to it in their practices. For example, Reisinger and Bires⁶ show that only 8.4% of the average 10.3-minute primary care visit is for "anticipatory guidance." Moreover, present reimbursement systems provide few incentives for pediatric health promotion and disease prevention efforts.

The title of this article captures the duality of the medical profession's responsibility to reinforce children's personal health maintenance behavior and to assist them in its development. The medical profession must address the issues of setting early patterns of personal health maintenance during childhood. What are the antecedents of good and poor adult health habits, and how can we foster positive personal health responsibility in children, for their present and future health?

For children to develop sound health behaviors, they must have a realistic understanding of their role in preventing disease and learn to be active participants in maintaining their health. How to foster these objectives is not clear. Rather than attempting to provide only practical considerations, the bulk of this essay will examine what is known about children's understanding of health and illness and how their health behaviors are developed passively or actively. Unfortunately we must state at the beginning that the research literature on children's acquisition of health-related concepts, beliefs, attitudes and behavior is relatively undeveloped, but a knowledge base is growing.⁷ In this essay we will examine five factors that appear to play a positive role in a child's development of personal health maintenance:

- The development of a child's cognitive understanding of health and illness;

- The origins of the psychological sense of control over health;

- The influence of parents and media on health behaviors;

- The role of formal school health education;

- The training by health professionals about specific childhood illness self-management and health services usage.

We hope that the understanding of these topics will lead practitioners to apply their knowledge in increasingly effective ways.

Children's Understanding of Health and Illness

Personal health maintenance implies a cognitive awareness that behavior is linked to health. While this is taken for granted in adults, in children this association must be learned.

Several investigators have interviewed a wide age range of children about their knowledge of health and illness. The results seem to give consistent findings. Perrin and Gerrity,⁸ for example, showed that kindergarten children attribute the cause of illness to magic or to a consequence of their own transgressions (egocentric causation); fourth graders believe that germs cause illness (concrete causation), and only by the eighth grade do children begin to understand the multiple factors and complexity of host-agent interactions in causing illness (formal causation). Weithorn and Campbell⁹ studied the competence of children to make appropriate and informed decisions about health care treatment. They found that 14-year-olds performed as well as older subjects (18- and 21-year-olds), but 9-year-olds were less competent in their abilities. These age trends are consistent with a Piagetian framework of cognitive development. Nagy,¹⁰ Goochman¹¹ and others with different developmental orientations also report that at ages 12 to 13 there is maturation of adult conceptualizations of illness.

Three important factors can be derived from understanding children's developmental reasoning about health and illness. First, young children (younger than 7 years) have a strong but unrealistic egocentric belief in the causation of illness. This coincides with the many clinical reports of young children blaming themselves for their illnesses, attributing sickness to disobedience of parental instructions and an admission to hospital to rejection or punishment.¹² These and similar observations suggest the importance of the following: clearly explaining illness to young children, emphasizing their nonresponsibility; not being too theoretic in explaining illnesses; reassuring them of support to prevent loss of self-esteem, and limiting expectations that young children will initiate health-promoting behavior or understand the consequences of their actions. Physicians tend to overestimate the sophistication of young children.¹³ The absence of a child's verbalization about the cause of illness, or an adult's desire not to directly address a child about his or her illness does not mean the child has not interpreted the experience. An adult's views on self-responsibility for health promotion can be easily misinterpreted by a very young child's egocentric view to be blaming rather than empowering.

Second, the data consistently show that children older than 12 years are able to reason intellectually about illness in a manner similar to adults. (This is not to say all children are able to reason the same as adults, or that all adults use sophisticated formal logic when confronted with illness.) Yet, professionals often approach older children as if they cannot fully grasp the concepts of illness and health or assume major personal responsibility for their own health. Perrin and Perrin's¹³ data suggest that physicians tend to underestimate the sophistication of older children. The relatively young age of cognitive maturing stands in contrast to the prolonging of adolescence and parental dependency seen in our society.

Third, a possible implication of these developmental findings is that children before they are 12 are believed to be limited in their ability to take personal responsibility for their

health because they cannot fully understand illness. This belief is in error. It flows from a simplistic interpretation that cognition alone determines behavior. Children in the 7- to 12-year age range can learn specific health-promoting behaviors, even if they do not fully understand the connections between illness and behavior. This age period corresponds to the age of learning rules—rules of games, rules of behavior, rote learning—without always having a full understanding of the reasons why. Health habits can be developed in this period. Brushing teeth, eating good foods, personal hygiene and physical activity can all be taught during this period. Children's reasoning may be somewhat concrete: "Brush away germs," "good foods prevent illnesses," "sugar causes tooth decay." Nonetheless, they have begun the process of assuming responsibility for their personal health.

The association of health cognition and health behavior is not synonymous. Many researchers have shown that child health knowledge and health behaviors are not strongly correlated.^{11,14,15} Weisenberg and co-workers¹⁵ conclude that health beliefs are unrelated to behavior and may represent parallel but not causally related developments in a person.

While a cognitive developmental framework provides useful age markers about a child's understanding of personal health responsibility, it is clearly limited. The association of cognition and behavior is not clear. Indeed, many adults operate in a manner similar to 7- to 12-year-olds: concrete rules for concrete health decisions. This framework does not help us understand the basis for variations in health behaviors. Why do some children respond one way to cigarette smoking and others another way, when both have the capacity to reason through the health implications similarly?

Children's Sense of Control Over Health and Illness During Childhood

Locus of control describes a psychological trait concerned with a sense of mastery over one's interaction with the physical and social world. In traditional locus of control models, persons are divided into those with an internal sense of control over events in their world (belief in personal responsibility), who will act on the world—that is, take a preventive health action—and those persons with an external (chance) sense of control over events, who will less likely act to influence their world. For adults, high internal locus of control has repeatedly been shown to be associated with more health-promoting behavior—smoking cessation,¹⁶⁻¹⁸ losing weight¹⁹ and wearing seat belts.²⁰

Traditional bipolar (internal versus external) locus of control models have seemed inadequate to describe fully most persons' health motivations. Interest in the health locus of control construct has recently increased with the development of a *multidimensional health locus of control scale*.²¹ This scale divides the locus of control construct into one internal and two external dimensions. The two external concepts, *powerful others* and *chance health locus of control*, differ in that the former measures the extent to which people believe that others such as doctors and parents can control their health, whereas the latter measures the degree to which persons believe that no one can control their health. This new set of psychological constructs captures the belief of many persons that illness and health are neither chance events nor in their control, but rest in the hands of powerful experts. For the first

time, the locus of control literature suggests a direct motivational linkage to trust in health care providers. According to Wallston and Wallston,²² persons who have strong beliefs in internal control and in the control of powerful others and weak beliefs in chance control are likely to develop advantageous health behavior.

In an attempt to determine the origins of health locus of control, Lau²³ conducted a retrospective study among 270 college students correlating adult health locus of control beliefs with childhood health habits and illness experiences. He found that adults who perceive themselves as having more personal internal control over their health went for regular medical checkups and participated in self-care health habits as children and had fewer childhood experiences with sick family members. Adults who had stronger beliefs in the efficacy of doctors had early and regular contact with medical professionals and fewer childhood experiences with sick family members. Adults who had strong beliefs in the role of chance in health outcomes were likely to have had many childhood illness experiences.

The results of this study suggest two important conclusions. First, positive childhood health behaviors (regular checkups and self-care habits) are predictive of a positive sense of control over one's health in adulthood. Thus, the encouragement of childhood health behaviors can lead to a positive sense of personal health responsibility in adulthood. Second, and more troubling, frequent childhood illnesses may lead to an inappropriate belief in the role of chance in health outcomes. This seemingly unusual finding appears to be consistent with the previously discussed cognitive developmental model. Young children with frequent illnesses, who may be given inadequate explanations, are likely to inappropriately fault themselves or magically credit others for their illnesses. Illness experiences do not necessarily lead to self-control over health and belief in powerful others, as a social learning model might predict. This phenomenon can be seen in an exchange with the 10-year-old son of one of the authors, who has asthma: When asked what he thinks of his pediatrician, he stated, "I don't want to see him again, because he never can cure me when I'm sick!" Interpreting childhood illnesses to children seems to merit more attention than many of us give, both as parents and as health care professionals.

Lau's work²³ must still be seen as somewhat preliminary; it is a retrospective analysis based on a limited college age sample. It does, however, begin to point out the importance of examining real life correlates of positive health locus of control concepts to understand the variability in children's assumption of positive health responsibility. Unfortunately, efforts to examine directly the origin of positive health locus of control beliefs in children have been limited by the relative unavailability of children's health locus of control scales.²⁴

Our own pilot study²⁵ suggests that for 9- and 13-year-olds positive health behaviors—better nutrition, physical exercise, sleep, dental hygiene, refraining from smoking or alcohol use and injury prevention—were associated with strong belief in internal control and powerful others (doctors, parents) and weak belief in chance control of health. Developmental changes could be seen across the two groups. Nine-year-olds had greater belief that others controlled their health (either chance or doctor control), whereas the 13-year-olds' patterns begin to fit the expected adult model of a strong belief

in powerful others and a weak belief in chance. While only a pilot study, it does suggest that cognitive motivational patterns, even in children, may play a role in fostering personal health care behavior.

In a very practical area, that of injury prevention for children, one can see the importance of health locus of control beliefs. Although the literature on injury prevention programs for children is weak,²⁶ many injury prevention programs are directed at training children about the dangers they face. Fire drills, auto safety, pedestrian safety and swimming safety are all directed at enhancing children's personal sense of responsibility over their environment. The prevention of injury is one area in which children are taught (and in part learn through trial and error) to be responsible for their own actions. Indeed, one can note with irony that although most people refer to these injuries as "accidents," this is one of the areas in which parents most explicitly train their children. Physicians could play a larger role in this area than most do at present.⁶ Safety is a major area of early health learning. Injury prevention is based heavily, though by no means exclusively, on a child's own internal sense of personal health responsibility.

Parental and Media Influences on Children's Personal Health Maintenance Behaviors

A third factor contributing to early patterns of personal health maintenance is the development of specific health-promoting behaviors during childhood. When the adoption of specific behaviors is influenced by external factors, social scientists refer to this as the socialization of behavior. While there are many sources for socialization of health behaviors as a child develops, we will focus on only two—parental and media influences.

There are numerous studies examining the congruence or incongruence between parents and children in health-related attitudes, behaviors and the use of services. Studies that look only at health beliefs or attitudes generally find weak or no relationships between children and adults. For example, Robertson and colleagues²⁷ found that elementary school children manifest more anxiety about illness, worry more about getting sick and believe more in medicine than do their parents. Campbell²⁸ who interviewed 264 children (ages 6 through 12) and their mothers found little congruence between mother-child pairs in their description of "illness." Mechanic^{29,30} failed to show a strong relationship between the health beliefs of parents and the subsequent beliefs of their children when grown. Perhaps the developmental disparities of children and adults inherently limit the possible congruence of their health beliefs.

By contrast, some specific parental behaviors do show strong congruity. Parental smoking predicted high school and junior high school smoking in their children.^{31,32} Competitiveness and aggressivity,³³ drinking,³⁴ obesity³⁵ and dental hygiene³⁶ all show significant positive associations between children and adults. Tyroler and associates³⁷ showed a high correspondence between mothers and children obtaining polio shots. Actual parental behavior would appear to be a relatively strong determinant of specific childhood health habits.

The mechanisms by which parents influence a child's behavior have not been established. Parents provide both a role

model for their children and directly reinforce early health behaviors. However, the extant studies confirm what is found elsewhere in research on child-rearing and socialization, that parents are only one among many diverse influences on a child and that parental influence tends to diminish as children grow older.⁷ Nonetheless, because many health-promoting behaviors appear to be established early, parental influence is quite important.

More attention should be paid by health professionals toward emphasizing the importance of greater parental supervision over early health behavior patterns. At present, most of our health-promoting messages only imply parental supervision, but do not directly emphasize it, nor do they offer specific help to parents in gaining compliance from their children. In their capacity as role models, it is fortuitous that behaviors that parents should be modeling will enhance their health as well as their child's. Parents have a positive role to play in a child's development of personal health maintenance.

The media, especially television, is also playing an increasing role in the development of children's personal health habits and knowledge about health. Smoking, drinking, drug use and abuse, nutrition, dental health, sexuality and violence are some of the key health behaviors directly influenced by television. The power of television as a possible educational force is enormous. Starting at 3 years of age the average American child watches 30 hours per week, or a total of 6,000 hours before beginning school; by high school the average child has watched a total of 15,000 hours of television (versus 11,000 hours for all formal education.)³⁸ Furthermore, the amount of TV watching is increasing. In a single year, a child might see 20,000 commercials!³⁸

Two Surgeon General reports have focused on television's impact on children.^{39,40} Although television has great potential, both positive and negative, several issues should be of concern for fostering personal health habits for children. First, there is insufficient educational programming for children. Most television is not directed at children. The Federal Communications Commission (FCC) reported that in 1977-1978 only 2.6 hours per week of programming was devoted to children.⁴¹ Second, despite the difficulties in researching the effectiveness of the media, both Surgeon General reports^{39,40} emphasize the growing evidence that television does influence behavior. Children tend to imitate patterns seen on TV.⁴² Aggressive behavior has been linked to television.⁴³ The media influences are of particular concern on issues such as violence,⁴⁴ auto safety⁴⁰ and alcohol and drug usage⁴⁵—matters of great importance for a child's own sense of personal health. Third, younger children are developmentally unable to distinguish whether what they see on television is real or not. While older children are more resistant to TV programming and advertising, children younger than ages 8 or 9 do not have the full intellectual capacity to distinguish fantasy from reality; they are readily beguiled.⁴⁶ Fourth, advertising that is directed at children mostly concerns toys and food products.⁴⁰ Many of the toys are implicated in sex-role stereotyping and rewarding aggressive behaviors. Even more worrisome is the advertising for nutritionally inappropriate foods.⁴⁷ Television advertising heavily emphasizes snacks and processed foods that are often laden with sugars and salt. (Action for Children's Television, a child advocacy group, has recently filed a suit to label most advertised children's cereals as candies

because many contain 50% or more sugar.) Young children's vulnerability to advertising may inhibit the development of subsequent sound nutritional patterns. And, finally, watching television limits the time available for physical and other activities of children; it induces a physical passivity and often precludes other healthy outlets for social and intellectual development.

Television and other media appear to play a major role in the growth and development of children. The federal government through the Federal Trade Commission and the FCC must assume more responsibility for the media messages sent to children. For children relatively little progress has been made in the two decades since a former FCC commissioner referred to television programming as a "vast wasteland."

The development of children's health behaviors is constantly taking place as a result of various socializing pressures during childhood. Given the early onset of many "adult" behaviors, early influences are critical factors. The paucity and limited correlational nature of much of this research is noteworthy. We know that influence of parents and television increases the likelihood of the adoption of certain behaviors, but the relative contribution of the different socializing agents to specific behaviors seems elusive. It is not clear why some children adopt certain patterns of behavior, in contrast to others, when exposed to the same external messages. The socialization processes, possible sensitive periods, possible critical events and ties to cognitive understanding all remain relatively unexplored.

Influence of School Health Education on Early Patterns of Personal Health Maintenance

Because more than 95% of children and youths from 6 to 18 years can be reached via the schools, there has always been a strong rationale for using the schools as sites for formal instruction in health and hygiene. Health education has been a regular part of school life for decades, and earlier in the history of public education in this country it was considered one of the basic subjects.⁴⁸

School health education programs vary greatly in quality and curriculum time. Health education textbooks constitute the main resources for such teaching and a review of these texts over recent years indicates a considerable improvement in their quality. Currently 17 states have a statewide textbook adoption law. Unfortunately, no systematic assessment has been made of their impact on improving behavior related to personal health maintenance.

Too often health education is fragmented. The Select Panel for the Promotion of Child Health⁴⁸ noted that whereas many voluntary groups and health agencies have developed teaching materials on specific topics especially for school use, the number of health problems deserving special consideration in the curriculum has become so great that many of these teaching aids can only be useful if they are part of a comprehensive and sequential health education program, which well-written textbooks attempt to provide. In the absence of a comprehensive program, school administrators under community pressure to "do something" about drugs, sex, smoking, alcohol or other problems too often respond with a hastily scheduled unit or a lecture to cover a specific problem. Fragmented education efforts of this kind are hardly an adequate response to the need for better health education. A

systematic approach to teaching health, organized so as to encourage coordination with other subject matter and evolving sequentially through the school years in developmentally appropriate steps, is needed.

In many school districts, those responsible for health education use innovative approaches to reach their objectives, sometimes with measurable positive results. For example, several recent studies have shown reduced smoking among youngsters through the creative use of teenage peer counselors and the teaching of coping skills to help resist peer pressure.^{49,50} Nonetheless, the formal socialization process at schools may not be powerful enough to overcome the informal socialization processes occurring simultaneously.

School physical education programs are another area of unrealized potential. Reductions in public school budgets have resulted in a decline in the quantity and quality of school physical education programs. Only one child in three now participates in a daily program of physical education, and in many areas the record is worse.⁵¹ Coupled with the prevalence of after-school television viewing, this decline in physical education is a cause for concern. One of every six children taking a simple screening test for physical fitness designed by the President's Council on Physical Fitness and Sports currently fails the test.⁵²

School-based health services, whether they involve the traditional school nurse or a full-service clinic, also offer the potential for teaching children about preventing illness and injury, self-care and the wise use of health services. Children are likely to have contact with a school nurse or health professional without the presence of their parents, and by about the third-grade level they are able to decide for themselves whether to report a personal illness.⁵³

Schools can provide an important site for the development of personal health maintenance. School health promotion can take many forms: formal classroom education, supervised field experiences, peer education, education as part of the delivery of health services, physical education activities and teaching in conjunction with food services. Programs to promote good health-related habits through schools cannot hope to succeed without acknowledging the powerful influence of the school culture and adopting educational approaches that build upon its positive aspects.⁴⁸

Training by Health Professionals

Illness Self-Help Programs

Unfortunately, there are very few studies of the role of health care providers, and physicians in particular, in shaping children's health-promoting behaviors. This is not to say health professionals are unimportant, but their place in the socialization process is not established. Health professionals do not generally use their time for health promotion.⁶ Their orientation towards disease often hinders their playing a major role in facilitating overall personal health responsibility.

Nevertheless, health professionals have much clinical experience in influencing the development of childhood illness self-help and self-maintenance programs—that is, secondary prevention. In the treatment of children with chronic illnesses, physicians play a major role in helping children to take responsibility for their own health. Although chronic

illness self-help programs do not affect a large number of children, they do point out the capacity of children to be responsible for their own health and the positive influence of health professionals.

For this essay we will use asthma as our example, although we could have as easily used diabetes mellitus⁵⁴ or other chronic illnesses. A recent conference on self-management of childhood asthma⁵⁵ brought together representatives of a growing number of small clinical programs aimed at teaching children (and their parents) how to manage childhood asthma—the leading cause of chronic morbidity in childhood. Although each program was unique, they generally had certain features in common⁵⁶: the development of patient responsibility, full disclosures of information pertaining to the illness, training in decision-making, the use of peer education and training of health professionals to encourage self-help attitudes and behaviors of their patients. These programs are aimed at 4- to 16-year-olds, who generally meet for five to eight weeks in small seminars, with role playing, homework and some parent participation. The health results seemed promising. Several of the studies, using random assignment to experimental and control groups, showed decreased emergency room usage, improved school attendance and better coping with asthmatic episodes.⁵⁷

These asthma self-help programs emphasize some of the themes we have been developing in this essay: a full understanding of information pertinent to the illness and treatment (though none of the programs seemed to emphasize age-specific presentations of information), the development and training of health care self-responsibility (such as the Asthma Care Training for Kids from UCLA led by Lewis,⁵⁸ which emphasizes increased internal locus of control through the usage of the “you are in the driver seat” analogy of health and safely driving an automobile) and peer education as the most effective means of socializing behaviors.

The role of physicians in such programs was debated. Although some reservation about their training or appropriateness can be raised, physician presence seems important for compliance, to enhance program effectiveness and to maintain medical continuity for difficult asthma cases.⁵⁸ Several clinical and academic programs have emphasized that physicians can be trained to encourage self-sufficiency.^{59,60} The asthma self-help programs show that physicians and other health professionals can be active participants in the development of a child's personal health maintenance.

Illness self-help programs show that children are capable when quite young of taking on responsibility for their own health, that specific areas of knowledge are and can be learned early in life and that health providers can play a major role in training for health responsibility. This topic strikes a positive note about children's ability to be responsible for their personal health maintenance.

Appropriate Health Care Usage Patterns

Lewis and Lewis^{3,61} have established a major research effort to experimentally influence children's autonomy and responsibility for their own health care use. They have argued that to foster health promotion, health professionals must increase a child's own sense of control over health and move their practice away from the “you're in good hands” paternalism.⁶¹ They initially focused on school nurses because

there appears to be much social learning involving their use.^{3,63} Data suggest that, as with adults, only a small percentage of students accounted for most use, even controlling for sickness,^{3,63} and that such users were more dependent,⁶⁴ had lower self-esteem⁶² and were more often girls.⁶⁴

Lewis and Lewis designed and implemented a series of school-based interventions to test their theories that if children were encouraged to participate more in the decisions about health care usage, they would assume more responsibility for their health and would use health care resources more appropriately. Two stages of decision-making for children were studied. Whenever a child felt he or she needed to see a nurse, the child took a card from boxes located throughout the school, left the top portion on a teacher's desk and went directly to the nurse, with no permission from the teacher necessary. In the nurse's office, the child was examined and the findings presented and interpreted by the nurse. The nurse then asked the child to assist in formulating options for treatment and disposition, and subsequently to select one of the options. The nurse-child interaction concluded with the nurse asking the child, “The next time this happens, what do you think you can do about it?” Optimal choices were positively reinforced. Less than optimal choices were honored, but with feedback regarding the other available options the next time the problem occurred.

In the first study, one elementary school was examined. In the second replication study, four schools were allocated to different treatments—control; nurse practitioner; care cards plus nurse practitioner, and care cards, nurse practitioner and participation in decision-making. Children were tested before the intervention began and after two years on their health knowledge, health responsibility, health vulnerability and locus of control beliefs. In addition, the children's use of the school nurse was monitored.

In this free access system, children's patterns of usage of services were quite similar to those of adults. From 20% to 25% of the children never visited the school nurse during a period of two years; 8% to 12% of the children without serious medical problems made more than 50% of all visits. Use patterns seemed generally stable from one year to another and were consistent with parental, non-school health care use—that is, those children taken most often by mothers to physicians tended to be higher users of the school health nurse program.

In the first study, attitudes about health were enhanced. Children perceived themselves as less vulnerable, perceived their illnesses as less severe and had more positive attitudes about self-care, but no change in usage of health services was noted. In the second study, similar positive cognitive changes were noted, but, in contrast to the Lewis and Lewis theoretic expectations, free access led to increased use by some groups of students. Among the already high users of care, there was evidence of increased usage of and enhanced dependence on the health care services, rather than the promotion of a sense of self-reliance. It should be noted, however, that infrequent users of the school nursing programs decreased use in the free access situation. Sociodemographic differences in usage patterns were not affected. Health services usage behaviors appeared to be established early and were somewhat resistant to change.

Although the results were not supportive of their theories

on autonomy, Lewis and Lewis must be commended for initiating a line of experimental research on children's assumption of responsibility for their own health. Perhaps their limited health intervention was insufficient to balance out other simultaneous, less positive, health care use influences on the children's lives. Only by directly manipulating aspects of a child's sense of personal control over health can we begin to learn what will really influence them. Physicians' influential clinical positions could allow them to play a more thoughtful role in the setting up of clinic, hospital and private practice usage patterns. Dependency and self-sufficiency, in part, arise from structural characteristics of clinical practice.^{65,66}

What Is to Be Done?

As noted in the beginning of this article, childhood is a critical time for assuming personal health responsibility, both as children and their future health as adults. After reviewing these five important factors influencing the development of personal health maintenance for children, what can be done to foster personal health responsibility for children? Although the research literature does not provide clear directions, certain generalizations can be drawn for practitioners:

- Respect the capacities of children to develop patterns for maintaining their own health. Children need the knowledge and skills with which to fulfill their potentials; health professionals can provide these without being patronizing or moralistic.

- Respect children's developmental levels. Children's abilities to understand the causes of illness change as they mature. As in sex education, questions should always be answered factually, but at the level of sophistication and interest of a child. Explanations should foster understanding and autonomy, not a sense of guilt and failure.

- The sensitivity of health professionals should be developed during their training. In working with children in the management of their own childhood illnesses and injuries, professionals can learn to recognize dependency and encourage autonomy.

- The capacity of parents to be role models and constructive shapers of their child's health behaviors merits greater attention. More health educational activities and literature for parents on the importance of early and regular encouragement of sound health habits are in order. The importance of health promotion for parents should be recognized as enhancing their capacities as role models.

- The power of television and the other media for shaping responsible personal health requires scrutiny. We need to learn how to lessen the impact of television as a negative influence on health behavior through its emphasis on programs of violence, drinking, smoking and drugs. Advertising directed toward children—especially concerning nutrition—needs much improvement. Certainly increasing the positive effects of television through more educational programming for children is an important goal for all who realize the value of wholesome child development for our society.

- Regular office visits for children and youth with health promotion as the focus should become commonplace, with appropriate time set aside for this purpose.

- Attention should be directed at providing financial support for health promotion and disease prevention services that can be offered through medical care services. The present

health care reimbursement system tends to pay for curative services rather than for prevention.

- Enhancing the role of schools as a site for the growth of personal health responsibility is necessary. Efforts should continue to help schools develop health education as an integrated 12-year curriculum. Physical education programs can be made more useful for all children.

- Health education should emphasize that personal health maintenance is not exclusively a "life-style issue." As described in *Healthy People*,¹ health promotion and disease prevention are fostered by three categories: health services (key preventive services that can be delivered to individuals by health providers); health protection (measures that can be used by governmental and other agencies for groups or communities, as well as industry, to protect people from harm), and health promotion (activities that individual persons and communities can use to promote healthy life-styles). It is critical to note that all three categories must be involved in promoting health for children and that personal health responsibility is involved at all three levels. An exclusive focus on the life-style theme only would be in error.

- More research on the development of child health habits is needed. All five factors examined in this essay need further study. More experimental and longitudinal research, not just correlational research, is needed. The present inadequate knowledge base hinders the development of improved strategies for enhancing personal health maintenance.

The future of a society depends in considerable measure on the health of its children. Thus, personal health maintenance for children is an important issue not only for health professionals but for all citizens. Health professionals can learn to foster early patterns of personal health maintenance with increasing effectiveness, ultimately helping children to assume increasing responsibility with age. The building blocks for lifelong responsibility for personal health maintenance are laid down in childhood.

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