A CLOSER LOOK
at the
SOCIAL DETERMINANTS OF CHILD HEALTH

"The extent to which a society protects its children reflects the magnitude of investment in the future. In this sense, the United States can be judged as less than successful."

— Barbara Starfield, Johns Hopkins University, 2004

ISSUE BRIEF

The Urban Child Institute
Memphis, Tennessee

September 13, 2006
9:00 a.m. - 2:30 p.m.

Coordinated by

The Department of Preventive Medicine
University of Tennessee Health Science Center

Sponsored by a grant from

The Urban Child Institute

A CLOSER LOOK AT THE SOCIAL DETERMINANTS OF CHILD HEALTH

"The extent to which a society protects its children reflects the magnitude of investment in the future. In this sense, the United States can be judged as less than successful."

— Barbara Starfield, Johns Hopkins University, 2004 (1)

"In 2004, nine of every 1,000 babies born in Tennessee died before their first birthday, a rate higher than every other state in the nation except Louisiana and Mississippi."

— Comptroller of the Treasury, State of Tennessee, March 2006 (2)

"A country is known by what it does – and by what it tolerates."

— Kurt Tulchisky, German essayist

When we think about the health of children, we usually think of medical illnesses and medical care, or we may consider the health-related behaviors or the genetic predispositions of individual children. When we think about ways to improve the health of children, we usually think of a direct clinical encounter between a child and a health care professional, or other interventions that focus on individual or small groups of children. Based on this clinical approach, improvements in health result from interventions that impact the interactions of patients and providers within the medical care system.

The factors that influence health are, however, more complex and varied. It is the purpose of this Issue Brief and the forum that it accompanies to consider other alternatives and influences on child health. We will consider:

- factors that impact health that are very broadly based within societies, that is, the social and societal determinants of child health; and
- public policy approaches to influencing these determinants to enhance the health of the children in our community.

The importance of examining new approaches to improving child health is critical in Tennessee. According to data compiled by the Annie E. Casey Foundation (3), Tennessee ranks 46th among the states in overall measures of child health (Figure 1). Among cities and counties within Tennessee, Memphis and Shelby County have worse health statistics than other parts of the state. Memphis ranks among the five least healthy of the 50 largest American cities in measures of, for example, percent of births to mothers with late or no prenatal care, births to teenage mothers, and births to unmarried women, as well as the percent of preterm and low birth weight infants (2).

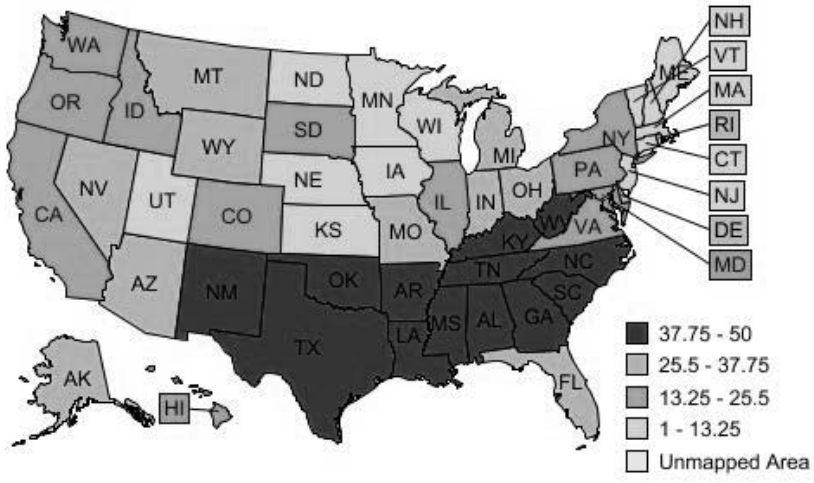

Figure 1: Ratings of the states based on criteria for child health of the 2006 Kids Count by the Annie E. Casey Foundation (1). High scores, corresponding to worse health conditions for children, are found among southern states including Tennessee.

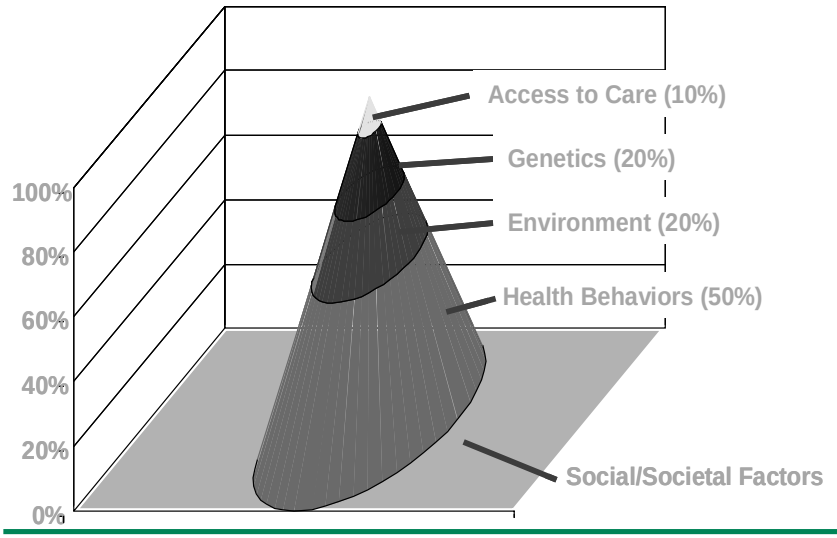

Figure 2: A schematic representation of the major factors that influence personal health. The percentages of health attributed to each factor are based on the estimates of McGinnis et al (4) and others. Health behaviors are the largest contributor, while the medical care system contributes relatively little to overall health.

SOCIAL DETERMINANTS OF CHILD HEALTH

We will first consider the social determinants of health. What is health, what are the social determinants of health, and how do they influence health?

What is Health? Adopting a broad definition of "health" is key to understanding the role of social factors. The Institute of Medicine defines health as "… a state of well-being and the capability to function in the face of changing circumstances … Health is therefore a positive concept, emphasizing social and personal resources as well as physical capabilities. Improving health is a shared responsibility of health care providers, public health officials, and a variety of other factors in the community who can who can contribute to the well-being of individuals and communities." The World Health Organization expanded this definition to indicate that "Health is therefore a resource for everyday life, not the objective of living." Thus, both organizations use the term "health" to include social and communal factors as well as personal forces and actions.

What are the Determinants of Health? The pyramid in Figure 2 is a common representation of the factors that influence the health of individuals. These include, from bottom to top, an individual's health behaviors, exposure to environmental factors, genetic predispositions, and, finally, the use of effective medical care (4).

The relative volumes of the segments represent the relative proportion of changes in health that can be attributed to each factor. Behavioral choices represent the most prominent factor, while medical care is responsible for only 10% of health status.

All of these factors interact to impact health. For example, genetic issues determine the susceptibility of individuals to the harmful effects of certain unhealthy behaviors, and access to effective medical care may ameliorate the effects of other factors.

The influence of these "non-medical" factors can be shown by comparing lists of the major diagnoses that result in death in the United

"In view of the relatively low and deteriorating position of U.S. children on most indicators, and the worsening social supports for the sizeable proportion of the child population living in deprivation, the United States must take steps to reverse the current likelihood of compromised health in coming generations."

— Barbara Starfield, 2004.

"Child health is not conceptually equivalent to adult health … child and adolescent health encompasses an added dimension of developmental changes that must occur for continued health during the life course."

— David Low et al (6).

States (Table I, left panel) to the list of underlying factors responsible for these diagnoses (Table I, right panel) (5). Among the most common biomedical causes of illness are heart and vascular disease, cancer, and chronic lung disease (COPD). The behavioral and environmental conditions responsible for these conditions include tobacco abuse, poor diet, and exposure to toxic agents.

What are "Social Determinants" of Health? This pyramid of Figure 1 rests on a base that represents the characteristics of the society in which each child or adult lives. This base represents the social factors that lie outside of the individual and that reflect the broader context in which factors such as genetic predispositions and personal behaviors arise and act to impact health. This may be summarized by stating that "the social determinants of health can be understood as the social conditions in which people live and work" (6) and that the central concept of the role of social determinants is that "in all populations studied to date, health is unevenly distributed following a gradient that is a function of social and economic advantage" (7).

The importance of these social factors is they influence everyone in a society, not just those that are ill or that seek medical attention. Of each 1000 children, only 167 visit a physician in any one month and only 3 are hospitalized (8).

Numerous social and societal determinants of health have been identified. These may be grouped into three general categories (9).

- *Surroundings* include educational and job opportunities; housing, work and living environments; available food choices; public safety, transportation, and recreation; political influence; the arts; and environmental hazards and toxic exposures such as waste dumps, lead, pesticides and exhaust fumes.
- *Social relationships* include position in the social hierarchy; differential treatment of social groups; social networks and participation; and family structure and cohesion.
- *Societal resources or institutions* include the overarching political and economic systems; racism; legal codes; historical conditions; and cultural and other systems of power that create the

Table I: The most common biomedical causes of death in the United States (left) and the underlying behavioral and environmental causes. Adapted from Mokdad et al (5).

BIOMEDICAL CAUSES

- **Heart Disease (710,760)**
- **Cancer (553,091)**
- **Cerebrovascular Disease (167,661)**
- **COPD (122,009)**
- **Unintentional Injury (97,900)**
- **Pneumonia/Influenza (65,313)**
- **Diabetes (69,301)**
- **Alzheimers Disease (49,558)**
- **Septicemia (31,224)**
- **Other (449,283)**

UNDERLYING CAUSES

- **Tobacco Abuse (435,000)**
- **Poor Diet (400,000)**
- **Alcohol Abuse (85,000)**
- **Infectious agents (75,000)**
- **Toxic Agents (55,000)**
- **Motor Vehicles (43,000)**
- **Firearms (29,000)**
- **Sexual Behavior (20,000)**
- **Illicit Drug Use (17,000)**

broader contexts for the other factors. The World Health Organization has included factors such as peace and a stable ecosystem as additional societal prerequisites for a healthy society.

How Do Social Determinants Impact Health? Numerous paths exist for these social factors to influence individual and population health. One model for illustrating these paths is shown in Figure 3. In this model, *structural determinants* produce *intermediate outcomes* that, in turn, generate *proximate causes* of illness that determine the *level of community health*.

The fundamental, structural or "root cause" issues include broad basic social characteristics. These include

- *social resources* including human, social and financial resources such as standards of living, social institutions, and culture;
- the *sociopolitical context* in which people live, including the value placed on health and the degree to which health is viewed as a collective social concern; concepts of equity and social justice; policies affecting labor, land, and housing distribution; and policies affecting education, social welfare and social resources, medical care, water and sanitation policies; and
- characteristics of the *physical environment*, including both the natural and the built environments.

These fundamental forces lead to the intermediate outcomes, such as opportunities for education, etc., community norms, etc. They determine differences in exposure and vulnerability to health-damaging conditions such as poor housing conditions, physical environment hazards, limited community infrastructure systems, etc. , among different portions of the population.

"Interventions to improve access to medical care and reduce behavioral risk have only limited potential for success if the larger social and economic context in which people live is not improved."
— Blue Cross/Blue Shield of Minnesota.

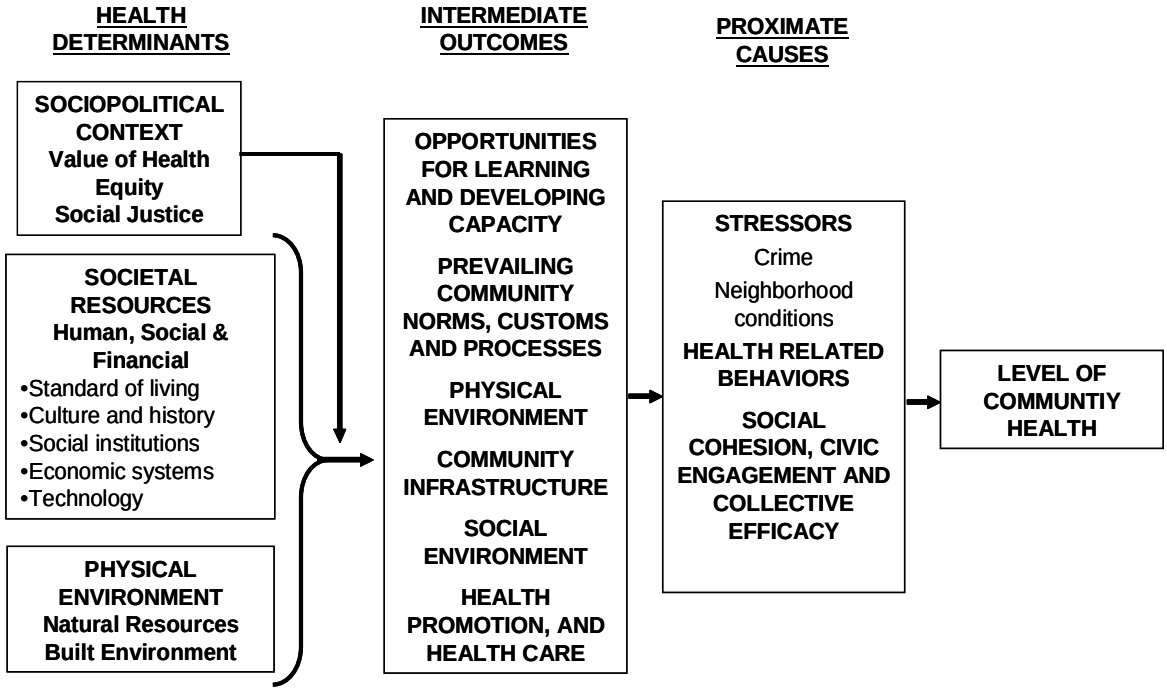

Figure 3: The impact of social factors on health outcomes, as described in detail in the text.

"Everytime that we helped a man … to stop smoking, on that day, probably one to two children in a school somewhere were taking their first tentative puffs on a cigarette … So, even when we do help high-risk people to lower their risk, we do nothing to change the distribution of disease in the population because in 1:1 programs … we do nothing to influence the forces in society that caused the problem in the first place."

— SL Syme, 1996.

Proximate causes flow from these intermediate outcomes and include stressors such as crime, neighborhood conditions, etc; social and political isolation; and poor health related behaviors. The final result is an impact on the level of community health.

One schematic approach to understanding the interaction of these social factors with individual health factors is shown in Figure 4. The greater the social factors that limit health (that is, the steeper the slope of the ramp in the figure), the more difficult it is for an individual to move up the ramp to improved health.

A few examples illustrate the strength of these factors in determining health status.

- *Poverty* is perhaps the most important social determinant of health. Infant mortality and life expectancy improve sharply as incomes rise. According to the World Health Organization, children ages zero to five years living in absolute poverty have a five times greater probability of death than do those who are not poor. Persons with higher incomes have greater access to health care and health promoting services, less exposure to environmental health hazards, better health behaviors, and are better educated, a powerful determinant of health (7). Lower socioeconomic conditions also lead to psychological vulnerabilities, lack of social participation, and altered future time perspective, each of which is associated with reduced health status.

  Children are particularly vulnerable to the effects of poverty. Poverty during early childhood inhibits emotional, cognitive and physical development (10). Studies have shown that early childhood poverty is associated with fewer grades completed as well higher hospitalization and death rates.

- In addition to individual poverty, the *distribution of income* within a society is important. The health status of a community falls as the inequality of incomes in that community rises (Figure 5). In the mid-1990s, the income of the top 10% of the U.S.

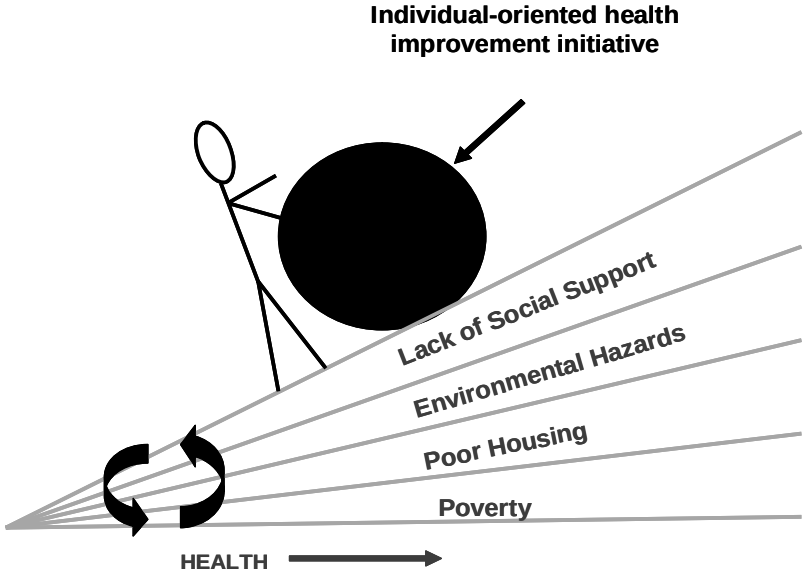

Figure 4: The impact of social factors on individual behaviors. As social factors worsen, the slope of the ramp increases, and the more difficult it is to alter individual behaviors or health conditions.

population was six times greater than the income of the bottom 10%; in most other developed nations, the ratio is closer to three to one (1). Between 1982 and 1998, income inequality grew in the United States; the top 1% of households experienced a 42% increase in average wealth while the poorest 40% lost an average of 76% of their wealth (11). A 1% increase in income inequality is associated with a 4% increase in mortality rates among the poorest segment of the population. Although the cause of the relation between health and inequality is not known, it may be attributed to generally less progressive social policies or the lack of "generosity" in health policy in communities with high levels of inequality.

o *Race and ethnic background* have long been recognized as impacting health. The magnitude of the issue has been demonstrated by the report issued by the Institute of Medicine in 2003 (12). Data included in that report indicated that 888,202 deaths in the United States between 1991 and 2000 would have been avoided if African Americans had the same health status as Caucasians. During that same period, advances in medical care were responsible for avoiding only 176,633 deaths. The Surgeon General's report, *Healthy People 2010* (13), included eliminating racial and ethnic disparities in health and health care as a national goal to be accomplished by 2010. Recognizing the need for more focused attention to child health issues, the Surgeon General's report included immunizations and infant mortality rates as priority areas for reducing disparities (14). These disparities occur in the broader context of historic and ongoing social and economic inequality and racial discrimination, and they reflect broad concerns related to social, environmental, educational, economic, and health policies, and their associated political contexts.

o *Educational level* is the most convenient predictor of death rates in any given year. For persons aged 45-64 years, those with the highest levels of education have death rates 2.5 times lower

"The struggle for equity in child outcomes will almost always be rooted in the larger struggle for social justice"

– Paul Wise, Stanford University School of Medicine.

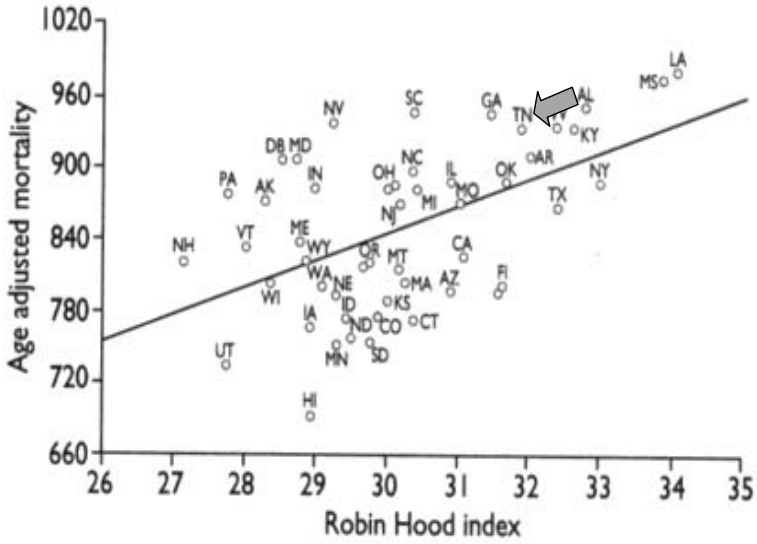

Figure 5: Relationship between income inequality, measured by the "Robin Hood Index", and health status, measured by age adjusted mortality rates, in the United States. Tennessee is marked by the arrow. As income inequality rises (as the Robin Hood Index rises), mortality rates increase.

"… no matter what the current profile of disease and known risks happen to be, those who are best positioned with regard to important social and economic resources will be less affected by disease (so that) unequal social positions carry with them unequal probabilities of being exposed to health hazards…"

– Hiliary Graham.

than do those with the lowest levels of education (4). This impact on health may reflect an impact on economic, work and household living conditions; its ability to enhance psychological and social resources; or its effect on enabling healthy lifestyles and behaviors.

- *Poor housing* impacts health by affecting the material environment (e.g., cold, dampness, mold, etc); reducing the availability of needed services in the neighborhood; increasing physical and psychological insecurity and stressors; and reducing social cohesion. Children living in substandard housing suffer greater rates of asthma, lead poisoning, and malnutrition. Because poor housing occurs in clusters or neighborhoods, groups of people are isolated from economic resources that support community and individual development and that support healthy behaviors, and are subject to neighborhood factors such as crime and drug abuse.
- *Lower socioeconomic status* underlies several basic determinants of health including increasing environmental exposures, isolation and lack of social engagement, increasing poor personal health behaviors (e.g., increasing tobacco use), increasing chronic stress, and limiting access to medical care. This was demonstrated in the classic Whitehall Study in England in which health status was shown to be worse among civil servants with lower status jobs than in those with higher level positions. In Shelby County, persons with incomes under the federal poverty level are 1.6 times as likely to live in a ZIP code containing a site containing persistent biological toxins than are more affluent people.
- *Social capital* and *cohesion* include the roles of community relationships on health. These terms refer to the features of social relationships, such as interpersonal trust and norms of reciprocity, which facilitate "collective action for mutual benefit" and to the "available resources (capital) that accrue to people by virtue of their mutual acquaintance and recognition (social) and that can be used for a variety of productive activities" (15). At the individual level, persons who are socially isolated have mortality rates 2.5 times greater than those who have close connections to family, friends and communities (4). At the state level, these impacts on health may occur because of greater political participation in communities with greater cohesion, and greater participation of lower income groups is associated with more generous welfare policies. At the neighborhood level, increased social capital improves health outcomes by increasing access to social support systems, and by reducing factors such as crime, drug use, etc.
- *Social position*, related to all of the above, "marks the point at which societal-level resources enter and affect the lives of individuals" and "determines their health opportunities" (6). It also shapes the exposure to intermediate factors such as the social and material environments of the neighborhoods and work places and strongly influences personal behaviors such as exercise and smoking.

How Do Social Factors Influence Access to Care? Social factors influence access to health care as well as health status itself. This is shown in the model shown in Figure 6. In this model, use of health care resources is determined by *individual factors* and *community factors* (16).

Individual factors include *need* (conditions recognized by lay people or health care professionals as requiring medical care); *predisposing factors* (conditions that predispose individuals to use or not use services, including demographic factors {age, gender, race}, social factors, and health beliefs); and *enabling factors* (conditions that facilitate or impede the use of health services by individuals including household resources such as income and health insurance, and community resources including accessible providers and hospitals).

Community factors include the characteristics of disadvantaged communities and safety net populations; the structure of the health care market in the area; and public policy support for providing services including health policies, health financing mechanisms, and health system organization and availability.

These community aspects are major determinants of *potential access* to care, that is, the availability of resources for services. The individual factors then determine whether this potential access is actually used to become *realized access*. Thus, social factors operate to impact access to care interact with the impact of social factors on determining health status to strongly influence health outcomes.

THE MAKING OF PUBLIC POLICY

One of the major implications of the role of social factors in health is that effective health policies must address people's social and economic circumstances as well as their access to medical care. What do we mean by "public policy"? How is public policy made? How can public policy influence health?

What is Public Policy? Public policies are authoritative decisions that are made in the legislative, executive or judicial branches of government. These decisions are intended to direct or influence the actions,

"Because of social trends and medical progress over the past three decades, the threats to children's health have changed so dramatically that many of our current health policies and systems of delivery have been rendered obsolete."

– Paul Wise, 2004.

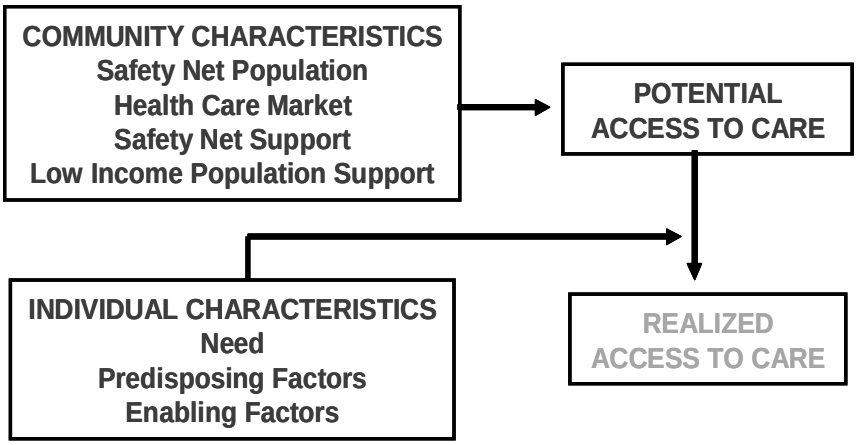

Figure 6: The relationship of individual and community factors in determining access to health care, as described in the text.

"Where a great proportion of the people are suffered to languish in helpless misery, that country must be ill-policed and wretchedly governed."
– Samuel Johnson.

behaviors or decisions of others. Thus, public policies, including, those that impact health, are intended to affect issues that are "public", that is, that entail some kind of social issue that cannot be solved solely by the individuals involved and that should not be ignored by society; and are purposive, goal-oriented, and designed to achieve specific goals and produce definite results.

Public policies are distinguished from three other types of policies that impact health care. These are:

- *Organizational policies* – policies impacting behavior within an organization, for example, a managed care organization's policies on prior approvals before ordering tests;
- *Professional policies* – policies guiding professional behavior, for example, best practices for treating a disease; and
- *Macro-policies* – overarching policies affecting many areas of public policy, for example, a balanced budget amendment forcing zero growth in all policy areas, one of which is health.

How is Public Policy Made? A common, if oversimplified, model of public policy making includes the following seven steps:

- *identifying the problem* as a public problem that significantly affects a substantial number of people;
- getting this problem on the *agenda* of policy makers in competition with other problems and constituencies;
- *developing a policy* that will be effective in addressing the problem and that is practically and politically feasible;
- getting the *policy adopted*;
- *implementing* the policy in a way which is effective and that meets the original intent of the proposers;
- *evaluating* the impact of the policy on the problem; and
- *modifying* the policy to better address the problem or terminating it if needed.

This sequence is depicted for the implementation of the State Childrens Health Insurance Program (SCHIP) in Figure 7. Although these steps are listed in an orderly sequence, they do not in reality occur this way. Rather, the actual sequence is much more disorganized, with greater influences of politics and the competing needs and values than logical sequencing of events.

Agenda setting is a particularly important step. Many more problems exist than can be addressed by policy makers. Kingdon (17) described the "window of opportunity" for problems to reach the policy agenda. In this model, many policy problems and potential solutions are constantly available for action in what he termed the policy "garbage can". A "window" opens for a problem to make it out of the garbage can to the agenda when three things converge: the public perceives that a meaningful problem exists (the "problem stream"); a policy option is proposed and government officials believe government action is appropriate (the "policy stream"); and political actors agree on the broad outlines of a solution (the political stream").

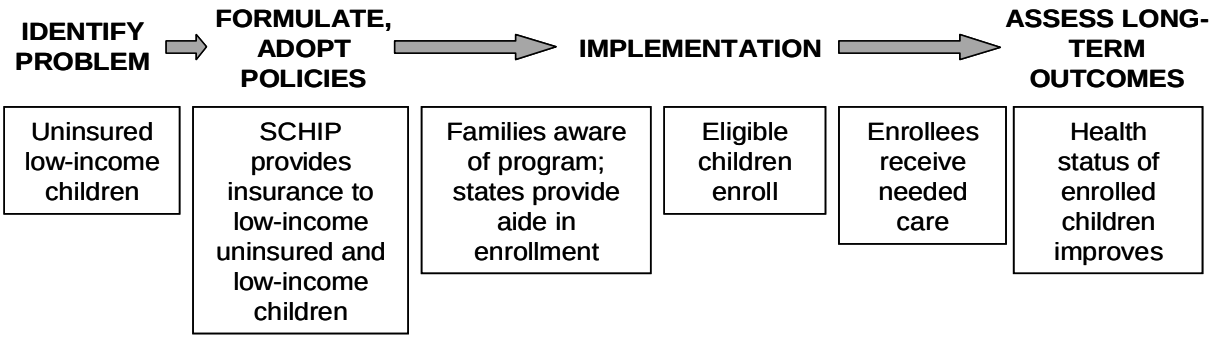

Figure 7: Steps in the formulation and implementation of the State Childrens Health Insurance Porgram (SCHIP) based upon the sequential model of health policy development descibed in the text.

How Do Public Policies Impact Health? Public policies can impact health by improving the factors that underlie community health. They may do so by affecting the allocation or distribution of money or other resources; development of the health professional workforce; development or distribution of technology; or regulations that govern the structure or function of the health care system.

Social issues also have important places in national health plans. For example, Sweden's objectives for population health improvement include increasing participation and influence of all groups within society (as measured by increasing turnout in municipal elections), creating secure and favorable conditions during childhood (as measured by how pupils are treated by teachers, other adults, and other children), and promoting economic and social stability as well as increasing exercise and promoting safe sexuality. The United Kingdom's health plans indicate that "improving the health of everyone and the health of the worst off in particular" are to be advanced by "tackling the fundamental determinants of health."

Societal issues, however, present particular problems for policy makers that must be overcome for effective policies to be generated and implemented (4, 18). These include the following.

- Affecting social issues require complex interventions that impact multiple "upstream" causes of illness rather than a single disease. This leads to diffusion of responsibility for action as well as the need for complex coordination among usually independent and often competing groups with their own agendas and interests.
- Such interventions require actions in many policy spheres other than health including, as example, tax policy (for reducing cigarette smoking by raising excise taxes) or zoning (to limit or reduce toxic waste dumps near disadvantaged neighborhoods), rather than more restrictive policy changes to address specific medical issues.
- These policies may run counter to usual interest group dynamics. Interest groups are typically formed around specific diseases rather than around broad social issues. Groups supporting new social issues will not only threaten the established power dynamic among these groups but will seek to divert resources away from the established groups and causes.

"The contrasting symbols of sick babies versus healthy babies have provided an implicit message of hope and positive action if only the right technology were applied."

— Michael R. Reich, 1995.

- Many policies to change social practices will run counter to business and economic interests. Changes to zoning and tax policies, for example, will hurt strong commercial interests while seeking to enhance overall population health.
- Some policy proposals will be met by public resistance to changing personal behaviors and may be framed as challenging personal freedoms.

However, child health issues are particularly amenable to policy interventions. Michael Reich (18), among others, suggests that child health policies are better adapted to influence the political stream described above:

- Child health has more effective and unified organizational support (e.g., the Urban Child Institute) that do adult health issues which has very fragmented, disease specific organizations.
- The imagery of child health is "rich in reverberations and capable of changing ideas and motivating action" (18).
- The economic incentives for interventions that improve child health (e.g., infant formulas, car seats, etc) are better aligned with commercial interests than are adult interventions (e.g., antismoking campaigns).
- The reliance on simple, if not totally accurate, measures of child health such as infant mortality rates to measure overall population health provides symbolic justification for a wide variety of policies.
- Child health has powerful intuitive appeal to politicians.

REFERENCES

1. Starfield B: U.S. child health care: what's amiss, and what should be done about it? Health Affairs 23:165, 2004.
2. Comptroller of the Treasury: *Mothers and Babies: The Health of Tennessee's Future.* Report R-0406, March 2006.
3. Annie E. Casey Foundation: Kids Count 2006. www.aecf.org.
4. McGinnis JM, Williams-Russo P, Knickman JR: The case for more active policy attention to health promotion. Health Affairs 21 (No. 2):78, 2002.
5. Mokdad AH, Marks JS, Stroup DF, Gerberding JL: Actual causes of death in the United States, 2000. JAMA 291:1238, 2004.
6. World Health Organization: Towards a conceptual framework for analysis and action on the social determinants of health. July 2005.
7. Low MD, Low BJ, Baumier ER, Huynh PT: Can education policy be health policy? Implications of research on the social determinants of health. Journal of Health Politics, Policy and Law 30: 1131, 2005.
8. Dovey S, Weitzman M, Fryer G, et al: The ecology of medical care for children in the United States. Pediatrics 111:1024, 2003.
9. Anderson LM, Scrimshaw SC, Fullilove MT, et al: The Community Guide's model for linking the social environment to health. American Journal of Preventive Medicine 24:12, 2003.
10. Wood D: Effect of childhood and family poverty on child health in the United States. Pediatrics 112:707, 2003.
11. Wise PH: The transformation of child health in the United States. Health Affairs 23 (no. 5):9, 2004.
12. Institute of Medicine: Unequal Treatment. Washington, DC: National Academies Press, 2003.
13. U.S. Surgeon General: Health People 2010. Washington, DC: US Department of Health and Human Services, 2001.
14. Beal A: Policies to reduce racial and ethnic disparities in child health and health care. Health Affairs 23:171, 2004.
15. Machinko J, Starfield B: The utility of social capital in research on health determinants. Milbank Quarterly 79:387, 2001.
16. Davidson PL, Anderson RM, Wyn R, Brown ER: A framework for evaluating safety-net and other community-level factors on access for low-income populations. Inquiry 41:21, 2004.
17. Kingdon JJ: Agendas, Alternatives and Public Policies. New York: Harper Collins, 1995.
18. Reich MR: The politics of agenda setting in international health: Child health versus adult health in developing countries. Journal of International Development 7:489, 1995.

This Issue Brief was prepared by the faculty and staff of the Department of Preventive Medicine, University of Tennessee Health Science Center. For additional information, please contact Dr. David Mirvis or Ms. Rashonda Lewis at 66 North Pauline Street, Suite 463, Memphis, TN 38163 by telephone at (901) 448-5826, or by e-mail at dmirvis@utmem.edu.