

Maternal and Child Health Promotion: Redefining the Vision and Rebuilding the Data Strategy to Promote the Health of the Nation's Children and Families

Division of Science, Education, and Analysis
Maternal and Child Health Bureau, HRSA, PHS, DHHS
Parklawn Building
5600 Fishers Lane
Rockville, Maryland 20857



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Prepared by:

Donna J. Petersen, MHS, ScD
with

Michelle Bajjalieh, MPH
Greg R. Alexander, MPH, ScD

Department of Maternal and Child Health
School of Public Health
University of Alabama at Birmingham
Birmingham, Alabama



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I. Introduction: Redefining the Vision

Maternal and child health programs and professionals assume leadership for a broad mission: to protect, promote and assure the health of women and children (Wallace, 1994; Grason, 1995; Kotch, 1997). As a special focused area within public health, maternal and child health practitioners draw upon the functions of assessment, policy development and assurance to direct programmatic efforts and strategic interventions targeted at groups and communities throughout the nation. Rich in history with a statutory base that extends over 80 years (History, 1989; Kotch, 1997), maternal and child health programs are uniquely responsible for supporting the healthy growth and development of present and future generations. The approach is population-wide and the emphasis is on prevention; more recently, maternal and child health has developed expertise in the development of systems that support the availability of coordinated, community-based, comprehensive, family-centered services for children and their families. Given this notable mission and broad orientation, it is not surprising that maternal and child health embraces a multidisciplinary point of view and recognizes the myriad factors and forces that affect the growth and development of children and the integrity of families. While the singular emphasis on “health” may have led some to define MCH too narrowly within a medical or clinical context, the true sphere of influence on health is much broader, suggesting that MCH could adopt a more inclusive stance involving theoreticians and practitioners from a wide array of fields such as economics, the social and political sciences, ecology and alternative health specialties in addition to its well-established public health, education, child welfare and clinical partners. Indeed, it may be essential that MCH provide broader leadership in engaging new partners in discussion of a shared collective national interest in children and in the development of a positive, forward-looking agenda. Redefining “health” as “health promotion” may assist in advancing this broader agenda.

The World Health Organization has defined “health” as a complete state of physical, mental and social well-being and not merely the absence of disease or infirmity. This statement makes explicit the objective to promote health rather than simply prevent disease and implicitly suggests a focus on the entire population and not merely those with or at risk for disease. Despite the universal human desire to enjoy a healthful, high-quality life, maternal and child health programs have typically directed attention more narrowly to the prevention, treatment and amelioration of disease. This prevention focus has directed efforts largely toward those at risk for disease and away from the population as a whole. A focus on health and well-being suggests a broader community orientation and reinforces the traditional public health emphasis on the entire population..

Contributing to a disease prevention focus is the nature and quality of data available to MCH programs to provide information and guidance for the development of program strategies and interventions. The appropriate use of data derived from needs assessments, surveillance systems and program management information systems for program planning, monitoring and development is hindered by the often narrow focus of these databases on either the administration of existing programs or on negative events: death, hospitalization, acute or chronic illness, injury, disease and socioeconomic risk factors. Few of the databases available to MCH professionals are population-based; fewer still include variables that might suggest the enhancement of community assets, population strengths or positive system approaches in the promotion of health.

Considering the evolutionary continuum of public health efforts directed at the population of mothers and children in this country, it is fitting that maternal and child health reconsider its orientation beyond prevention and toward true health promotion. If it is to fulfill its historic mission to assure the health of all mothers and children, then the science, the technology and the professional expertise that have been developed during this century should all be brought to bear on the development of new approaches, fresh strategies, and innovative interventions toward true promotion of population health.

This paper proposes that MCH, at the federal, state and local levels, enhance its leadership role and foster the continued development of this critical area of public health by directly supporting and reinforcing a shift toward the promotion of health, beyond the prevention and treatment of disease. Imbedded in this leadership charge is the need to emphasize the population focus of maternal and child health; to embrace a larger circle of professionals in creating a true multi-disciplinary health promotion strategy; and to significantly revise our national data collection and health status monitoring efforts to facilitate this singular approach.

Such a transformation of program goals and priorities requires a comprehensive, population-based data system to drive its effective implementation. A significant change in the way data are collected and health status monitored for policy and program assessment, development, and evaluation would bolster this effort considerably. Reorienting national data initiatives and supporting expanded state data collection and health status monitoring efforts in the context of a population-focused, multi-disciplinary, health promotion agenda would allow for the development of the knowledge base necessary to create and sustain a change in focus in these directions. As many disease prevention efforts have finite utility, it is important that MCH professionals consider alternative approaches in the arena of health promotion in order to extend the opportunity for true health and quality of life to all children and their families.

A. From Disease Prevention . . .

Early public health efforts involved broad community and population-based strategies that sought to improve the conditions in which people lived in order to prevent unnecessary disease and premature death. Improvements in sanitation, the safety of the water supply and the pasteurization of milk are examples of societal interventions that elevated the health status of entire communities (History, 1989; Kotch, 1997). With the discovery of antibiotics and the later development of vaccines, specific diseases could be treated or prevented altogether, although only people with diagnosed disease or considered at risk for specific conditions benefitted from these interventions. Despite these advances and the growing sophistication in methods of disease detection and risk assessment, negative health outcomes continue to occur, even among individuals believed to be at no or low risk. Premature births are one example of

this phenomenon. While much is known about risk factors for premature birth and various interventions have been explored to modify these risk factors or their subsequent effects, the majority of premature births continue to occur among women with no known risk factors (Berkowitz, 1998). Routine screening for lead exposure provides another example; is it better to screen the entire population or only those considered to be at highest risk? Economic as well as health concerns contribute to these decisions in any given community. Growing awareness of the effects of the home and community environments on the incidence of disease has led to an increase in the proportion of health care providers who ask patients about domestic violence, community safety and the workplace environment. While individual providers have limited ability to intervene, community-based programs are emerging that attempt to address the root causes of these health risks.

The emergence of chronic diseases as major causes of death, the re-emergence of infectious diseases not preventable by vaccination, such as HIV/AIDS and food-borne organisms, and the evolution of social conditions with health consequences, such as substance abuse and violence, have shifted efforts toward broader and longer-term preventive strategies. At the same time, advances in medical technology, the growth of special interest groups and a growing distrust of government have created a bias toward specific, categorically-funded programs targeted at singular concerns. These developments have coincided with eroding support for broad-based programs like the maternal and child health services block grant and the infrastructure these support. Data collection for assessment, planning and monitoring typically follows intervention strategies and funding streams, resulting in disease-, condition- or risk-group-based information systems that collectively reveal little about the population at large. Though many feel we are awash in data, attempts to portray the lot of the nation's children are confined to disconnected individual events (such as incidents of verified child abuse or rates of adolescent pregnancy) and distally related social indicators (such as poverty and unemployment) (Walker, 1984). The continued interest in the welfare of children is almost startling, given that so little is truly known about what many term “our most precious resource.” Ironically, the call for greater accountability will be difficult to heed in the absence of geographic and temporal data on population cohorts; indeed, it is only through multi-dimensional knowledge of entire communities (including the health status of the population, the strength of community services

and supports, the adequacy and quality of the health system, and the nature of the geo-political environment) that the effectiveness of various individual interventions can be judged (Lumpkin, 1995; Baker, 1995).

Despite the maternal and child health block grant and its emphasis on the development of systems, many current interventions are targeted to singular health-related problems such as infectious disease, teenage pregnancy or low birth weight. These targeted prevention interventions tend to operate under the “identify and treat” mode, seeking those at risk or those already affected and providing medical interventions to prevent further negative sequelae. While concern for the accessibility and quality of these clinical interventions is necessary for the promotion of maternal and child health, it is not sufficient. Other factors serve to affect, positively and negatively, the attainment of a true state of health. With this broader perspective in mind, a biopsychosocial model of wellness and well-being becomes important, one that considers the multi-causal relationship between psychological, sociological, environmental, physical and economic factors (Shannon, 1989) and their collective impact on health status and quality of life.¹ Such a model forces a reorientation away from a largely clinical perspective and towards a more inclusive approach to community public health and population-focused health promotion.

B. . . . Toward Health Promotion

The fields of psychology, sociology, economics, environment and holism each offer insights that can build upon current clinical experience and public health knowledge to support this broader way of thinking. Further, several scientists and policy analysts have suggested a shift away from the identification of individual, group, and community deficits toward an emphasis on positive attributes, resiliency, assets, and strengths. Together, expanding the members of the multi-disciplinary team and expanding a focus on positive rather than negative events creates a path

¹ Shannon (1989) notes that this shift in emphasis away from a biomedical model of disease toward a multi-factorial perspective must involve government, the private sector and the health care delivery system. She singles out social work, as the discipline rooted in psychosocial primary care, as the best means of integrating the health care delivery system toward a biopsychosocial model of wellness. She also notes the need to shift from a clinic to a community perspective to achieve health promotion objectives.

toward a health promotion orientation for maternal and child health and provides guidance in the development of necessary data systems to support this movement. This is not to suggest that targeted preventive interventions and the data necessary to direct and evaluate them are no longer necessary. Rather, enhancing our understanding of health, more broadly defined, and of community strengths that support an advanced state of health should compel us to consider new and different approaches to achieving our maternal and child health goals. This approach may also suggest avenues to greater understanding of the role of the community, of cultural beliefs and behaviors and of social networks in providing strengths that support health initiatives. Absent the means to discover these strengths, we may ignore the tremendous reserve of resiliency and fail to tap the well of empowerment that exists within individuals, families and communities.

Figure 1 illustrates the direction of the movement from where we are today in team composition, health orientation, health indicators and health data systems toward where we wish to lead. A more inclusive team with support and encouragement to focus on positive attributes of individuals, families, groups, institutions and communities can consider the steps necessary to effect population- and system-based data efforts that can truly inform a health promotion agenda.

Figure 1. An Evolving Approach Toward Health Promotion in Maternal and Child Health	
<i>From . . .</i>	<i>Toward . . .</i>
a clinical multi-disciplinary team (nurse, nutritionist, physician, social worker)	a professional multi-disciplinary team (clinicians, ecologist, economist, MCH epidemiologist, public health specialist, research scientist, social scientist)
dependence on indicators of mortality, morbidity, disability to describe health status	emergence of indicators of health, functioning, quality of life at home, work, school, community
a focus on those with disease, those with disease precursors, those at-risk for disease	a focus on the entire population, those with and without disease, precursors or risk factors
a deficit model	an asset model
individual, categorical databases	population, system databases

Figure 2 illustrates a health promotion strategy for maternal and child health that acknowledges the primacy of meeting basic human needs before other, higher-order concerns can become manifest. This strategy is based on classic sociologic and economic theories, which suggest that attention to this fundamental level is absolutely essential for subsequent efforts to be successful. Based on the importance they place on this concept, several researchers have suggested that the most most feasible policy strategy for achieving health promotion is lifting families out of poverty^{2,3} (Freeman, 1997; Lamarche, 1995).



Needs considered fundamental in the initial level need to be addressed before caregivers, healthcare workers, community institutions and public health organizations can focus on

²Freeman and Rotem (1997) cite the disconnect between health policies and socioeconomic development in third world countries as contributing to the growing global deterioration in health status. Further, economic gains among a small wealthy elite have fueled a rise in chronic disease related to tobacco use and poor diet among other factors. They advocate a strong integration among efforts to enhance economic development, environmental sustainability and health, and urge community participation in this integrated approach.

³Lamarche (1995) suggests the entire health paradigm, exemplified by exorbitant US health care expenditures, must shift to one which emphasize those factors that undergird “health”: housing, income, nutrition, education and a healthful social and physical environment. He posits that our current model (health = better health care = more resources) is overly simplistic and detrimental to health in that it ignores such obvious health-limiting factors as poverty, lack of education, social strife and a poor quality environment. Both Freeman and Rotem and Lamarche argue for improved surveillance systems that monitor not only health status, but quality of life in addition to the costs and effectiveness of health services and community interventions.

achieving the objectives of the second and subsequent levels. These second and third levels acknowledge the critical role of the community, the need for a multi-faceted approach, the importance of a deliberate focus on health promotion and the need to address both the elimination of negative factors and the enhancement of positive factors. In addition to targeting risks to healthy development, this level focuses on developing those protective factors that allow children and adolescents to continue functioning despite problems that might arise in their lives. The protective factors of caring and connectedness in family and school have been identified as essential components in health promotion (Resnick, 1997). A sense of spirituality and low family stress also contribute as protective factors for childhood resiliency (Resnick, 1997). The healthy development of adolescents is supported through the building of enduring relationships with adults and with constructive peers that provide a sense of belonging, a perception of opportunity and a chance to prepare for social roles that earn respect.⁴

The third level encourages the proactive development of community buffers against lapses in the lower levels and further suggests that cultural assets be identified and nurtured to further facilitate recovery from economic downturns, environmental catastrophes and social upheavals. Once needs in each of the levels are consistently addressed and the results sustained, then optimal mental, physical and spiritual health can be approached while the need to intervene with preventable problems should have declined.

The health-promoting strategies suggested by these incremental levels can focus on the individual while complementing the larger community agenda (Wynn et al). Children live in families that in turn live in communities; as such, communities should be supported in their identification of resources available and those necessary to strengthen the lives of families. Reinvesting in and rebuilding the base of primary services available to families is a critical step in realizing a health promotion agenda. Further, allowing communities to replenish what they lack can be just as significant. Given the complex, multiple challenges facing children, a focus

⁴Resnick, et al (1997) analyzed data on 12, 118 adolescents grades 7-12, collected as part of the National Longitudinal Study of Adolescent Health, to identify potential factors that protect adolescents as well as those that increase risk for morbidity. Multivariate analyses revealed the importance of connectedness to parents and school in helping adolescents avoid emotional distress ($p<.001$), suicidality ($p<.001$) and substance abuse ($p<.001$). This study also identified the now oft-quoted finding that working 20 or more hours per week was significantly associated with an increase in each of these negative health outcomes, perhaps due to its negative mitigating effects on parent and school involvement.

on the community and its resources is appropriate and necessary in seeking to achieve the ultimate level of optimal mental, physical and spiritual health (Stokols, 1992).⁵ Comprehensive, multilevel interventions that combine behavioral, environmental and economic components will support more effective policy development that should improve the health of families and communities as a whole.

C. Implications for Maternal and Child Health Data and Programs

The shift of focus away from negative events and toward positive attributes suggests a modification of the existing blueprint for maternal and child health infrastructure and programmatic activity. Supported by the work of other researchers and policy analysts and advocates, the Search Institute has identified 40 developmental assets that they believe support healthy development of children, youth, families and communities (Benson, 1997). Half are considered external, including assets that reflect the level of support for children and youth within their families, schools and neighborhoods; the opportunities available for youth to participate in activities of value to the youth and the community; the clarity of expectations for youth behavior; and the availability of activities that encourage constructive use of time. The remaining, considered internal, include assets that reflect and contribute to a commitment to learning, the possession of positive values, social competencies and a positive identity. These assets provide indicators of health, and together with traditional indicators of morbidity, maladaptation, dysfunction and service utilization provide a more holistic picture of the quality of life of children and their families. Such a view facilitates creative thinking about policy and programmatic interventions and suggests leadership directions for maternal and child health.

For example, a recent Charles Mott Foundation poll found that the overwhelming majority of Americans surveyed support after-school programs and many (80 percent) would be willing to

⁵Stokols (1992) proposes an ecological analysis of health promotive environments and their interaction with individual behaviors as a means to achieve lasting health promotion on an individual, community and global basis. Like others, he objects to the overly medicalized and individualized approach to health, favoring instead a view that considers collective societal well-being and recognizes the role of the environment in providing a context in which health and individual health behaviors can flourish. This personal-social-environmental model also relies on the identification of measurable factors for assessment and evaluation, suggesting a stronger, multifaceted data approach.

pay more taxes to assure their availability and quality (Charles Mott Foundation, 1998). While indicators of disease and health risk behaviors among adolescents typically lead to health service and educational interventions that may generate controversy (e.g. sex education and contraceptive programs, substance abuse programs, etc), these “negative event” data on disease and risk coupled with data based on assets such as those pertaining to constructive use of time and social competencies may suggest community-based solutions such as after-school programs that enjoy popular support.

The following section of this paper proposes several mechanisms by which a modified data strategy could support the re-orientation of maternal and child health programs toward a more positive, community-based health promotion vision. Several long-term strategies are suggested and one more immediate application of these concepts, to the federal Maternal and Child Health Bureau’s current initiatives to support performance measurement and the development of a core set of needs assessment indicators, is encouraged.

II. Rebuilding the Data Strategy toward Health Promotion

Realizing the health promotion agenda will depend on a broader view of health supported by a more positive and comprehensive data strategy. Rather than looking only at immediate events such as injury, disease onset or premature death (events that prompt rapid action and analysis toward the prevention of further negative events), a health promotion vision also requires a longer-term view supported by thoughtful and comprehensive analyses of the myriad factors that collectively yield greater health for more children and families. This long view requires a data collection strategy with greater breadth, rather than the depth associated with more focused investigations. The model depicted in Figure 2 should not be misconstrued to imply that achievement of the penultimate level will be a simple matter; rather, it should signal the need to adequately address the gaps in current data that render knowledge of the population and its health status incomplete. The ability to monitor the true effects of various policy initiatives, directly or indirectly expected to affect health, is essential to effective and efficient program planning, policy development, evaluation and resource allocation within the health promotion paradigm.

While many of the indicators currently in use will still support this shift in emphasis toward health promotion, it must be recognized that new and enhanced data efforts will be critical to enhance overall understanding of health beyond the presence or absence of disease or disease precursors. Recognizing the limits on the resources that can be dedicated to data system development and implementation, a multi-pronged strategy is suggested, which includes recommendations for enhanced activity on the Federal level, for strengthened Federal-State partnerships in support of critical infrastructure expansions, and for the development of coordinated, comprehensive approaches to population-based health promotion data collection.

This section of the paper proposes the rebuilding of a maternal and child health data strategy, considering various needs for information at the local, State, regional and Federal levels and among various audiences. First, as a short-term interim strategy, we consider the opportunities presented by two data initiatives currently being developed and promoted by the federal Maternal and Child Health Bureau in support of the federal-state partnership: performance measures and needs assessment indicators. These two initiatives offer the ability to immediately test the feasibility of incorporating new measures of health and community assets toward building a health promotion data strategy. Potential measures are suggested for use in either core performance measure or national needs assessment indicator sets, or for exploratory development by individual states. Second, for a more comprehensive long-term vision, a series of suggestions for possible areas of activity in the development of this data strategy is discussed, including the recommendation that the Maternal and Child Health Bureau, in partnership with the states, explore the possibility of instituting a state-by-state household survey-based surveillance system to facilitate national and state assessment and monitoring of the health of children.

A. Measuring Performance and Assessing Needs in A Health Promotion Context: A Short-Term Strategy

As mentioned throughout this paper, one of the critical steps in redefining the vision toward health promotion and rebuilding the data strategy is reorienting the focus away from negative events, a deficit model, and toward positive attributes, an asset model. Figure 3 illustrates the nature of this shift, using several examples of areas where the situation is merely reframed as a positive and others where new indicators are suggested reflecting positive community characteristics.

National organizations such as Family Voices have expressed interest in this approach, as it frames maternal and child health matters in a constructive light, empowering families and communities to act responsively and suggesting avenues of intervention that encourage hopefulness rather than helplessness. This does not mean that data on sentinel indicators, such as child mortality, injury morbidity or vaccine-preventable diseases are less important. These

indicators remain critical to our ongoing ability to effectively monitor system functioning or failure and provide important windows into the health status of entire communities. Rather, it is suggested that needs assessment activities, the selection of policy and program strategies and the measurement of performance be enhanced to include indicators of assets as well as of deficits in order to create a more complete view of health and to guide a path toward health promotion.

**Figure 3.
Deficit- vs. Asset-Based Indicators of Maternal and Child Health**

<i>Deficit-Based Indicators</i>	<i>Asset-Based Indicators</i>
Level of risk at birth	Level of potential at birth
Level of risk in early childhood	Level of support in the home and community
Lack of health insurance coverage	Level of health insurance coverage
Lack of diagnosis, treatment	Quality of health care available
Lack of preventive care	Receipt of preventive care
Lack of emergency, acute care	Access to acute and emergency care
Onset of disease	Level of growth and development achieved
Exposure to infectious agents	Level of community services and supports
Exposure to environmental toxins	Achievement in school
Lack of immunizations	Level of resiliency, hope
Presence of disease precursors	Absence of risk factors
Presence of disease risk factors	Intrinsic risk factors ameliorated
Presence of social risk factors	Level of functioning, health status achieved
Impairment, infirmity, premature death	Quality life, health, functioning

Over the past two years, the federal Maternal and Child Health Bureau has embarked on two initiatives that directly speak to this evolving data strategy: the development of performance measures reportable by every state and territory and the more recent exploration of national needs assessment indicators. These two efforts directly support the federal-state partnership in encouraging a stronger voice for maternal and child health at the federal level and in promoting greater accountability at the federal and state levels in the use of public dollars to address public

health concerns among families. These efforts also can be viewed as the culmination of two decades of federal and state investment in the development of a variety of minimum data sets, model indicators, surveillance systems and new measures for maternal and child health. Additionally, the federal investment in enhancing the analytic skills of maternal and child health professionals through graduate and continuing education programs has facilitated the implementation of initiatives such as these by improving the capacity of state maternal and child health programs to have available accessible, timely and higher quality data than was the case in the past.

The performance measurement system developed by the MCH Bureau requires that all states and territories report data on a set of 18 core national performance indicators. States and territories must also propose their own set of performance measures, as a way of both reflecting the uniqueness of each state and of suggesting avenues for future federal investigation. The needs assessment indicators under development have been designed to provide a core set of indicators of the needs of women, children and their families, measured and reported by each state in a way that allows federal aggregation for national reporting. In each case, the temptation to include indicators of health attributes or community strengths was diminished by the lack of readily available measurement strategies for these types of indicators and the accompanying lack of existing data bases. Yet, these two initiatives, with their forward-looking approach, provide an important and timely opportunity to test the feasibility of incorporating new indicators within this health promotion data strategy on a limited scale.

The following table identifies several measurable indicators that might be incorporated into either the performance measurement or needs assessment strategies and that can contribute to the redefinition toward maternal and child health promotion. Some reflect standard indicators collected in new ways; others reflect new indicators of population-based measures of growth and development as well as families perceptions of their overall state of health and the level of support they believe the health system provides them to meet their needs.

Table 1.	
Sample Health Promotion Items for Performance Measurement and Needs Assessment	
<i>Possible Performance Measure</i>	<i>Possible Needs Assessment Indicator</i>
proportion of child and adolescent population within acceptable weight for height ranges, by gender, age and ethnicity	level of perceived health status (excellent, very good, fair, poor) reported by children and adolescents, by gender, age and ethnicity
proportion of children and adolescents reporting fruit and vegetable consumption according to guidelines, by gender, age and ethnicity	fitness levels of children and adolescents, by gender, age and ethnicity
proportion of child care facilities and schools requiring or providing routine health screenings	proportion of children and adolescents receiving age-appropriate preventive health visits according to AAP standards
proportion of newborns and infants screened for early intervention programs including growth, development and hearing screening	proportion of adolescents who have mastered a particular skill (e.g. academic, agricultural, artistic, athletic, automotive, horticultural, mechanical, musical, physical, theatrical, etc.)
percent of children with continuous health care coverage that meets primary and preventive care needs (and/or acute and emergency care needs, chronic care needs)	number of registered voters who participated in the last municipal (or statewide or national) election
proportion of children participating in after-school programs	proportion of children with library cards; ratio of public library holdings to child population

Each of these should be obtainable without excessive demands on resources or time, through such avenues as the addition of items to existing surveys or data reports required of programs; sampling of the target population at the state or community level; the incorporation of these items into other ongoing needs assessment activities; or the identification of other potential sources of data. Some of these items may well exist in the data-bases of other public institutions, such as schools, libraries or election boards. In one study, a potentially important indicator of community housing quality (proportion of families living in homes built prior to 1950 or 1978) was found to be readily available from the state housing authority (Petersen, 1996).

It is encouraging that an increasing number of communities are experimenting with these approaches to measuring and gathering data on community assets and family strengths, some using ecological analyses of neighborhoods (VanGendern, 1996; Sheps, 1997; Petersen, 1996; Alexander 1998; Augustyn, 1998). The knowledge and experience they gain from these experiments will be enormously helpful in guiding a broader national agenda to reorient the focus toward one which supports a health-promoting agenda. In the meantime, incorporating a select few of the “health promotion indicators” into either the performance measurement or needs assessment initiatives will allow states to continue to work in partnership with the Maternal and Child Health Bureau to gain contemporaneous knowledge that will facilitate the future development of reasonable action steps that have sufficient rigor coupled with practical utility.

B. Longer-Term Strategies for Promoting the Health Promotion Data Strategy for Maternal and Child Health

The following suggestions are made for consideration by federal and state agencies interested in contributing to the development of an expanded data strategy for maternal and child health that is more comprehensive, more population-based and more positively oriented.

1. National Surveys

The Nation, States and communities have all benefitted from the great storehouse of knowledge generated by rigorous and comprehensive national surveys. The National Health Interview Survey, the National Health and Nutrition Examination Survey and the National Maternal and Infant Health Follow-up Survey are a few examples of well-designed and executed survey efforts that have significantly informed the development and monitoring of various policy and program interventions. Despite the lack of a sample size sufficient to calculate stable estimates at the state or local level, these surveys provide important data that can be extrapolated to state population and socio-demographic data to generate reasonable estimates. Further, these data provide helpful information on trends and emerging issues, and for comparison purposes as well as furnishing standards for the measurement of particular variables and procedures for data

collection and analysis. The Federal government should consider expanding the sample sizes of these surveys to support stable state estimates. Moreover, it should further consider accelerating the schedule of survey administration to assure an ongoing and timely source of critical information on the nation's health.

2. Program-Based Data Systems

From differing definitions and requirements to confusion around confidentiality provisions, the absence of a comprehensive national data strategy is felt nowhere more acutely than in the disarray of disconnected categorical data systems. Federal agencies could do much to promote more cohesive data collection, analysis and reporting at the state level by working together to identify data needs across maternal and child health programs and then committing to support comprehensive data collection strategies that contribute to multiple programs. At the very least, the relaxing of rigid program-specific data requirements to allow states to utilize data across reporting domains or to merge data bases on mutual clients would promote a richer understanding of the health of populations of people rather than perpetuating a disease-specific silo approach to data gathering and reporting. The purpose and intended uses of such broad data-based with multiple access points across agencies would have to be clearly articulated and mechanisms to protect the privacy of individuals would need to be firmly in place. Federal guidance and technical assistance would also be appropriate in these efforts.

3. Incentives for Collaborative Data Systems

Extending the previous argument one step further, the federal government, working through its various agencies committed to maternal and child health, could develop incentives for states to decrease their reliance on program or disease-specific data systems and work also toward broad population-based data systems that support multiple applications. A recent report by the Public Health Foundation indicated that public health, Medicaid and substance abuse and mental health programs had differential knowledge about each other's data capacity and variable interest in utilizing such data, despite the fact that an expert workgroup acknowledged the critical importance of data from each of these areas to the others knowledge of information essential to program planning and monitoring (Giordano, 1998). Such incentives could be in the form of

financial support, targeted technical assistance, or other concessions in regulations of interest to states, e.g. relaxation of specific program reporting requirements in favor of a comprehensive health profile.

4. Infrastructure Enhancements

Despite dramatic increases in technology and much effort over the past two decades, the overall capacity of state maternal and child health programs in the gathering, management, analysis and dissemination of data has improved only minimally. Isolated states with differing organizational structures, sources of revenue and leadership have demonstrated that such capacity can be successfully built and sustained and can provide important support for informed policy and program development as well as ongoing monitoring, surveillance and program evaluations. It is quite evident that every state requires the capability to engage in MCH epidemiology; at a minimum, this suggests that every state should have at least one dedicated staff position trained in MCH epidemiology to coordinate data and analytic activities and to provide analytic staff support on behalf of maternal and child health programs (Alexander, 1988). Such basic infrastructure is essential if federal leadership efforts are to bear fruit at the state level. The federal initiatives described above require state-level liaisons to utilize, interpret and support their implementation across the country. Successful data initiatives demonstrated in one locality cannot be transferred to another if capable personnel are unavailable to adapt these models. Furthermore, there is much evidence that collaborative data strategies start with interpersonal relationships based on trust; absent qualified personnel with appropriate skills and expertise, there can be no relationships developed with colleagues across units, other governmental agencies or with the private sector. Technical assistance is also needed to facilitate the acquisition of necessary and appropriate hardware and software; to support critical skills training; and to provide essential guidance in data systems design. Further, a set of “industry standards” should be developed to provide guidance in the selection of hardware and software, in the description of minimum staff qualifications and in projections for staff complement in the data analytic area. These needs are nationwide and are not limited to a few states or a single region. A comprehensive technical assistance effort has the added benefit of creating a

consistent knowledge bank about approaches that work, those that fail, and persistent needs in the data arena.

5. Development of State Surveillance Capacity

The strong Federal-State partnership that supports a national strategy for the promotion of maternal and child health is also uniquely suited to engage in the development of cooperative surveillance efforts. Existing efforts such as the Pregnancy Risk Assessment Monitoring System (PRAMS) or the Youth Risk Behavior Survey (YRBS) provide excellent models toward the development of a child health or family health surveillance system that is jointly designed by Federal and State partners and administered at the State level with financial and technical support from the Federal agency. Such a strategy was utilized to develop national performance measures and national needs assessment indicators (Alexander, 1996; Alexander, 1998; Petersen, 1998; MCHB, 1998). An expert workgroup is convened; the data system is jointly designed; states agree to pilot test the system; the system is modified for national adoption; ongoing technical assistance and guidance is provided; lessons learned and technologies developed within individual states are disseminated and help to inform the entire system. Within states already there exists models, technology and infrastructure to support similar systems (e.g. BRFSS) so that there should be less resistance to mounting a similar effort directed more fully at children and their families. Of course, financial and technical assistance will be essential to the success of such an effort; standards will have to be developed and adherence to them assured, and guidance on technology upgrades and staff training must be provided. Most important, such a system could be designed to employ the most current thinking on the measurement of health, away from a categorical disease or risk factor focus and toward a more generic maternal and child health promotion orientation.

A household survey-based surveillance system to monitor the health of children in each State on an ongoing and consistent basis would provide numerous benefits, such as:

- Each State would be able to utilize a rigorously designed, pre-tested survey instrument, saving individual States the expense of survey design;

- Data collected across States would be consistent, contributing to a national database of critical information on the health status of children and their families;
- Unlike national surveys that do not lend themselves to the calculation of State-level estimates, a State-administered survey would provide direct State data and could be expanded to allow local estimates at the state's discretion. States could choose to add their own questions reflecting concerns specific to the State, thus testing new indicators that could later be adopted by other States, or by the system as a whole.

Such survey instruments could include questions regarding families' feelings of security, their perceived quality of life, their knowledge of and utilization of community resources, their ability to meet concrete needs (rent, utilities, food, child care, transportation, health care for children, health care for adults) as well as more traditional indicators of health, health care seeking behavior, health system access and the sociocultural and geopolitical environments.

III. Conclusions: Promoting Maternal and Child Health Promotion

Surgeon General David Satcher has made the agenda for his tenure well-known: to promote the health and quality of life of the nation's children, to reduce racial disparities in health outcomes and to support community-based improvements in the quality of the environment in which families live and grow (Satcher, 1998). Following public health's successes in infectious disease control in the early part of this century and chronic disease prevention in later years, this third wave of public health, dedicated to improving quality of life, is gaining much-deserved attention. As the mysteries of the human genome are revealed and our knowledge of the delicate interactions between humans and ecology unfold, public health professionals should be poised to provide a welcoming forum for the many disciplines interested in the human experience to join in effectively leading a health promotion agenda. By embracing a true multi-disciplinary perspective we can learn from each other and craft the means toward true promotion of health and quality of life. Yet, if maternal and child health programs and professionals are to remain in a position to anticipate and lead change, they must have available the necessary data to support this shift in emphasis and to assure its successful implementation. Such an effort will be vastly stronger if supported by knowledge borne of data strategies embedded in a health promotion philosophy. The advancement of a performance measurement agenda and the effort to obtain credible national data on maternal and child health needs, provide the avenues to exploring the best means of achieving such a data capacity. Still, with the Surgeon General's leadership, the movement toward health promotion in public health has already begun. Maternal and child health would do well to enthusiastically capture this opportunity to provide essential leadership to assure that a health promotion focus remains where it will be most efficacious: in the earliest stages of human development.

Bibliography and References Cited

Psychology

1. Bandura A. Exercise of personal agency through the self-efficacy mechanism. *Self Efficacy: Through Control of Action*. Hemisphere Publishing Co, Washington, DC; 1984.
2. Johnston M. How health psychology makes a difference. *Irish J Psychol*. 1997;18:4-12.
3. Johnston M. Current trends in health psychology. *The Psychologist*. 1994;7:114-8.
4. Oldenburg B, EFrench M. Prevention of disease and promotion of global health: integration of clinical and public health approaches. *Irish J Psychol*. 1997;18:36-50.
5. Rose G. *The Strategy of Preventive Medicine*. Oxford: Oxford U P; 1992.
6. Shannon MT. Health promotion and illness prevention: a biopsychosocial perspective. *Health and Social Work*. 1989;14:32-40.
7. Winett RA, King AC, Altman DG. *Health Psychology and Public Health: An Integrative Approach*. New York: Pergamon P; 1989.

Sociology

8. Barsky AJ. The paradox of health. *New Eng J Med*. 1988;318:414-8.
9. Benson PL. *All Kids Are Our Kids: What Communities Must Do To Raise Caring and Responsible Children and Adolescents*. San Francisco; Jossey-Bass: 1997.
10. Freimuth VS, Edgar T, Fitzpatrick MA. The role of communication in health promotion. *Communication Res*. 1993;20:509-16.
11. Freudenberg N, et al. Strengthening individual and community capacity to prevent disease and promote health: in search of relevant theories and principles. *Health Educ Quar*. 1995;22(3):290-306.
12. Heller K. Ingredients for effective community change: some field observations. *Amer J Comm Psychol*. 1992;20(2):143-61.
13. House JS, Landis K, Umberson D. Social relationships and health. *Science*. 1988;241:540.
14. McKnight JL, Kretzmann J. *Mapping Community Capacity*. Evanston, IL: Center for Urban Affairs and Policy Research.
15. Nathanson CA. Disease prevention as social change: toward a theory of public health. *Population and Dev Rev*. 1996;22(4):609-37.

16. Siegrist J. Social differentials in chronic disease: what can sociological knowledge offer to explain and possibly reduce them? *Soc Sci Med.* 1995;41:1603-5.
17. Stokols D. Establishing and maintaining health environments: toward a social ecology of health promotion. *Am Psychologist.* 1992;47:6-22.
18. Wynn J, Costello J, Halpern R, Richman H. *Children, Families and Communities: A New Approach to Social Services.* Chicago, IL: Chapin Hall Center for Children at the University of Chicago.

Holistic Health

19. Cousins N. *Anatomy of An Illness.* Bantam, NY. 1979.20.Lolas F. Theoretical medicine: a proposal for reconceptualizing medicine as a science of actions. *J Med and Philosophy.* 1996;21(6):659-70.
21. Moore NG. Pew commission report: focusing care on the community for the 21st century. *Altern Therapies.* 1996;2(5):28-34.
22. Peterson B. The mind-body connection. *Canadian Nurse.* 1996;Jan:29-31.

Environment

23. Armstrong B. Health-promoting environments: prospects for national monitoring measures. *Australian and New Zealand J of Public Health.* 1997;21(4):415-6.
24. Dosey L. *Healing Words.* San Francisco;Harper:1993.
25. Ewan C. Can't the environment promote health? And how will we answer that question? *Australian and New Zealand J Public Health.* 1997;21(4):417-9.
26. Quirk M, Wapner S. Environmental psychology and health. *Env and Behav.* 1995;27(1):90-9.
27. Stokols D. Establishing and maintaining health environments: towards a social ecology of health promotion. *Am Psychologist.* 1992;47:6-22.
28. Warford JJ. Environment, health, and sustainable development: the role of economic instruments and policies. *WHO Bulletin.* 1995;73(3):387-95.

Economics

29. Freeman P, Rotem A. Economic development and health: what have we learned? *Promotion and Educ.* 1997;4(3):29-32.
30. Lamarche, PA. Our health paradigm in peril. *Public Health Reports.* 1995;110:556-60.

Adolescent Health

31. Hamburg DA. *Lifeskills Training: Preventive Interventions for Young Adolescents: A Working Paper of the Carnegie Council on Adolescent Development*. Washington, DC: Carnegie Council on Adolescent Development, 1990.
32. Hamburg DA. Toward a strategy for healthy adolescent development. *Am J Psychiatry*. 1997;154:7-12.
33. Resnick MD, Harris LJ, Blum RW. The impact of caring and connectedness on adolescent health and well-being. *J Pediatr Child Health*. 1993;29,Suppl 1:S3-S9.
34. Resnick MD, et al. Protecting adolescents from harm: findings from the national longitudinal study on adolescent health. *JAMA*. 1997;278(10):823-32.
35. Evans RG, Barer ML, and Marmor TR, Eds. *Why Are Some People Healthy and Others Not? The Determinants of Health of Populations*. New York;Walter de Gruyter, Inc.: 1994.

Resiliency

36. Engle PL, Castle S, Menon P. Child development: vulnerability and resilience. *Soc Sci Med*. 1996;43(5):621-35.
37. Luthar SS, Zigler E. Vulnerability and competence: a review of research on resilience in childhood. *Am J Orthopsychiatr*. 1991;61(1):6-22.
38. Luthar SS. Vulnerability and resilience: a study of high-risk adolescents. *Child Dev*. 1991;62:600-16.
39. Rutter M. Resilience: some conceptual considerations. *J Adolesc Health*. 1993;14:626-31.

Innovative Data Strategies

40. Benson, Peter, 40 Developmental Assets, developed by the Search Institute, Minneapolis, Minnesota, 1997.
41. Schorr, Lisbeth, et al, The Case for Shifting to Results-Based Accountability, Improved Outcomes for Children Project, Center for the Study of Social Policy, 1995.
42. VanGenderen and T. Norris, You get what you measure: A guide to community indicators of health and sustainability (DRAFT). Tyler Norris Associates, Boulder, CO, 1996.
43. Peoples-Sheps, Mary, et al, MCH Model Indicators, prepared under contract to the Maternal and Child Health Bureau, U.S. Department of Health and Human Services, 1997.
43. Petersen, Donna, Monitoring Child Health in Minnesota: report prepared under contract to the Minnesota Department of Health, June 1997.

44. Giordano, Laura. Public Health Foundation, 1998.
45. Alexander GR. The Need for Data-Related Personnel in Title V Programs: A Position Paper. *Region III Perinatal Information Consortium Technical Report Series: 88-06*, Baltimore, 1988.
46. Alexander GR. A Population-based Maternal and Child Health Status Surveillance System for the State of Arizona. Health Systems Research, Inc., Washington, DC, January, 1996.
47. Alexander, Greg R., Selecting Need Indicators and Performance Measures for State Title V Programs: A Resource Guide, prepared for the State of Idaho, Health Systems Research Inc., Washington, D.C., March 1998.
48. Augustyn, Marycatherine, et al, Redefining Core MCH Data Indicators, Conference Proceedings of the *American Public Health Association Annual Meeting*, Washington, D.C., November, 1998.
49. Lumpkin, John R. Six Principles of Public Health Information, *Journal of Public Health Management and Practice* (1)1:40-42, 1995.
50. Baker, E.L., A. Friede, A.D. Moulton, D.A. Ross, CDC's Information Network for Public Health Officials (INPHO): A framework for integrated public health information and practice, *Journal of Public Health Management and Practice*, (1)1:43-47, 1995.
51. Chamberlin RW. Beyond Individual Risk Assessment: Community Wide Approaches to Promoting The Health and Development of Families and Children, Conference Proceedings, Hanover, New Hampshire, November 1-4, 1987.
52. Miller CA, Fine A, Adams-Taylor S. Monitoring Children's Health; Key Indicators, 2nd Edition, American Public Health Association, 1989.
53. Petersen DJ, Alexander GR. Evaluation, Performance Monitoring and Health Status Surveillance. Chapter in: *Family Health and Health and Welfare Reform in the 21st Century: An Interdisciplinary Perspective*, edited by Helen Wallace, 1998.
54. Petersen DJ, Alexander GR. From Needs to Performance Assessment and Resource Allocation. Conference Proceedings of the American Public Health Association Annual Meeting, Washington, D.C., November, 1998.
55. Walker DK, Richmond JB. *Monitoring Child Health in the United States: Selected Issues and Policies*, Harvard University Press, 1984.

Maternal and Child Health History, Philosophy and Current Innovations

56. Developing a Better Health Care System for Children, Harvard Child Health Project, Volume III, Ballinger Publishing Company, 1977.

57. Understanding Title V of the Social Security Act: A Guide to Provisions of Federal Maternal and Child Health Services Legislation, Information Sciences Research Institute; Grant Number MCJ-510536.
58. History and Philosophy of Maternal and Child Health, Maternal and Child Health Leadership Skills Training Institute, 1989.
59. Wallace HM, Nelson R, Sweeney PJ. Maternal and Child Health Practices, Fourth Edition, Third Party Publishing Company, 1994.
60. Grason HA, Guyer B. Public MCH Program Functions Framework: Essential Public Health Services To Promote Maternal and Child Health in America, Human Resources & Services Administration, 1995.
61. Kotch JB. Maternal and Child Health: Programs, Problems and Policy in Public Health, Aspen Publishers, 1997.
62. Maternal and Child Health Bureau, Development of Needs Assessment Indicators, ongoing work, 1998 (personal communication, Peter van Dyck).
63. Berkowitz GS, Lapinski RH. Relative and attributable risk estimates for preterm birth. Prenat Neonat Med 1998; 3:53-55.