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ABSTRACT

This report examines the social indicators available for monitoring the situation of children and families in the United States. It assesses the strengths and weaknesses of the indicators for facilitating an informed public and private debate, and it recommends ways in which social indicators can be improved and supplemented to contribute more effectively to the quality and productivity of both the policy debate and the policies themselves. The focus of the report is on (1) the child and those features of the child's environment which affect his or her progress to adulthood and (2) those aspects of the family which pertain to its function as a childrearing environment. After the executive summary provided in section 1, the report specifies the problem, reviews the primary data sets currently in existence, and presents several principles that should guide improvement efforts. Section 3 organizes the wide range of needed child and family indicators into a classification scheme permitting systematic assessment of how well existing data and indicator series meet the needs in each major subject area. To illustrate the kind of analysis required in every indicator area, section 4 presents five subcategories for more detailed examination. Section 5 presents recommendations, specifying actions necessary to support an effective indicator development strategy. (RH)

CHILD AND FAMILY INDICATORS: A REPORT WITH RECOMMENDATIONS

Edited by Harold W. Watts and
Donald J. Hernandez

The report of the Advisory Group on Child and Family Indicators of the Advisory and Planning Committee on Social Indicators

SOCIAL SCIENCE RESEARCH COUNCIL

Center for Coordination of Research on Social Indicators

1755 Massachusetts Avenue, N.W.
Washington, D.C. 20036

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Edited by Harold W. Watts
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Social Science Research Council
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The Social Science Research Council is a private not-for-profit corporation formed for the purpose of advancing research in the social sciences. It emphasizes the planning, appraisal, and stimulation of research that offers promise of increasing knowledge in the social sciences or of increasing their usefulness to society. The Council is also concerned with the development of research methods, the improvement of the quality and accessibility of materials for research by social scientists, and the augmentation of resources and facilities for research. The headquarters of the Council, where most of its activities are administered, are located at 605 Third Avenue, New York, New York 10158. The Washington office of the Council and the Center for Coordination of Research on Social Indicators are located at 1755 Massachusetts Avenue, NW, Washington, DC 20036.

The purpose of the Council's Center for Coordination of Research on Social Indicators is to enhance the contribution of social science research to the development of a broad range of social indicators, in response to current and anticipated demands from both research and policy communities. The Center consists of a small staff of social scientists working under the guidance of the Council's Advisory and Planning Committee on Social Indicators and its subcommittees. Principal support for the Center is provided by a grant from the National Science Foundation (grant number SES-77-21686).

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A REPORT WITH RECOMMENDATIONS

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PREFACE

Major changes have occurred in American society that affect the development and well-being of children and the families of which they are members. These include changes in the size, composition, and stability of families, the employment of women, the sexual activity of youth, and many others. To track and understand these changes and their consequences, our society relies on social indicators of children and families that are produced from a broad array of census, survey, and administrative data sources, both public and private. Both the conduct of research and the development of policy on children and families rely on the measures produced by these statistical and research activities.

This report examines the statistics on children and families in the United States, assesses their adequacy for describing and analyzing the conditions of children and families and changes in these conditions, and offers suggestions for improving the measures that are available and for the development of new measures. Its conclusions are presented in broad guidelines, specific recommendations, and explicit priorities. The report focuses on those aspects of the family that pertain to its functions as a child-rearing environment. Families play other social and economic roles in American life, as well as provide the intimate environment for most adults until near the end of their lives. A future report might well address the statistical measurement of these other aspects of the status and functioning of families.

The preparation of this report has been the principal task of the Child and Family Indicators Advisory Group, a group of scholars appointed by the Social Science Research Council's Advisory and Planning Committee on Social Indicators and staffed by the Council's Center for Coordination of Research on Social Indicators.[1] Support was provided by the Foundation for Child Development.

[1] Albert J. Reiss, Jr., Yale University, Chairman, Erik Allardt, University of Helsinki, Richard Berk, University of California, Richard H. Bolt, Massachusetts Institute of Technology (retired), Martin H. David, University of Wisconsin, James A. Davis, Harvard University, Gudmund Hernes, University of Bergen, Kenneth C. Land, University of Texas, William M. Mason, University of Michigan, John Modell, University

The Center for Coordination of Research on Social Indicators was established in 1972, with support from the National Science Foundation's Division of Social and Economic Science. Its purpose is to enhance the contribution of the social sciences to the development of a broad range of indicators of social conditions and social change, in response to demands from the research and policy communities. Staffed by a small group of social scientists, the Center operates under the intellectual guidance of the Council's Advisory and Planning Committee on Social Indicators. In recent years the Center and committee have undertaken a project designed to provide broad guidelines and specific recommendations for work on social indicators over the next ten to twenty years. This project is based on the understanding that quantitative research on social change is built on collective resources: the data bases produced by both private and public portions of the nation's statistical system. The committee, with the assistance of Center staff, is preparing a planning report which focuses on the uses of that system and how it can better serve the needs of researchers as well as others who require its information, and on the structures needed for the creation, maintenance, dissemination, analysis, reporting, and interpretation of high quality social indicators.[2]

Knowing of this broad planning effort, the Foundation for Child Development, a private grant-making institution that plays a leading role in research on children and in the development of social and economic indicators of children's lives, suggested that the area of child and family indicators warranted special attention. The ensuing

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of Minnesota, Stephen H. Schneider. National Center for Atmospheric Research. and Nancy Brandon Tuma. Stanford University.

[2] Other publications of the social indicators planning project include *Social Accounting Systems Essays on the State of the Art*. edited by F. Thomas Juster and Kenneth C. Land (Academic Press. 1981). "The Statistical Measurement of Social Change." by Albert J. Reiss. Jr.. in National Science Foundation. *The 5-Year Outlook on Science and Technology. 1981—Source Materials Volume 2*. National Science Foundation. 1982. "National Social Data Series. A Compendium of Brief Descriptions. by Richard C. Taeuber and Richard C. Rockwell. *Review of Public Data Use*. June 1982. a planned volume on indicators of organizational change. and the forthcoming report of the Advisory and Planning Committee on Social Indicators described above

conversations resulted in the establishment of the Child and Family Indicators Advisory Group. The Advisory Group, under the chairmanship of Harold W. Watts, was asked to consider the state of the relevant data bases, research, and reporting efforts, and to prepare a report reflecting its assessments and recommendations. It has now done so, in a report that combines breadth of scope with assessments of measurements in a variety of specific substantive areas. The Social Science Research Council presents this report in the expectation that the scholarly, policy, and statistical communities will find its review and recommendations of importance.

Robert Parke

ACKNOWLEDGMENTS

The Advisory Group on Child and Family Indicators is indebted to the Foundation for Child Development for its financial support of our work over the last two years and to the Social Science Research Council and its Center for Coordination of Research on Social Indicators under whose auspices this group convened, met, and produced this report. Special thanks are due to Robert Parke, Director of the Center, for his help in shaping the project, and to Donald J Hernandez, formerly Staff Associate of SSRC, who as staff to the Advisory Group ably helped in the organization of activities and the development of ideas for the Group s meetings and played an important role in the evolution, drafting, and redrafting of this report prior to his departure to become Senior Research Scholar, Center for Population Research, Georgetown University James L Peterson, Staff Associate of SSRC, provided assistance during the formation of the Advisory Group, prior to his departure to join Child Trends Felicity Skidmore's editing contributed substantially to its clarity and grace. Karen S Crouse did the hours of typing and retyping, with skill, efficiency and unfailing patience.

For their comments and suggestions on earlier drafts of the report, the Group is grateful to Wendy Baldwin, Mary Jo Bane, Orville G. Brim, Jr , Urie Bronfenbrenner, Andrew J. Cherlin, Glen H. Elder, Martin L. Hoffman, Lawrence E Lynn, Eleanor E. Maccoby, William M Mason, Martin O. Milrod, John Modell, Arthur J Norton, Robert W Pearson, James L Peterson, Kenneth Prewitt, Peter B Read, Julius B Richmond, Richard C Rockwell, Lonnie R Sherrod, Alberta E Siegel, and Nicholas Zill We very much appreciate the valuable advice provided by these scholars, although we did not always choose to take it

For the Advisory Group
Harold W. Watts, Chairman

CHILD AND FAMILY INDICATORS ADVISORY GROUP

Section I

EXECUTIVE SUMMARY

This report examines the social indicators that are available for monitoring the situation of children and families, it assesses their strengths and weaknesses for the task of facilitating an informed public and policy debate, and it recommends ways in which they can be improved and supplemented to contribute more effectively to the quality and productivity of both the policy debate and the policies themselves.

At the outset of the Advisory Group's work, it was clear that much had to be done to expand the area covered by our social indicators, and also to enrich the presentation of facts in areas that have traditionally received some, but not enough, attention. These tasks were begun at a time when many major statistical programs were either in operation or projected for early implementation and when the implementation of additional major data collecting activities did not seem fanciful.

As this report is written, however, the situation is extraordinarily different. Essential data sources that we had been taking confidently for granted have been targeted for postponements, cancellations, or reductions, and others are in jeopardy. Even where the basic data collection is currently slated to continue, expectations of additional budget and personnel cuts make the prospects for maintaining, let alone improving, the quality and extent of the tabulations and other analytic efforts bleak. Consequently, our first and most urgent recommendation must be devoted to defending the most basic and fundamental data sources that we now have against drastic cuts in federal funding for research and statistics.

This Advisory Group recognizes the seriousness of the current budget cutting efforts. But we also recognize that social costs are not well measured by the size of federal budget outlays. Major unnecessary social costs result from ill health, and other wastes of the human potential that exists at birth. It is imperative that the reduction of these costs continue to be a part of our nation's agenda. Impairing (or

failing to improve) the social intelligence mechanism by which such wastes of human potential can be identified and measured is likely to prove a very costly strategy in the long run.

Underlying our specific recommendations are several important but general guidelines for structuring the social indicators on the status of children and families.

The first is the need to organize data with the child as the unit of observation and statistical description. Most relevant survey data are currently tabulated for household or family units, but the same data bearing on children can be recast to associate with each child the characteristics of the household, family, and even broader contexts such as the community.

The second is the need for greater breadth in measuring the contextual and environmental variables within which individual children and their families carry on their lives.

The third is the importance of developing indicators that reflect a child's cumulative experience as contrasted with his or her current, and perhaps transitory, status. Knowing the number of children who are living in one-parent households at one point in time, for example, is not the same as knowing how many are ever in a one-parent household sometime during their childhood, or how many are in such households for a substantial part of their childhood years.

The fourth is the importance of adopting consistent definitions and rules of tabulation that allow direct comparisons to be made across data sources, in order to make the most of our limited resources. Such conventions should certainly include the establishment of consistent child age groupings. In many cases it may be possible to maintain year-by-year age classes, but where they are aggregated, it would be a great step forward to use uniform categories.

The fifth is the importance of scrupulously observing the distinction between families and households. We must recognize a limitation of our conventional surveys. They relate mainly to households or to coresident families—causing us to neglect the potentially major role of family members who live in other households.

Finally, a long lag often separates the collection of data from their publication and their availability for detailed analysis in the form of public use data files. It is absurd to expend valuable resources in collecting data only to lose the value that comes from their timely

exploitation. Basing policy on old information is always hazardous and frequently costly.

Our recommendations are listed below in descending order of urgency and ascending order of additional expense.

Recommendation 1. Maintenance and Improvement of Basic Data Collection Programs

Highest priority must be given to sustaining the quality, comprehensiveness, and timeliness of six fundamental federal surveys and data collection programs on which our basic social indicators depend:

Decennial Census of the Population
Current Population Survey
Vital Statistics Registration System
National Health Interview Survey
National Assessment of Educational Progress
Consumer Expenditure Survey

Three additional data collection systems contribute crucial depth to specific important aspects of the status and circumstances of children.

National Health and Nutrition Examination Survey
National Survey of Family Growth
Panel Study of Income Dynamics

Other surveys, which would, if dropped or seriously impaired, leave damaging gaps in the fabric of our knowledge about the nation's children, include:

National Longitudinal Surveys of Labor Market Experience
National Center for Education Statistics Surveys of the High School Classes of 1972, 1980, and 1982
Monitoring the Future Survey
American Council on Education Surveys of American College Freshman
National Natality Follow-Back Survey

Recommendation 2. Publication of a Biennial Report on Children

We urgently recommend the publication of a federally sponsored biennial report on children to bring together in a single volume the major child and family indicators that exist but are currently scattered

widely among many public and private publications concerned primarily with other topics. In addition this report should contain articles dealing with current topics or research on child and family indicator methodology or on the results of empirical studies germane to the state of the child, the family, and related influences on children

Recommendation 3. Establishment of a Data Archive for Child Indicators

We strongly recommend the establishment of a data archive to make available in a readily accessible form the substantial data that already exist on children, but which are not widely known, easily usable, or readily comparable. The archive should provide access, documentation, publicity and, where appropriate, public use data tapes. Such an archive would not only facilitate the development of new indicators, it would also provide the basis for improving existing indicators and the data bases upon which they depend.

Recommendation 4: New Indicators and New Questions

Many new indicators can be developed without implementing additional data collection systems. New tabulations of existing data and the opportunity for collecting new data from questions added to existing data collection mechanisms should be maximally exploited Many examples of potentially fruitful efforts in this direction appear in the body of this report and are listed in the extended recommendations (section V). The task of coordinating the development and funding of new indicators by these means should be guided by a panel of experts with special interests in the development and growth of children.

Recommendation 5: Replication and Institution of New Surveys

The National Health Examination Surveys of children should be replicated. This is the *only* major American data collection effort that includes physical examinations.

A national time use study of children and associated adults should be developed and fielded every 5–10 years. The Institute for Social

Research at the University of Michigan has a small pilot survey underway, which can be used as the starting point for such an effort.

A National Youth Panel Study should be conceived, designed, and implemented over the next several years. Preliminary assessment suggests that the panel might consist of two 5-year age cohorts—of young children and of adolescents—from whom information might be collected annually for a period of five years, with questions appropriate for the current age of each group. The National Center for Education Statistics is a logical home for this effort. They can build on the experience from their longitudinal High School and Beyond surveys.

Replications of other surveys, not currently planned, deserve serious consideration. The following merit particular attention.

National Survey of Children by the Foundation for Child Development

Purdue Opinion Panel of Social and Political Attitudes of Youth

Mid-Decade Census of Population

Survey of Income and Program Participation (never fielded, but designed and ready for implementation)

Section II

THE PROBLEM, CURRENT DATA, AND GENERAL PRINCIPLES FOR IMPROVEMENT

Child and family indicators provide information about the conditions of children in the United States and the forces that influence their well-being. Although many such indicators already exist, they are unevenly developed, and present a picture that is seriously incomplete. A more comprehensive and coherent approach to child and family indicators is badly needed to improve public knowledge, the quality of debate about policy issues, and the capacity to generate and evaluate scientific hypotheses with respect to one of the nation's most valuable resources—its children.

This report focuses on the child, and on those features of the child's environment that affect his or her progress to adulthood. The family (or sequence of them) encountered during the course of a particular child's life is clearly of primary importance among influences on growth and development. For this reason, information on families is important to our task. Not considered in this report, however, are those roles played by the family beyond that of providing the principal environment for child rearing (for a discussion see Blake, 1979). This exclusion is due, in part, to a need to limit what is already a very broad topic. It also reflects the position of this advisory group that there is an urgent and well-placed concern in our society about the development of its future citizens—which justifies more focused attention on the *child-rearing* aspect of families.

A FRAMEWORK FOR CHILD AND FAMILY INDICATORS

Two major reasons underlie concern on the part of a society about its children. First, children are members of society, and as such the quality of their day-to-day life merits as much concern as is devoted to other groups. Second, children will eventually become the adults upon whose productive capacity the dependent old *and* young will

have to rely, and upon whom the task of perpetuating the society will fall.

Society needs to know about its children in order to identify inadequacies in their development and their personal well being. In addition, society needs to know about the resources available to the children and the environment in which they live and grow, in order to identify how resources and environment influence development. Knowledge of these influences is essential if public policy action is to achieve its purpose of improving the condition of children and helping them attain their potential. Knowledge of changes in both status and environment indicators is necessary, in other words, if we are to gain insight into the reasons for changes in the direct outcome measures and to develop and test hypotheses that are relevant to basic policy issues. (See Watts and Santos, 1978, and Zill, Sigal and Brim, 1982 for additional discussions of social indicators related to children).

Information on the state of development and the developmental progress of children comes from personal data on the individual children themselves. Information on resources and environmental influences on children comes from more diverse sources. Much of the relevant information comes in the form of household and parental characteristics. Some derives from family networks that extend beyond the household. Neighborhood characteristics, local institutions (schools, churches, and recreational facilities), and population characteristics (density, prosperity, and diversity) are also pertinent. Finally, the importance of access to or acquaintance with the world beyond the immediate household, family, and community suggests the relevance of the media and residential and occupational mobility.

This framework views the experience of the child as a whole, focusing on how individuals develop as they move from birth, through life, to death (for a discussion see Featherman, 1982). Consequently, the focus is on individual children as the unit of analysis—with the household, family, community, etc. regarded as influential factors which change and whose influences change in various ways as time passes. Some changes are predictable (siblings grow up), some are surprises (debilitating accident to parents), and some are amenable to change by public policy (after-school child care). But whatever the origin of the condition or its malleability, the relevant measure is *how many children* and/or *which children* of which age and sex are subject

to the condition, not the numbers of families or parents that may be involved.

In addition, the framework focuses on the importance of repeated measurements on variables that are comparable through time. (Sheldon and Parke, 1975, Parke and Seidman, 1978, US Dept. of Commerce, 1980a) Much of the value of social indicators derives from their capacity to monitor change, the value remains even if biases appear to be present in the estimated levels of the variables being measured so long as the biases are relatively constant. It follows that for indicators related to the status of children and the influences on their lives, the high priority items are repeated measures for identically defined populations of concepts which have continuing relevance and importance, and are readily interpretable.

DATA BASES

The data bases described in this section provide the foundation on which our recommendations for improvements in the range and completeness of child and family indicators are built.

Six federal data systems are essential to the production of key indicators, partly because of the relatively long time periods over which they have repeatedly measured important concepts A large number and broad array of child and family indicators, therefore, can be constructed from information obtained from the existing data collection systems of the federal government. Some of these systems have obtained data continuously for decades, and all generally obtain repeated measurements of the same concepts. Important indicators that are not now routinely published could be derived from these data sets at relatively little cost—certainly far less than the cost of additional data collection—as long as these systems remain in place.

(1) The most fundamental source of data for child and family indicators is the Decennial Census of the Population, first conducted in 1790. It provides population information every 10 years for the nation and for local areas regarding age, race, sex, education, employment status, occupation, income, household composition, the processes of family and household formation and dissolution, housing quality, commuting patterns, etc. These data underlie valuable indicators on

the demography of children and on the family and the socioeconomic resources available in the child's home environment. The Census is also of fundamental importance because it provides the sampling frame that is used for most surveys.

(2) The Current Population Survey (CPS), including supplements such as those on marriage and fertility, school enrollment, and income, is another valuable source of data on the characteristics of children and their home environment. Although it does not provide data with as much geographic detail as the Census, the CPS does allow national and regional estimates to be derived. Since 1947 it has provided current information on an annual basis, and it explores many topics in greater detail than is possible with the census. Taken together, the Census and the CPS provide the basic demographic and socioeconomic information needed on children and their families.

(3) Vital statistics on births and deaths are obtained at the local level from birth certificates and death certificates. All states have been in the registration areas since 1933. These certificates or the coded information from them are transmitted to the U.S. National Center for Health Statistics, which publishes a range of indicators for the nation and for smaller geographic areas. These indicators provide fundamental information about the number of children added to the population each year, the number of deaths, the characteristics of the mothers and fathers of the children, the amount of prenatal care, and the cause of death.

(4) The National Health Interview Survey, which has been conducted continually since 1957 by the U.S. Bureau of the Census for the U.S. National Center for Health Statistics, is a major source of information on the health status of children and the members of their households. This survey provides basic information on acute and chronic health conditions, injuries and accidents, physical impairments, limitations to activity, visits to physicians, dentists, and hospitals, time spent in bed or lost from school, the financial expenses associated with obtaining medical care, etc. Without indicators based on the National Health Interview Survey and the vital registration system, little would be known about the health status of American children and their families.

(5) The National Assessment of Educational Progress, first conducted in 1969, is the source of national information on the knowledge

and skills of children with regard to reading, writing, mathematics, the natural and social sciences, and the arts.

(6) The Consumer Expenditure Survey provides essential information for child and family indicators on the economic well-being of families broken down by the number of children. Since World War II this survey has been conducted at intervals of approximately ten years, but starting in 1980 information has been gathered continuously, and annual summaries of the expenditure patterns of American families and their children are anticipated.

In addition to these six fundamental federal data sources, three additional sources of data for child and family indicators merit special attention here. Though perhaps slightly less critical, these three sources of information are extremely valuable components of the data base for child and family indicators because of their separate, uniquely important, contributions to our knowledge of what happens to children and their families.

(1) The National Health and Nutrition Examination Survey, which has been conducted five times since 1960, is the only source of detailed national information on the changing health status of American children as measured by actual physical and laboratory examinations.

(2) The National Survey of Family Growth, and its predecessors (the Growth of American Families Studies, first conducted in 1955, and the National Fertility Surveys), represent rich sources of data spanning a quarter century on the social, economic, and demographic characteristics of women and their sexual activity, contraceptive usage, reproductive behavior and attitudes, marriage patterns, and religion.

(3) The Panel Study of Income Dynamics, conducted by the Survey Research Center at the University of Michigan, represents a unique source of nationally representative information on the sequencing and cumulative impact of major changes in the family and socioeconomic resources available to the families of children. It was the pioneer survey of the general population using a longitudinal design. Although other cross-sectional surveys have provided better aggregate information on the social, economic, demographic, and family characteristics of the households in which children live at particular points in time, the Michigan Panel Study has the irreplaceable attribute of

having followed the same children and parents since 1967. (See the Appendix to this report for where to obtain further detailed information on these nine data systems.)

GENERAL PRINCIPLES TO GUIDE THE IMPROVEMENT OF CHILD AND FAMILY INDICATORS

Before we discuss inadequacies and recommendations for improving specific data areas, we think it important to lay out several principles that apply to all efforts to improve child and family indicators, irrespective of the particular subject area.

The Child as the Unit of Statistical Description. The data sources described above and others already in existence yield a wide variety of social indicators relevant to the concerns of this report. But few of them arrange the information in a way that focuses on the child. As we mentioned at the outset, child indicators should properly focus on the child. Not only should new data collection efforts focus directly on the child as the primary unit, but it is also important that existing data be made more useful in two respects.

First, bringing together existing data that relate to the condition of children, household and family demography, and the economic status of households with children would represent a major step forward. Second, and more important, the basic microdata must be retabulated if it was not done originally to produce estimates that focus directly on the child. The characteristics of the child's family and household of residence would then appear as attributes of the child. Such a rearrangement would allow children to be grouped by age or other variables as appropriate, in order to be able to compare different cohorts at the same age-related stage of development and to follow particular cohorts as they pass through various stages of development.

Indicators of educational progress and health status indicators have typically focused on the child as the unit of analysis. But existing tabulations and related indicators of socioeconomic status typically use the household as the unit of analysis. And many of the influences on a child's development more generally are organized according to family or classroom or school district units, even where measures related directly to the child would be possible. Data from the vital statistics registration system and federal surveys, for example, are

seldom linked with data files for the characteristics of areas. Such linkage is possible and constitutes a major potential for improvements that remains to be exploited. Measures of the context of a child's living environment can be developed from aggregated data, but they must be related back to the individual child to be useful.

Consistent Age Groupings. The data that currently exist for children are not always presented by age categories and, when they are, the categories are often not consistent across surveys. The importance of comparable age groupings is obvious. Child indicators generally should be developed and presented according to the following major age categories: birth up to 1 year, 1–2 years, 3–5 years, 6–11 years, and 12–17 years. These age groupings correspond roughly to infancy, early childhood, the elementary school years, and the secondary school years (adolescence). Within the last two major age categories, for certain types of information, the data should be collected in such a way as to make possible a further breakdown for school children into 3-year spans: 6–8 years, 9–11 years, 12–14 years, and 15–17 years.

Cumulative Information Over the Whole Period of Childhood. As already noted, the cumulative experience of children is often critically important to their development. Yet much of the data now available pertain to experience spanning less than a year, and often only to a single point in time. To assess public programs more accurately and identify with more confidence both failure to progress and the causes of that failure, we need longitudinal data that follow children through time. A particularly valuable addition to the data sources on which child indicators could be based would be a longitudinal panel study of children.

Time Use Information. How children, and the adults who are directly responsible for children, spend their time is generally agreed to be an important influence on the development of children. Yet we do not have indicators to answer with confidence many questions about time use. How much of a child's time is spent with television, with nonparental caretakers, at extracurricular school activities? How much of a parent's time is spent in joint family activities, driving an automobile, washing clothes?

Although time use studies are not new, we do not yet have a regularly repeated and routinely reported survey to answer such

questions in a consistent framework. Replicated studies of how children and parents use their time will be very important for the long-run improvement of child and family indicators. Existing methods are adequate for launching a large-scale time use survey in this country, although further development of measurement techniques can be expected to improve the efficiency of such an effort. And a theory of time and resource allocation in the household already exists that can be used to organize and analyze time use data (Becker, 1981).

Children Who Do Not Live in Families. Most of our data sources focus on the adults who head families and households; data about children not living in families are seriously lacking. Data about these children, particularly institutionalized children, are critical for child indicators—especially indicators in the area of health—because children who are not living in families are more likely than other children to be severely handicapped.

Coordination and Standardization of Existing Surveys. Federal agencies frequently fund ad hoc surveys and other data collection efforts that are not coordinated with the ongoing national surveys. The lack of coordination impedes the task of integrating these special data into a comprehensive system of child and family indicators and indeed of social indicators more generally. Greater coordination and standardization of survey and tabulation efforts could yield important dividends by allowing ready comparison of evidence from different sources.

Timely Processing and Release of Data. Although some statistical series are published with admirable promptness, for many major surveys there is a lag of several years between the data collection, processing, and eventual public release. These lags could be cut substantially with moderate additional funding. Prompt development of public use data tapes is of particularly high priority, since these primary data files can be used to update existing indicators and develop new ones independently of the agency responsible for collecting the data.

The Remainder of the Report

This section has set forth the problem, reviewed the primary data sets that already exist, and presented several principles that should

guide efforts to improve child and family indicators generally. Section III organizes the wide range of needed child and family indicators into a classification scheme that permits systematic assessment of how well existing data and indicators series meet the needs in each major subject area.

Within each category of this classification scheme are innumerable subcategories for which specific indicators are needed. Development of such indicators requires detailed analysis within each subcategory to identify whether the current stage of conceptualization permits the development of appropriate indicators and, if so, what already exists in the way of information that can be built on and what new initiatives should be undertaken. Section IV presents five subcategories for more detailed examination—to illustrate the kind of detailed analysis that is required in every indicator area if effective and efficient progress is to be made.

Section V ends the report by presenting the recommendations of the advisory group in descending order of urgency, specifying short-term and longer-term actions necessary to support an effective indicator development strategy to monitor the progress and well-being of our nation's children.

Section III

A CLASSIFICATION SCHEME FOR CHILD AND FAMILY INDICATORS

This section of the report presents a classification scheme that enables us to discuss systematically what data we have and what we still need in order to be able to construct a comprehensive set of child and family indicators. The scheme we have chosen follows from the basic distinction we made in section II between (1) indicators that measure the current state of development of children and their progress over time, and (2) indicators that measure the human and material resources available to children that influence their development for good or ill. Each category will be discussed in turn.

INDICATORS OF THE CURRENT STATUS AND DEVELOPMENTAL PROGRESS OF CHILDREN

To monitor on a comprehensive basis the current status and developmental progress of children, it is necessary to have information in five fundamental subject areas. physical health, socioemotional status and functioning, moral and ethical attitudes and behavior, intellectual status and functioning; and additional important capacities exemplified by such things as artistic, mechanical, musical, and athletic ability. What exists and what is needed in the way of conceptualization and data for each of these areas will be examined in turn.

Health

A social indicator of child health should measure conditions that affect either a significant number of children or a small number of children in a significant way. In addition, these conditions should be ones that society knows how to prevent, cure, or treat. In practice, this means that the condition must be preventable, or curable, or that its effects can somehow be ameliorated. Child health indicators can be considered in four interrelated categories. functional health status,

health care, health related behavior, and important environmental influences.

Measuring functional health status means measuring death rates (complete absence of health), limitation of activity usual for a given age due to physical, emotional, or cognitive conditions; and general health. Health care indicators are concerned primarily with access to or contact with health care providers such as physicians and dentists. Health related behaviors for which indicators are relevant include those which alter the risk of injury or death (use of seat belts or restraints, unsupervised play), or the risk of short-term or long-term health consequences (cigarette smoking, alcohol consumption, eating habits, and so on). Finally, environmental influences on health encompass those features of the social, economic, and physical living conditions of the child's family, and of the school and neighborhood, that have significant effects on child health.

In general, measurement instruments and data bases for indicators of childrens' physical health and functioning are available (U.S. National Center for Health Statistics, 1981b; Kovar, 1981). The value of these data could be considerably enhanced, however, through the retabulation of existing data and the collection of current data on indicators for which data are already available for earlier periods. Section IV of this report includes examples of additional indicators that would further enrich our knowledge in this area, and presents a more detailed review of the adequacy of the data that exist and the new data that would be needed to supplement them.

Socio-emotional Status and Functioning

Socioemotional status and functioning refers to such factors as anxiety, depression, aggression, self-concept/self-esteem (how positively the child views him/herself), sense of competence, sense of being an effective person, and sense of being lovable or morally worthy.

Unlike the situation with respect to health, indicators in this area cannot be put into place until extensive developmental work has occurred. Considerable basic research is required to resolve both conceptual and measurement issues. The development of new measurement instruments based on this research will then be necessary before implementation of reliable indicators on a national scale can be

considered. Given the current state of research and knowledge, this report can only begin the task of drawing up an agenda for the work needed to produce a comprehensive set of socioemotional indicators.

One clear need is to develop instruments that measure the levels of depression, general anxiety, anxiety in specific settings, and particular types of anxiety (such as test anxiety) which the child feels. Developmental work on measuring aggression is also important—not only aggressive acts of the child but also the child's tolerance of aggressive acts by others.

Anxiety, depression, and aggression have been subject to considerably more research than the other concepts we have included in our definition of socioemotional status and functioning. Even more basic research and instrument development is required before national indicators of self-concept, self-esteem, and so on become feasible. With respect to all of them, indicators need to be developed that allow for separate measurement according to the different settings (such as home and school) that are relevant to a child's experience.

The relevance and value of additional concepts also merit close scrutiny. Considerable work in this area is already underway. A National Survey of Children, sponsored by the Foundation for Child Development and recently replicated, includes questions regarding the behavior and emotional well-being of children (Zill and Peterson, 1982). The 1981 Child Health supplement to the National Health Interview Survey includes a battery of questions on behavior. In addition, the Center for Epidemiologic Studies of the Division of Biometry & Epidemiology at the National Institute of Mental Health has initiated a program designed to develop a structured diagnostic interview for children which could be used in national household surveys to assess the mental health and behavior problems in children and youth (see Earls, 1980, and Dohrenwend and Dohrenwend, 1981). Moreover, research planning is in progress under the auspices of the Committee on Social and Affective Development During Childhood of the Social Science Research Council.

Moral and Ethical Attitudes and Behavior

Moral and ethical attitudes and behavior are those that relate to activities about which society makes value judgments. They include

sexual activity, crime, drug and alcohol use, and altruistic behavior such as working in the community. For some of these (work in the community, for example, or crime) there is a general social consensus on the moral and ethical status of the attitude or behavior in question. But in other cases, as is inevitable in a society as diverse and culturally heterogeneous as America, assessments differ greatly. One striking example is the increase in reported sexual activity among adolescents (Kovar, 1979). Some view this trend with moral alarm, while others express less moral concern because they view sexual activity as a normal step in the growth to full adulthood. Fairly general agreement does exist, however, about the need for a variety of indicators related to the development of moral attitudes among children, and to the behaviors of children which are commonly considered by adults to be morally reprehensible or praiseworthy.

The task of developing specific indicators of either attitudes or behavior in this area is not much further advanced than in the area of socioemotional attitudes and behavior. Much more conceptual work and instrument development must be done before a set of national indicators becomes feasible, and we can only make a start at specifying what has to be done.

With respect to attitudes, the maturity of moral judgments and the basis of moral judgments (whether an act is viewed as wrong because you might get caught, because it is evil in some absolute sense, or because it violates some humanistic principle) are being studied and important research results have been published (for example, see Hoffman, 1970). But the measurements employed in these areas do not now appear to be useful for the large national sample studies necessary to implement national indicators. The development of appropriate measuring instruments in these areas should be encouraged.

The immediate emphasis, however, should be placed on the development of indicators related to the *content* of attitudes about what is right and wrong. A scale of moral attitudes is needed that could be used across a wide range of ages of children, with similar content for all age groups to the fullest extent possible. Some information about the moral attitudes of children is obtained in the citizenship component of the National Assessment of Educational Progress (see Wirtz and Lapointe, 1982 for a general discussion) and, for high school seniors, in the Monitoring the Future surveys (see Johnston,

Bachman, and O'Malley, 1980 and earlier reports). More information for children of all ages is needed.

With respect to behavior, there are indicators related to the rates of youth arrests, convictions, and suicides which are important for monitoring shifts in immoral and illegal behavior. A major weakness of most such indicators, however, is that they are based only on official records concerning a particular type of event and these records are subject to substantial biases of unknown size making them unreliable as measures of incidence and prevalence. Research should be undertaken to develop survey questionnaires to ascertain the extent of behaviors currently perceived as antisocial such as drug use, cheating in school, or minor shoplifting, and perceived prosocial behaviors such as community activities (see National Institute of Education, 1978 on the victimization of children by other children in schools). Information on some of these activities is obtained in the Monitoring the Future survey. Additional behavioral information is needed.

Intellectual Status and Functioning

The intellectual status and functioning of children relates to a variety of general and specific capacities, abilities, knowledge, understanding, skills, attitudes, and achievements. The conceptual foundation and necessary data collection instruments for constructing national indicators of intellectual status and functioning are generally in place. Although specific improvements are still needed, and for some of the relevant components information is not presently collected on a nationwide basis, more extensive information is now available and collected regularly than is true of many other areas discussed in this report.

The most comprehensive source of such information for children spanning a broad age range is the National Assessment of Educational Progress. The National Assessment ascertains knowledge, skills, understanding, and attitudes for children at three age levels in ten different subject areas (Greenbaum, 1977. 5, and Wirtz and Lapointe, 1982). The ten subject areas are citizenship, science, writing, music, mathematics, literature, social studies, reading, art, and career and occupational development. The National Assessment has been con-

ducted since 1969 for children aged 9, 13, 17, and for young adults between the ages of 26 and 35. Each subject area is assessed on a cycle spanning several years, which allows changes in knowledge, skills, understanding, and attitudes to be monitored over time.

The verbal and quantitative aptitudes of many high school juniors are measured annually through the Preliminary Scholastic Aptitude Test, and of many seniors through the Scholastic Aptitude Test, which plays an important role in college admission decisions. The results are, however, limited to juniors and seniors in high school, and, among them, to those who take the tests. A needed improvement is to have something comparable for those of the same ages who do not take the tests (including those not in school), and for younger children.

Another test concerned with general or global capacities that has been administered on a national basis is the Wechsler Intelligence Scale for Children (Wechsler, 1949). Components of it were administered as part of the National Health Examination Survey of 1963–65 to noninstitutionalized children ages 6–11 years (U.S. Department of Health, Education and Welfare, 1971). Since this test has already been administered once, the replication of it on another national survey would provide information that is not now available about whether and how younger children's capacities as measured by that instrument have changed during the last two decades.

Less well measured on a national basis are components of intellectual functioning related to achievement motivation, attitudes toward school, levels of educational and occupational aspirations, and other relevant attitudes (Sewell, 1980; Sewell, Haller, and Ohlendorf, 1970, and Sewell, Haller and Portes, 1969). The National Assessment of Educational Progress obtains some such information, but more comprehensive information would be valuable.

Finally, a relatively well measured area is reflected in educational attainments, that is, years of school completed, modal grade of children by age, enrollment below the modal grade, etc. (U.S. Department of Health, Education, and Welfare, 1979). These indicators pertain to the progress of children through school. While important, these measures should be interpreted with care, because of the changing content of school curricula, changing norms with regard to the promotion of children to the next grade, etc.

Other Important Capacities

Children develop and use a large and varied set of capacities in addition to their intellectual capacities. Artistic, mechanical, musical, and athletic capacities represent four major areas, and there are others. These capacities constitute a major portion of the human capital upon which children will draw as adults, and they provide the basis for a wide range of activities through which children obtain current satisfaction. Because these capacities and activities are extremely diverse and large in number, it is impossible in this report to do more than offer a hint of the topics and issues that would need to be addressed to produce or extend relevant indicators.

Two general approaches might be used to develop these kinds of indicators. Tests of specific abilities or skills might provide the foundation for indicators of diverse capacities, and time use information might provide the foundation for indicators that reflect the actual activities of children.

The test approach is embodied, in part, in the National Assessment of Educational Progress which provides information on artistic and musical aptitudes and achievements. In addition to items asking about knowledge and attitudes, an effort is made to assess skills by obtaining samples of actual performance. Information is also collected on the frequency and level of involvement in various activities.

A second approach that may be taken is to employ time use data to describe the capacities children actually use. Such indicators might measure the extent to which children participate in the arts, music, sports, dance, or activities that require mechanical ability. Additional measures should tap the extent to which children watch such activities, either live or on TV (see Kovar, 1981 for such information), and the extent to which they read about or discuss them. In addition, measures might be made of the extent to which children participate in non-college track educational activities.

Such data must be carefully interpreted and presented, however, if they are not to be misleading. For example, one does not know whether children are engaging in various activities because they want to or because their parents require it, unless appropriate questions are asked. Furthermore, although engaging in an activity indicates a child has the needed capacity, this does not indicate the level of skill or

knowledge or the capacity for further learning, again unless appropriate questions are asked.

The data bases concerned with academic ability and achievement are relatively better developed than the data bases for other capacities and activities. The ideas offered here represent only the barest starting point for the detailed research and analysis required to develop indicators related to the many capacities and activities that are not primarily intellectual.

RESOURCES THAT INFLUENCE THE DEVELOPMENTAL PROGRESS AND CURRENT WELFARE OF THE CHILD

For indicators to be appropriate as measures of the human and material resources that constitute the environment of children, they must be compiled as descriptions of the environment of the *individual* child. To repeat what was stressed earlier the child must, therefore, be the unit of observation. The effects of following this rule may be illustrated with statistics on the prevalence of poverty. Thirteen percent of all Americans were living in households below the poverty income level in 1980, 11 percent of all adults were living in households below poverty; but 18 percent of children less than 18 years old who were living in households were living in households below poverty (U.S. Department of Commerce, 1981c).

Resource indicators are of two types: those that measure the aspects of the home and/or extended family environment, and those that measure the wider community environment. Each will be discussed in turn.

Resources in the Home and/or in the Extended Family Network

A vast range of human and material resources in the home of a child have a potential bearing on how well that child develops. (See Blake, 1981 for a discussion of some of these). Mere presence does not necessarily imply actual availability or use for the benefit of the child; the former tends to be less difficult to measure than the latter.

The household can be regarded, for the purpose of measuring inputs to a child's development, as a productive enterprise which combines goods and time inputs of family members to provide the

final consumption "commodities" (food on the table, transportation, clean clothes, warm shelter, companionship, etc.) that are allocated among family members for their enjoyment and the development of their potential. Ideally, one would measure the amount and quality (or value) of major commodities allocated to each individual child, but such measures do not exist at present. It is currently possible, however, to assess the total command over material resources (income and wealth), the amount of human resources (number, age, education and earning status of adults), and the purchases of various goods and services (U.S. Department of Commerce, 1980a; Jacobs, 1979). Time use data that differentiate activities that are wholly, predominantly, and partly devoted to children, can be very useful here in conjunction with information on purchases of goods and services that substitute for the human resource inputs of family members.

In addition to the nurturant commodities produced in the home and purchased commodities to supplement and substitute for home produced goods and services, the family resources available include interhousehold transactions that take place among members of an extended family network. These include gifts of both material and time inputs. Such transactions may be routine (grandma ordinarily baby-sits on weekday mornings) or conditioned on hardship or special circumstance (the children may be cared for by a relative when a parent is sick).

Available data sources are such that it is possible to obtain reasonably good measures of the income, expenditures and demographic composition of households. Time use data promise additional insights into the non-material inputs that influence a child's development. The tools do exist to measure time inputs adequately to produce useful indicators; the next step should be to field a large enough regular survey to produce the data.

There are two major gaps in the data measuring family inputs, however. The first is the deficient nature of our information on the intrafamily transfers that go on outside the confines of a particular household. Data have been collected on legally required transfers (alimony, child support). Information on material gifts or regular bill paying help is drastically underreported to the extent it is reported at all. And we have practically no information on the transfer of services on either a regular or episodic basis. The second is the almost com-

plete lack of information either on how resources are allocated among members of the same household, or on the quality of the available resources that are actually allocated to individual children. These serious gaps do not require basic conceptual research, but they do imply instrument development and a commitment to measuring these inputs on a regular basis.

Data needed to construct indicators related to influences and resources in the family network beyond the household are generally deficient. (But on child support and alimony see U.S. Department of Commerce, 1981a). This last represents a serious gap in our data system, as does the almost complete lack of information on how resources are allocated among household members and on the quality of the consumption "commodities" that are allocated to children.

Resources Outside the Home and Family

The influences falling within this portion of the classification scheme derive for the most part from the institutions and human populations that make up the immediate community environment of the child. Schools, churches, voluntary agencies and programs, and recreational and cultural facilities are all potential or actual sources of the various kinds of nourishment and stimulation that influence how children grow. The economic, cultural, ethnic and life-stage heterogeneity of the population, as well as its density or immediacy, are also important conditions bearing on the texture and variety of experience a growing child will encounter.

Schools, preschools, and out-of-home child care institutions are of particular and traditional salience here. But the informal and "street-oriented" aspects of the child's contacts should also be monitored to the extent possible. For the community resources, indicators of availability and exposure presently exist. Indicators of actual use or participation are sometimes available as well. But indicators of the quality of services or stimulation obtained by children, as distinct from the cost of providing them, are often not available, because widely accepted definitions of quality have not been formulated and integrated into measurement systems. Until such measures are found, staff/child ratios and other input measures are the best we have and should be consistently monitored.

There is also a wider sphere which has formative influences on the child, and on the institutions directly involved in child rearing. The world outside the community of residence is an important influence to the extent that it is a part of the child's perceived reality. The media, and TV in particular, are important communicators of the wider reality (even allowing for some inaccuracy of portrayal). Travel and migration can provide first-hand observation of the world beyond the home territory, and contribute to a broadened experience. While emphasis is properly placed on measuring the quantity and quality of the television viewing of children, relatively little attention has been devoted to other possible sources of influence and information—a gap that should be remedied.

The outside realities can also influence children through public attitudes regarding children and the relative merit of public expenditures (e.g., school bonds and teachers' salaries) for child-related purposes. These attitudes can and should be tapped by surveys because such information can provide useful indicators of the political and social climate that impinges on children and the choices that affect them.

Section IV

FIVE ILLUSTRATIVE AREAS FOR FUTURE DEVELOPMENT

In order to design appropriate indicators, each of the subject areas in the classification scheme presented in Section III must be examined in depth to identify whether sufficient conceptual work has been done in the area; if so, whether the requisite data are available in the right form and on a regular basis; and, to the extent that they are not, what new data collection efforts should be undertaken.

A few of these subject areas, or parts of them, have been examined closely, in order to illustrate the kind of work that needs to be done. We chose areas for which the conceptual basis is relatively straightforward and on which the particular expertise represented by our members could best be brought to bear. The illustrations of the kind of approach we have in mind appear in this section.

The first is health, one of the five major subject areas included in our developmental status and progress measurement category. The second, third, and fourth—material resources available from the household, adult nurturing time and alternative child care arrangements, and extended family resources—are all elements in the group of indicators of available family resources (the first component of the resource measurement category). The fifth and final one is sexual activity and childbearing. This issue cuts across several of the subject areas in our classification scheme and provides information relevant particularly to health and moral and ethical behavior as well as to resources available to influence development.

HEALTH INDICATORS FOR CHILDREN

Indicators of the health of children are obviously fundamental to any comprehensive set of child and family indicators. It was suggested in Section III that child health indicators can be grouped into four broad categories: functional health status, health care, health related behavior, and immediate environmental influences. Here we

discuss indicators within each of these categories, briefly review the adequacy of existing data for producing them, and recommend steps that should be followed to improve child health indicators.

Functional Health Status

Indicators related to the functional health status of children may be the most important component of social indicators of children's health. Topics that are important to monitor (by age) include. mortality rates for the major causes of death, injury rates for major types of injury by location (home, school, neighborhood, etc.); days spent in bed or lost from school; and developmental indicators (such as age at which speaking and walking begin). Indicators about handicaps which seriously, and sometimes permanently, impair children are critical. Examples include. blindness or vision so poor that the child cannot see with glasses, physically crippled children; mental retardation; and emotional disturbances.

Most of the existing national data for health status indicators are collected and published by the U.S. National Center for Health Statistics. The availability of data for which indicators of health status are collected ranges from the legally required registration of every birth and death in the United States to the almost complete lack of information about severely handicapped children (U.S. National Center for Health Statistics, 1981a).

The quality of birth and death registration data in the United States is generally high. It could be improved and made more useful if all states linked birth and infant death certificates and if birth injuries and congenital malformations observed at birth were completely or always recorded. More information on social conditions and the care of the child soon after birth (for example, breast feeding) can be obtained from follow-back surveys based on samples of birth certificates. Such surveys have been done several times (most recently in 1981). They should be continued (U.S. National Center for Health Statistics, 1981b).

Many of the other indicators are collected continuously through the National Health Interview Survey, or have been collected once or twice through the National Health and Nutrition Examination Survey (formerly the Health Examination Survey) or the Child Trends Survey

(U.S. National Center for Health Statistics, 1980; 1981a; Zill and Peterson, 1982). The National Health Interview Survey provides excellent trend data based on what parents can report about the child's health, but children and adolescents do not report about themselves. The Health Examination Surveys are the only national surveys that obtain data for which a professional examination is needed (vision, hearing, IQ testing, dietary intake). In general these examination surveys are conducted infrequently and the samples of children are small. These surveys do not, however, provide information about the *total* amount of illness or disability that individual children suffer over the course of a year. Two recent panel surveys, the National Medical Care Expenditure Survey (U.S. National Center for Health Statistics, 1981b.14–16) and the National Medical Care Utilization Expenditure Survey (U.S. National Center for Health Services Research, 1981) can provide such information, but very few data have been published yet to demonstrate their usefulness.

We have remarkably little information about handicapped children. This lack is especially serious for mental retardation and for emotional disturbances. One problem is the lack of agreed-upon definitions of what handicap means and of instruments of measurement that can be used in population surveys. A second problem is that, except in the most extreme cases, collecting the information requires examining or testing the child. Asking questions of parents or caretakers is not sufficient to determine whether the child who cannot see well would be able to see with glasses. A third problem is that many handicaps are relatively rare among children, and population surveys are not currently designed to collect information about "rare" conditions. Finally, an unknown proportion of handicapped children is in hospitals, institutions, long-term care facilities; the population surveys do not include people of any age in such facilities.

Health Care

Because health care can have an important influence on the health status of children, health care indicators are an important component of child health indicators. Topics that warrant monitoring include: the proportion of children receiving recommended immunizations; the proportion with unfilled decayed teeth; the proportion of adolescents

who have trouble seeing even with glasses, and the distribution of children by months since last visit to a health care provider, since last visit for dental care, and since last vision examination.

Most of the existing national data for health care indicators are collected and published by the U.S. National Center for Health Statistics although major studies have been conducted by others, especially the Center for Health Administration Studies at the University of Chicago.

National trend data on the interval since the last visit for medical or dental care are available, as are data on the number of visits and place of visit for medical care. (See Health Interview Survey, U.S. National Center for Health Statistics, 1981a.) Data on the number of visits to physicians in office based practice and the number of hospitalizations are available from the National Medical Care Ambulatory Survey and the National Hospital Discharge Survey. National trend data on the quality and appropriateness of care are generally not available. There is also a general lack of data on whether children are receiving health (as opposed to strictly medical) care and consultation. Children can receive such help from visiting nurses and school nurses, psychiatric social workers, or psychologists, to name a few health care providers. They can receive care at well-baby clinics, family planning clinics, VD clinics, crisis centers, and other places. But data about such care are fragmentary and not well integrated with data from the major national surveys.

Health Related Behavior

Particular indicators of health related behavior should be selected because they refer to behavior that can have an important effect on either the short term or long term health status of the child. Topics that are germane here include: use of seat belts (or approved restraint seats for young children), playing in unsafe or unsupervised environments, cigarette smoking, alcohol consumption, use of other drugs; car driving at excess speed; and adolescent sexual activity.

National data on health related behavior are funded and sometimes published by or for many federal agencies (U.S. Department of Health and Human Services, 1982). But there is no consistent, uniform system for collecting and publishing data on most health related

behaviors (sexual activity being a partial exception). Most of the data for topics suggested here have been collected at least once. For example, there are time series data on cigarette, alcohol, and other substance use from two surveys funded by the National Institute on Drug Abuse (Fishburne, Abelson, and Cisin, 1980; Johnston, Bachman, and O'Malley, 1979, 1980), and there are data for three time points on sexual behavior of adolescent females, a data collection activity funded by the National Institute for Child Health and Human Development (Zelnik and Kantner, 1980).

In general, data on health related behavior are collected by or for the federal agency that has responsibility for programs in the specific area. Thus, there is little coordination and, if no agency is responsible for a program, there are likely to be gaps. In addition, no survey of adolescence exists on which data for all these topics are collected within the same survey framework.

Environmental Influences

The final category of child health indicators is concerned with those aspects of the child's environment that can have an important influence on the health of the child—specifically the family or household environment, the housing structure in which the child lives, and certain features of the child's neighborhood.*

Important family or household indicators pertain to the distribution of children by the number and ages of adults in the household, and the distribution of children by the education of the head of the household (or of the persons with primary responsibility for the child).

Indicators related to the housing structure in which the child lives should include measures of crowding, adequacy of plumbing, adequacy of sewage disposal, adequacy of heating facilities, and general soundness of the structure. At the neighborhood level, important topics include the local availability of health care, schools, day care, and transportation.

There are good data for many of these topics, although the data are often published in terms of the number of households or families

* Additional indicators of relevance here are discussed below in sections on the living levels of children and extended family relationships.

rather than the number of children. Since the data collection systems that obtain much of this information—that is, the Current Population Survey, the National Health Interview Survey, and the Annual Housing Survey—use many of the same survey procedures and estimation procedures, and share a sampling frame selected by the U.S. Census Bureau, many of these data could facilitate easy comparisons if they were all tabulated with the child as the unit.

Recommendations

For some of the health status indicators, there is a need for substantial research on measurement and the development of instruments that can be used on population surveys. Periodic surveys should be conducted, perhaps every decade, that include physical examinations, physical measurements, psychological tests, and cognitive measurements. For health indicators, data should be collected periodically on whether children are receiving recommended care. Because need is difficult to measure, priority should be given to those indicators for which need can be objectively defined. The unimmunized child, the child with decayed unfilled teeth, and the nearsighted child without glasses are examples of unambiguous need.

For behavior of children and adolescents that is hypothesized to be associated with the development of immediate or later health problems, surveys should be conducted periodically. The data collected should pertain to *all* health related behavior, not just socially deviant behavior or behavior that is the target of public programs. In all such surveys, adolescents should be interviewed about their own behavior, when possible, younger children should be also. Much of the data needed for indicators of environmental influences are available, but indicators should be constructed with children as the unit of analysis.

MATERIAL RESOURCES AVAILABLE TO CHILDREN FROM THEIR CORESIDENT FAMILY

The most widely available data sources from which the income levels of families with children can be derived are the regular statistical summaries of the Current Population Survey, which show the proportion of families with children who are below the poverty line,

and the number of children in poor families. These indicators are widely used for comparisons through time, across different social and economic groups, and across family types. But as measures of the material resources available for children these statistics are limited. First, they are based on income before tax, without allowance for public noncash transfers such as food stamps or Medicaid. Second, they use the official poverty thresholds which are absolute rather than relative standards. This means they do not measure the extent to which the poorer families in the population fall below typical levels of living. Third, they provide no evidence of the extent to which the total resources expended by a household are in fact devoted to children. We propose a new approach for developing indicators of the material resources devoted to children, to augment the existing measures.

The Current Situation

Most of the existing information about the material well-being of the U.S. population is obtained from the March or "income" survey of the Current Population Survey (CPS). This is true for all groups and specifically for children. Means, medians, and distributions of total money income (pretax but posttransfer in the form of cash) are published annually for a wide variety of family types and for groups defined by various characteristics of the householder (formerly designated the family or household head). Separate tables are shown for individuals—persons not living with a relative. Another large set of tables is devoted to poverty statistics—an annual accounting of the number and characteristics of families and persons with incomes below the official poverty thresholds. In recent years these tables have been augmented by adding tables using an alternate threshold, which is set twenty-five percent higher than the poverty lines.

The poverty thresholds currently in use are the descendants of the Orshansky poverty lines developed in the mid-sixties and revised in 1968. (U.S. Department of Commerce, Bureau of the Census, 1969: 9). They are intended to set a constant "real" income standard and so are increased from year to year in proportion to the consumer price index. This poverty income standard has not kept up with median income levels in this country, however. In addition, little emphasis is

placed on reporting information separately for families with children, and even less is placed on tables in which individual children are the unit of analysis.

It is thus possible from these reports to ascertain only an extremely summary account of how the poverty rates for children and for child rearing families have changed. Little basis exists for drawing conclusions about the distribution of children and families with children according to other thresholds of income, or about the economic situation of the households in which the children live during the successive phases of their growing up. The basis of income measurement is census money income, which is inadequate as a measure of what the child's household has to spend because, on the one hand, it is before-tax income, and, on the other, it excludes in-kind or non-cash transfers. (See Smeeding, 1982).

Needed Improvements

A major improvement, particularly as it affects the environment in which children are growing up, would be to measure the expenditure on current goods and services rather than census money income, with imputations where necessary for the flow of services supplied by owned homes and owned major durable goods. This is a measure of consumption and, for that reason, a closer approximation to current material welfare than is the measure of money income that is currently used. It differs from census money income because it takes into account the net impact of taxes (which reduces gross money income to disposable income), all the capital account transactions (saving, borrowing, repaying) that permit current expenditures on consumption to be larger or smaller than disposable income, and any imputations needed to adjust for nonfinancial assets that increase consumption.

A major tenet of economic theory, the permanent income hypothesis, provides a rationale for using a consumption measure rather than an income measure to measure welfare. This theory holds that spending units endeavor to maintain a relatively constant or smoothly changing level of consumption, and they use the capital account transactions to reconcile such a pattern with an income flow that is subject to both transitory fluctuations and life course variation. From

this perspective, a measure of current consumption (including the flow of services from owned homes and other long-lasting durable goods) avoids both the random and systematic errors inherent in current money income as an indicator of a household's living level.

The conceptual framework for interpreting measures of material resources devoted to children should also be improved. First, the poverty standards have proven very useful over the past 15 years in providing a reference standard that enables a distributional (inequality) issue to be widely discussed and widely monitored. But these standards are designed for use with the money income concept and, because they are becoming more and more remote from the median or typical living levels, they are no longer adequate by themselves. When considering the resources available to different groups of children in society, absolute standards have to be considered along with relative standards, otherwise it is impossible to ascertain how deprived some groups are *relative to the general norm.*

The present standards should be supplemented with new standards that use consumption measures that are related to current median levels of living. It would also be useful if more than one relative level were identified to provide the basis for a finer differentiation of living levels applicable both to families and to individual family members.

Second, the measures should separate out that part of family or household consumption that actually goes to children. In some cases this can be done directly (clothing, meals away from home, fares and admissions, medical and dental services, and books, lessons and tuition). In other cases joint costs (e.g., housing) must be allocated. Such allocations are bound to be arbitrary to some degree, but their inclusion would very much improve our ability to recognize changes in the allocation of household consumption to children, and changes in the level or dispersion of the welfare of children. Specific allocations of consumption would enable tabulations of material welfare to be made for individual children by age, number of siblings, etc.

What Can Be Done to Achieve Improvements?

In 1980, the Consumer Expenditure Survey began to be fielded on a continuous basis, providing a rare opportunity to improve financial resource indicators (Jacobs, 1979). In the past, data on ex-

penditures were collected only once per decade and there was usually a delay of three years or more before public use data files or detailed analytic tables became available. With the new fielding schedule of the survey, however, it becomes possible to consider the distribution of expenditure as a viable alternative to the distribution of census money income as a means of monitoring levels of well-being and inequality.

The annual sample sizes for this survey are less than those of the CPS, but they are adequate for drawing conclusions for the nation as a whole, and they are large enough to provide the foundation for some regional and subgroup analyses if several adjacent years are combined. By giving higher priority and more resources to this task, it would be possible to develop rapid and routine processing of the needed information. Indeed, the need for more up-to-date weights for the calculation of the Consumer Price Index was a major reason for the implementation of the continuous survey, and this argues well for the more rapid processing of these survey results.

A system of relative consumption-based standards was developed by the Expert Committee on Family Budget Revisions (1980) for the Bureau of Labor Statistics. These standards could be adopted for use in developing living level indicators for children and children's families. It is particularly important here to use the child as the analytic unit and to examine how many children, by age group, are in the different consumption categories, and how those distributions are changing.

The basic data collected by the expenditure survey are already quite detailed in terms of specific items. Some improvement could be made by more closely identifying specific expenditures with particular persons in a household. The payoff would be an improved ability to allocate household consumption among individual children, and between children and adults.

The recommendations in Section V include a new report on the State of the Child. A major portion of that report should be devoted to the living levels of children—indicating trends and developments that affect both the quality and inequality of living standards. It is crucial that the tabulations from the continuing Consumer Expenditure Survey be designed to supply appropriate up-to-date indicators for that report.

A great deal of unexploited information exists in this area, and more will become available. The marginal cost of revised and augmented tabulations and of the presentation efforts described here could have a very great payoff in terms of reliable and fundamental social indicators of the material well-being of children and the families and households within which they live.

ADULT NURTURING TIME AND ALTERNATIVE CHILD CARE ARRANGEMENTS

In considering changes in the American family in recent years it is difficult to ignore the increased participation of mothers in the labor force. It is a change that has been well documented, and one that is believed to bring about other changes in family life. Though opinions may differ as to whether increased maternal employment rates have had, on balance, positive or negative effects on children, few can doubt that this change has altered children's lives in some way. Changing patterns of employment can be expected to affect family income, husband-wife relationships, the organization of family activities, the division of labor within the family, fertility behavior, and many other aspects of family life (for example see Davis, 1972; Oppenheimer, 1972, Waite, 1981; Vickery, 1979; Gove and Peterson, 1980, and Vanek, 1980). Irrespective of any normative aspects of this change, the growing proportion of children, particularly young children, whose mothers are employed outside the home implies changes in the persons and places that are involved in a child's rearing, compared to the traditional full-time pattern of mothering (see Presser and Baldwin, 1980, on how child care affects employment). It is important to measure the changes that occur and the influence those changes may have on the development of children. Although indicators do exist for some aspects of the employment of family members and alternative child care, there are critical gaps that should be filled.

Currently Available Data

Existing indicators related to maternal employment are mainly subcategories of the general labor force indicators. The Current Population Survey (CPS) is the source of most labor force data, and the

participation, employment, and unemployment of women who have children in the home are regularly monitored. Special tabulations have been made in recent years to support special reports on this dynamically interesting part of the labor force, but the focus has been mostly on the mother as current worker, not on the child (U.S. Department of Labor, 1981).

Consistent with the overall strategy of this report, recommended improvements in indicators of mothers' and other family members' employment come from a focus first on the child as the unit of analysis, and second on the cumulative experience of the child as the primary object of measurement. Many closely related issues pertain to the types and amounts of nonmaternal care that children receive, to how those patterns change if a mother begins to work outside the home, and to how many children live with working versus nonworking adults, whether mothers or not.

Currently collected data can be retabulated with the child as unit of analysis. These tabulations should show how many children, by age and sex, are living with a mother who is employed, and whether there are other adults in the household. The presence in the household and relationships to the child of potential alternate caretakers—fathers, adults or teen-age siblings, grandparents or other able bodied persons (particularly if they are not employed or actively attending school)—are most relevant to the nature of mother-who-works experience. The number of siblings or invalid household members needing similar attention is a further refinement that bears on the alternative care issue. Data should further distinguish between part-time and full-time work, night and day work, and year-round and part-year or seasonal employment patterns of relevant household members.

The importance of these distinctions is obvious. They are not, however, in themselves adequate to understand the full dimensions of the alternative care problem. Further specification is also needed of the times of day that a parent is unable to directly supervise the child. This should be related to times the child is in school. For the times the child is not in school, we need to know whether the child is being looked after at home by the father, other relative, or caretaking adult, at someone else's home, at some regular care facility, or without adult supervision. It is also important to develop measures of partial contact by telephone or neighborhood intercommunication. The reg-

ularity of working hours either at the option of the parent or employer are added dimensions of the alternative care problem both for "regular care" and for the episodic care that may accompany illness or school vacation intervals.

It would be possible also to chart the collective experience of successive cohorts of children with respect to the employment of their mothers and other adults in their household.

Indicators of this kind would show how trends in employment are affecting numbers or percentages of children. They would not, of course, tell whether the consequences were good, bad or mixed, but the level and changes in exposure of specific groups of children to the experience of an employed mother, and the consequence of that exposure in terms of who looks after the child, would be known. That knowledge would improve substantially the quality of debate on this issue.

Needed Data Improvements

In addition to the retabulation work specified above, it would be valuable to have more direct indicators of cumulative experience of children in terms of the labor market work of mothers and others. This could be obtained in some part by asking for recall information on how much of a given child's "career" was spent with a primary guardian who worked. Alternatively, such data could be obtained from panel studies that follow children for more or less extended portions of their childhood. Consequently, this need could be met by some additional questions on existing surveys such as the CPS, or by retabulation of longitudinal surveys such as the Panel Study of Income Dynamics. For the regular measurement that is desirable in a social indicator, it would be necessary to make this information a regular part of an ongoing or projected survey.

We have already stressed that the work behavior of the adults in the household should be examined in a framework that focuses on the experiences of children rather than, for example, on the household or its expenditure budget. The range of persons and facilities that are substantially involved in a child's daily or weekly routine can be characterized in ways that bear on the quality and variety of a child's experience. A time use survey covering children of all ages and

differentiating the major categories of care providers (from all settings) would be a very valuable resource for this as well as many other purposes. Time as a resource, how it is allocated, and the implicit or explicit price that guides its allocation appears to play a central and pervasive role in explaining a wide range of human behavior. The new time use study of children being conducted by the University of Michigan has the potential for providing basic and primary measures of how children spend their time.

A child may interact with persons both inside and outside the home. An account of time use that characterizes both kinds of interactions is clearly a prerequisite for more sensitive and specialized indicators of the quality of the child's overall environment. Such indicators must distinguish the contributions to the child's environment made by alternative choices about parental employment and career patterns, and the related choices among child care arrangements.

While it is the strong trend toward increased maternal employment that largely impels this interest in nonparental care alternatives, it is important also to examine the nonparental care experienced by children of full-time mothers (that is, mothers who are not in the labor force) and of children who are not living with a mother, step-mother, or adoptive mother. Use of alternate care is by no means limited to homes in which both parents work, and there is no reason to suppose that the consequences of specific care alternatives differ sharply according to the employment of a child's mother. There is a need for statistics which describe, by child's age, the proportion of time being spent in one of several types of care situations, irrespective of the labor market status of adults in the household.

The quality of alternative care arrangements is also crucial although generally agreed on quality measures are not yet in place. Basic distinctions between care in the child's home, care in someone else's home, unlicensed child-care homes, licensed homes, and centers would add useful knowledge if we had sound estimates of trends in usage Costs to the user including transportation should be collected. But all of these items do not yet provide a measure of quality.

Measures of overall parental satisfaction with child care are generally of little use in evaluating objective characteristics of alternative care arrangements. Parent surveys should be explored, however, for

their potential value for evaluations of the amount and quality of staff and other resources that are available in the chosen facility, along with an enumeration of specific complaints and problems. Older children may be able to provide more direct assessment of their experience. Separately gathered information about the detailed staff and facility characteristics should also be used whenever it can be related to specific child's experience.

In short, there is a substantial amount of unused potential for indicators in existing data. New initiatives seeking data on more cumulative experience presuppose new retrospective inquiries or longitudinal panels. The importance of the new time use survey in providing information on child care patterns, and in serving other research needs gives it a high priority among projects to improve child indicators as well as social indicators more generally.

THE EXTENDED FAMILY AS A RESOURCE FOR CHILDREN

In the context of substantial recent increases in marital disruption and in the employment of mothers of young children, the human and material resources of extended families may now be playing an increasingly important role in the development and well-being of children. A grandmother, aunt or other relative may provide emotional support, child care, meals, transportation, financial aid, or other resources that are helpful to or needed by a child. Kin who live in the same household as the child may be particularly accessible, but kin, including parents, who live in other households may also contribute substantially. Access to resources of an extended family may, therefore, be especially important for a child whose parents never married, or who are divorced, separated, or seriously ill.

Although studies have been conducted regarding extended family relationships and the various kinds of support extended kin provide for child rearing (e.g., Adams, 1968; Klatzky, 1971; Stack, 1974), indicators that are national in scope are not available. This is in part because households and families are often not distinguished. But even when the distinction is recognized, available data almost always pertain to the extended family only where it resides in a single household. We do know that the extended family *under one roof* has been declining as a part of a long term trend toward smaller households and

family "undoubling" (Cherlin, 1981:73). But much more needs to be learned about the multi-household extended family and about the effects of this family on the sources of material support.

Some immediate improvement is possible by examining existing data on the within-household part of the extended family group using the child as the focus for data reorganization. But improvements in delineating the multihousehold family relationships will generally require survey approaches which are not yet routinely used and additional data gathering. These should include periodic replications of (a) recent studies (1976 and 1979) conducted by the Census Bureau to obtain data on child support payments made by absent parents (U.S. Department of Commerce, 1981a); and (b) the Census studies on marital and fertility history, which provided information in 1975 and 1980 on the children of ever-divorced mothers who were living with their father on the survey date (U.S. Department of Commerce, 1977, 1981b).

Extended Family Relationships Within Households

The Census Bureau has for many decades provided information on extended family patterns within households. Although the Bureau does not identify "extended families" as such, it reports household data from the Decennial Census and the Current Population Survey in terms of concepts that reflect the prevalence and patterns of extended family relationships. These data can be arranged to show how children are distributed among an array of circumstances characterized by the number of and relationships to co-resident adults. These data would show the number of adults in the child's household who are, at least nominally, available to the child as a source of care and support, and also how closely related these adults are—that is, whether they are parents, ancestors (such as grandparents or great-grandparents), young adult siblings, other relatives (such as aunt or uncle), or nonrelatives. This classification should focus on children, rather than families. The unit of analysis could be flexible enough to allow the identification of diverse family situations and the development of indicators referring to children in three-generation extended families, in other extended families, in families that have been augmented by nonrelatives, in families maintained by a single parent, in families

with neither parent present and, finally, in families with no relative present.

Although all the information needed for such classification cannot be obtained without using the microdata computer tapes from the CPS or census, it is possible to obtain some of the pertinent information relatively easily from published tabulations. A sense of the value of these data when they are organized with the child as the unit of analysis is revealed by changes over the past decade in the number and proportion of children under 18 living in households headed by relatives who are not their parents, a number that rose from 3.0 million to 3.3 million between 1970 and 1979. (U.S. Department of Commerce, 1981a). Thus, contrary to what many people believe, the number (and proportion) of children living in extended family households so defined has risen rather than dropped during the past decade among both blacks and whites.

More detailed information on the distribution of children living in households headed by relatives who are not their parents reveals a decline from 17 percent to 14 percent between 1970 and 1979 in the proportion of such children who had both parents in the household, and a decline from 29 percent to 23 percent in the proportion of such children who had one parent in the household (U.S. Department of Commerce, 1981a). Hence, among children living in the household of another family member, the proportion who did not have either parent present in the household rose from 54 percent to 63 percent. The regular tabulation and publication of indicators such as these, classified by relevant variables, would add significantly to knowledge about trends in the availability to children of various immediate and extended family members.

Another type of family-living circumstance encountered by children has not been generally recognized and merits attention. According to the 1970 census, 841,000 children under 18 were classified as "not in families." Slightly less than half (407,000) lived in institutions or other households, but 434,000 lived in households headed by nonrelatives (Hill, 1977). Many of the latter are living with foster families or with "fictive kin" such as close friends of the family and are therefore living in families but not in their own extended family. A large fraction of disabled children on Supplemental Security Income (SSI) live this way (U.S. Department of Health, Education and Welfare, 1980).

Indicators should be reported on a regular basis, so that the social and economic circumstances of these children can be monitored and problems that may be inherent in such situations recognized.

Extended Family Relationships Across Households

Extended kin who do not reside with a child may, as has been noted, also serve as an important resource for the child. Although national data collected on a systematic basis are not available for the construction of indicators that measure the nature and extent of the relationships that link extended family members in different households, information on certain specific sorts of relationships has been collected for certain geographic areas from time to time. For example, data on the extent of formal and informal day care provided by relatives (and nonrelatives) were obtained in special supplements to the Current Population Survey in October 1974 and February 1975 (U.S. Department of Commerce, 1976). Most research to date has depended on special purpose studies that do not as a whole constitute a coordinated effort to provide national data on kin, extended kin interaction and other relationships.

Based on past research (Litwak, 1969; Sussman, 1974; Stone and Schlamp, 1979; McAdoo, 1977; and others) it is possible, however, to propose a set of topics that could provide the foundation for social indicators of the relationships that link extended kin living in different households. Such a set could include the following:

1. *Mutual Aid*
   - Emotional Support/Counseling
   - Child Care
   - Health Aid
   - Financial Aid
   - Other Economic Support
   - Household Chores and Tasks
   - Education
   - Transportation
2. *Leisure*
   - Visiting
   - Recreation
3. *Organizational Relationships*
   - Religious
   - Clubs

4. *Ritual Occasions*
   Funerals, Weddings, Graduations
   Family Reunions

Indicators that reflect the frequency and extent of interaction between children and extended kin in connection with each circumstance on the list should be developed and reported regularly. Indicators related to the child care services and other substantial aid provided by relatives (or pseudo-family) warrant particularly high priority. For this task, the measures of child care arrangements that the Census Bureau reports in its Current Population Survey report titled, "Day Time Care for Children. October 1974 and February 1975," (U.S. Department of Commerce, 1976) should be expanded to provide information for each child in the household.

The indicators of kinship patterns within households that have been proposed here could be implemented inexpensively by the Census Bureau by reorganizing and reporting data that are now available from the Decennial Census and the Current Population Survey. New data would be required to implement most of the indicators needed for topics pertaining to the relationships that link extended family members who live in different households.

SEXUAL ACTIVITY AND CHILDBEARING

Indicators related to sexual activity and childbearing among youth cut across and include information falling within several of the broad categories of child and family indicators. They bear upon issues that are ethically and politically controversial, and hence subject to frequent coverage in the news media and heated debate in the halls of government (For examples see Vinovskis, 1981; U.S. Congress, 1978). Because the sexual activities of American youth present important policy issues, difficult questions of measurement, and deep personal concerns for many people, there is a need for accurate, detailed and unbiased indicators that are produced and made publicly available in a timely fashion. Three general questions can be distinguished. What are the extent, circumstances, and consequences of sexual activity and contraceptive use among youth? What are the extent, circumstances, and consequences of pregnancy and abortion

among youth? What are the extent, circumstances, and consequences of childbearing and child rearing among youth?

Of the age categories we specified in Section II of the report, ages 12–17 (with subgroups 12–14, 15–17) is the relevant one here. In addition, however, we recommend the category 18–19 be added, since by the age of 19, most persons who ever graduate from high school will have already done so, and high school graduation marks an important transition from adolescence to adulthood in our society. Age 12 is chosen as the lower limit because it marks the average age of the onset of puberty in America, and because increasing numbers of youth are already beginning to be sexually active at that age.

Sexual Activity and Contraceptive Use

Despite considerable interest and concern about the sexual and contraceptive behavior of youths, little systematic information was available before 1970, and the information obtained since then is limited (Chilman, 1979). Kantner and Zelnik conducted surveys of young women in 1971, 1976, and 1979 (Zelnik and Kantner, 1977; 1980). In these surveys questions were asked about the extent and frequency of sexual activity, about the type, frequency, and extent of contraceptive use, and about pregnancy and its resolution. Single as well as ever-married women were included, and special efforts were made to ascertain the reasons why some sexually active young women did not use contraceptives. In 1979 young males as well as females were asked about their sexual and contraceptive activity. However, the sample for this survey excluded nonmetropolitan and rural areas. While offering important new sociological and demographic data, these surveys provide little insight into the psychological aspects of sexual and contraceptive behavior.

The first two cycles of the National Survey of Family Growth (NSFG) in 1973 and 1976 complemented the Kanter and Zelnik Surveys in that they studied the sexual and contraceptive behavior of women aged 15–44. However, these first two cycles did not include never-married women, who are a substantial portion of all young women (Millman and Mosher, 1980). Cycle III of the NSFG is designed to include all females aged 15–17, the never-married as well as the ever-married. Detailed information on sexual and contraceptive

behavior is scheduled to be obtained. The U.S. National Center for Health Statistics, which conducts these surveys, has developed and implemented ways of seeking the consent of parents for minors to respond for themselves, so as to protect the rights of both the minors and their parents.

Cycle III of the NSFG and the earlier nongovernmental surveys share limitations that can be removed in the next generation of studies. The sexual and contraceptive behavior of males as well as of females is a matter of considerable interest and concern, and should be included in the government surveys as they were in the most recent of the Kantner/Zelnik surveys. In addition to including a sample of males and questions appropriate to them, the next generation of studies should obtain measures on a wider range of attitudes and behaviors of youths. Continued attention needs to be given to the rapid dissemination of these data, in the past, the NSFG, like too many other valuable data sources, suffered from a long delay between the collection of the data and their publication and release to the public.

Pregnancies and Abortions

Among the most important consequences of sexual activity are transmission of venereal disease and possible pregnancy. Venereal disease is an increasingly prevalent public health problem and knowledge of its incidence is important.

Pregnancy incidence is also important information for current and future generations of children. Until recently information obtained about pregnancy rates for adolescent women has been inadequate. The data collected for Cycle III of the NSFG will, however, provide important information on this topic. Data on live births, which are continuously collected and published, are not sufficient because of pregnancies ending in miscarriage or induced abortion.

Since a major concern about youthful pregnancy focuses on inadequate prenatal care received by many young mothers, information on the adequacy of such care is also important. Although Cycle III of the NSFG will provide an index of the percentage of pregnant youths receiving prenatal care, it does not ascertain the health of the pregnant female or the type of prenatal services received, both of which

bear on the adequacy of prenatal care. Indicators monitoring the sources of financial support and the cost of prenatal services that are utilized would also be valuable. Another approach to estimating the extent to which services are provided to young pregnant women is to survey service providers, but efforts to do so have not proven particularly successful.

The number of abortions among young women has been increasing dramatically. Among women aged 15–19 it is estimated that nearly forty percent of those who became pregnant terminated their pregnancies by abortion and about half of all pregnancies among girls younger than fifteen ended in abortions (Alan Guttmacher Institute, 1979; 1981; Tietze, 1981). Information does exist on method and number of weeks pregnant. Beyond this, however, there is little reliable information. More inclusive and detailed data are clearly needed regarding abortions for young women.

Childbearing and Child Rearing

The childbearing and child rearing activities of youths raise a wide range of questions. How widespread is childbearing among youth? To what extent does it occur within marital and nonmarital relationships? What are the health, social, and economic consequences of youthful childbearing both for the parents, particularly the mothers, and for the babies?

Reliable and detailed information on youthful childbearing is available every 10 years from the Decennial Censuses, which provide data about the entire population, including children ever born, which can be used to analyze youthful childbearing. The special value of the Decennial Census data in this regard is that they also provide extensive information about the characteristics of young people and can be used to make accurate estimates for small geographic divisions throughout the nation and for small subgroups of the population. There are two major disadvantages, however. First, census data, in contrast to data collected with special surveys such as the NSFG, do not include information about sexual behavior or contraceptive usage. Second, census data are only collected every 10 years, drastically limiting the value of the data for many purposes.

The problem of timeliness is to some extent alleviated by the

availability of vital statistics on births in the U.S. These are collected locally and compiled for the nation by the U.S. National Center for Health Statistics, and include annual data on the number of live births by age of mother. The major limitation of these data is, however, that the fertility data by age cannot be analyzed against as many variables as is possible with the Census. Furthermore, information from this source is limited regarding the well-being of the infant children of youthful mothers and the impact of early childbearing on the immediate living situation of the parents, and on their long-term life chances Special studies of the immediate effects that youthful childbearing have on the mother and child do exist (Furstenberg, Lincoln and Menken, 1981), but regular series of data on the health and socioeconomic conditions of youthful mothers as they age and of their children are much less available. Additional information which is needed would probably be best collected through one of the major national health surveys.

Of special interest are the living circumstances of young mothers who are not married. To what extent are they living alone with their children, or with their parents, or other extended family members, such as grandmothers or aunts, who provide economic and interpersonal support for the young mother and her child? To what extent are they receiving financial support from the father or relatives outside the household? How soon do they marry? How do these circumstances change through time? These living circumstances can influence the long-term life chances of a young mother as she grows older (Hofferth and Moore, 1979), by influencing the amount of education that she can attain, her work experience, etc. The circumstances surrounding youthful childbearing and their cumulative effects through time warrant closer monitoring.

A variety of additional issues might be addressed with regard to youthful sexuality, pregnancy, and childbearing, but the present discussion provides a summary of many of the basic issues. Although some data for indicators presently exist, many more are needed. Since youthful childbearing creates families in which both the children and parents are themselves children, changes in the well-being, development, and socioeconomic circumstances of these people merit special attention.

Section V

RECOMMENDATIONS

Five major sets of recommendations grow out of the preceding discussion. They are presented in descending order of urgency. We are acutely aware of current financial stringency. The first recommendation involves no new authorization of money, simply the continuation of current real expenditure levels. The second and third recommendations involve new expenditures that are modest in absolute terms and extremely small in relation to the benefits that will accrue.

The last two recommendations involve substantially higher expenditures and further specification before they can be implemented. We recognize that both these factors place the feasibility of their implementation further into the future.

1. MAINTENANCE AND IMPROVEMENT OF BASIC DATA COLLECTION PROGRAMS

The highest priority must be given to sustaining the quality, comprehensiveness, and timeliness of the fundamental surveys and data collection programs on which the basic indicators depend. These repeated measurements cover a substantial part of the past and provide the capacity to monitor the status and progress of our nation's children today and in the future.

The following federal data collection systems are particularly essential to the continued production of major child and family indicators. If these six systems are not provided with the resources needed to sustain basic data collection and dissemination activities, much of our current and potential ability to monitor the well-being of our nation's children will disappear.

The *Decennial Census* of the population is the single most important data base in America. It collects information on family formation, dissolution and composition, and on the social, economic and demographic characteristics of household members. The census provides a

wide range of data with great geographic detail, and it provides the data needed to examine small subgroups of the population. It is also the basis for the sample frame of many other surveys. Its great disadvantage is that it is only conducted once every 10 years.

The *Current Population Survey* collects most of the information obtained by the census, but on a sample basis that yields annual estimates of demographic, social and economic status of households. The CPS obtains information on income, marriage, fertility, and school enrollment through special supplements. The CPS sample is large enough for regional estimates and estimates for other comparably large subgroups of the population.

The *Vital Statistics* registration system also obtains basic data for the construction of child and family indicators. The statistics on current births, deaths, marriages and divorces are fundamental for child and family indicators. They are not obtained from any other source with the needed specificity and accuracy. Every birth and death is recorded at the local level, and data can be tabulated in great geographical detail.

For data on the health of children, the *National Health Interview Survey* is the fundamental source. Data on the demographic, social, and economic status of households and the members are also included.

The most comprehensive and detailed information on the actual living levels of children and families is obtained by the *Consumer Expenditure Survey*.

The best comprehensive source of information on the intellectual functioning and schooling of America's children is the *National Assessment of Educational Progress*.

Three additional data collection systems add vital depth to specific important aspects of the status and circumstances of children, and must be given the funds to continue.

The *National Health and Nutrition Examination Survey* gathers extremely valuable information about the nutritional intake of children and about aspects of the health of children that can only be obtained through examinations. The two cycles devoted to children and youths also collected data on cognitive ability that could be obtained only through examinations. The *National Survey of Family*

Growth, and its predecessors, the Growth of American Families Studies and the National Fertility Surveys, provide a historical perspective on the processes of birth, birth control, family formation, and family dissolution that surpasses all others in the repeated and high quality measurement of important concepts. The Michigan *Panel Study of Income Dynamics* is also vital, not only because of its unique content, but also because it is longitudinal. This survey follows individuals starting with 1968 and provides an unequaled source of information on the cumulative experiences of American families and their children. Loss of these data collection systems would represent a crippling blow to the data resources for child and family indicators.

There are other surveys that provide worthwhile components of information on children that are national in coverage and provide either repeated cross-sections or longitudinal measurement. It would be unfortunate to do without any of them, although for the purposes of this advisory group, they are in a slightly lower category of priority. Examples of such surveys are: the National Longitudinal Surveys of Labor Market Experience, the National Center for Education Statistics Surveys of the High School Classes of 1972, 1980 and 1982, the Monitoring the Future Survey, the American Council on Education Surveys of American College Freshmen, the 1971, 1976, and 1979 surveys of the sexual behavior and contraceptive practices of women aged 15–19, and the National Natality Follow-back Survey.

2. PUBLICATION OF BIENNIAL REPORT ON CHILDREN

We strongly recommend publication of a biennial report on children. At present, the child and family indicators that are available are published in an uncoordinated fashion among widely scattered reports, most of which are concerned primarily with other topics. In addition, much existing information that could provide the basis for valuable new indicators is not processed or published. Such a report, published on a regular basis, would help overcome these shortcomings. This report could also publicize and stimulate research devoted to improving the available indicators, and present the findings from major one-time empirical studies about children.

The cost of this publication would be small relative to new data collection efforts and should be a federal responsibility. This would represent a major improvement in the overall value of our statistical enterprise.

The first section of the report should concentrate on updated indicator series and consist primarily of graphs, diagrams, or figures depicting the trends and distributional information with backup tables containing statistical data provided for the interested reader in special appendices (perhaps on microfiche to minimize cost). Brief interpretive text should accompany the graphical material, to discuss the importance of the measure, how the trend has been changing, and any specific properties of the data that are relevant to its proper interpretation. If alternative credible interpretations are available, however different, they should also be mentioned (e.g., whether a rising divorce rate represents a decline in marital satisfaction or increased opportunities to leave unsatisfactory marriages and enter more satisfactory ones). The second section would contain articles dealing with current topics or research on child indicator methodology or on the results of empirical studies germane to the state of the child, the family, and related influences on children.

The overall aim would be the production of a nonpartisan report which is relevant to policy issues. This report would provide the information needed for a broad assessment of changes in the state of children and the influences that bear upon children.

A prototype report should be prepared. It is important that this prototype be developed by a research organization with strong scientific credentials, not by a policy-advocating organization or agency. The nonpartisan integrity of the report must be beyond dispute. After the developmental stage, the regular production of the report might find an institutional home within the federal government.

Besides drawing together existing indicator series, the production of a high quality report would also require new tabulations of existing data, as described in the sections above on the level of living of children and on maternal employment and child care, and it would require linking data bases that are produced by various agencies and organizations. The report envisioned here would contribute substantially to public knowledge and debate about trends in the status, functioning and circumstances of America's children.

3. ESTABLISHMENT OF DATA ARCHIVE FOR CHILD INDICATORS

We recommend the creation and funding of a centralized and unified archive of the data files that underlie the child indicators series. The archive should provide data access, documentation, publicity, and, where appropriate, public use data tapes that will encourage and facilitate rapid processing of survey data so that indicators and underlying data are sufficiently timely to be of real value.

The value of data on children would be considerably enhanced if they were readily available in an accessible form. Currently, many of these data are available only on a piecemeal basis from a wide array of government agencies and private organizations, with different priorities and focuses of activity. The availability and content of these data are not always widely known, and lack of coordination and consistency make the data hard to use. By providing easier access to these data, the archive would not only facilitate additional research which would speed the development of new indicators and knowledge generally, but also provide the basis for the improvement of existing indicators and data bases upon which they depend.

The implementation of this archive should build upon the experience obtained by two already well-established archives concerned with gerontology, and with crime and the criminal justice system. These are sponsored in part by the Administration on Aging, the National Institute of Aging, and the Bureau of Justice Statistics, and are housed at the Inter-University Consortium for Political and Social Research at the University of Michigan. The aim of these archives is to increase the pay-off from federally funded data, by making data readily available in a usable form. The success of these models suggests that a similar archive of data related to children and child indicators might be instituted at relatively little cost, and improve substantially the timely availability of such information.

4. NEW INDICATORS AND NEW QUESTIONS

Achieving a truly comprehensive set of child and family indicators will require new efforts of several kinds: new tabulations from exist-

ing data, the collection of additional data via existing data collection systems; and measurement instruments for new topics.

A variety of new or heretofore unavailable indicators could be constructed by retabulating existing data. The distribution of children could be tabulated according to the presence of potential caretakers in the household—such as mothers by working status, fathers by working status, other adults by working status, teenage children by school status, and grandparents by working status. It is also possible to ascertain the trend in the number of children living in households headed by a relative who is not a parent. These tabulations could be constructed to reflect other household characteristics (such as income, educational achievement of household head) as well. Additional indicators should be constructed to reflect the distribution of children by age and living levels, and according to consumption expenditures allocated to them in specific categories such as clothing, home prepared food, meals away from home, and medical and dental services. The report urges that work on these indicators be initiated and that experts in a wide variety of areas be canvassed to identify additional indicators that might be developed by similar procedures.

This report cites numerous examples of topics which might be addressed by questions which can be added to existing ongoing surveys. With regard to health the following were mentioned: sources of health care (as opposed to purely medical care) obtained from nurses, social workers, psychologists and various clinics; better information on prenatal care received by mothers, the type of care received, the health of the mother, and the cost and sources of financial support; and better information generally on the health and socioeconomic characteristics of young mothers and their children.

Beyond health, the need for new information on the following topics was cited. morally disapproved behaviors, such as cheating in school, and prosocial behaviors, such as community activity; achievement motivation and levels of educational and occupational aspirations; mechanical and athletic capacities, the nature of interhousehold transfers of cash, goods, and direct services among extended families; and the quality of community services available in an area (attached, of course, to the individual child as the primary unit of observation). Information on these topics can be obtained through new questions on

existing surveys and other data collection instruments, and could provide a wide range of important new child indicators.

Topics in need of methodological research to develop reliable measurement techniques were identified in various sections of the report. Areas in which there is a need for the development of instruments for use in large national surveys include: *for socioemotional indicators* the self-concept, self-esteem, depression, anxiety, aggression, mental retardation, and emotional disorders, *for moral-ethical indicators* the maturity of moral judgments and the basis of moral judgments, *for indicators of types of contacts among extended kin across households* the nature and level of mutual aid, leisure activity, organizational relationships, and ritual occasions, *for indicators of the community environment* the quality and stimulation provided to children by community institutions and services, and *for sources of information about the wider world* that are provided to the child, the extent of migration and travel experienced.

The task of coordinating the development and funding of new indicators by all these means should be guided by a panel of social scientists and other experts with special interests in the development and growth of children. Such a panel could be convened by the research organization which develops the prototype for the biennial report on children, or it could be convened by the National Science Foundation or the National Academy of Sciences. This panel and a small staff should consult with representatives of advocacy groups, policy makers, and technicians from statistical agencies.

5. REPLICATION AND INSTITUTION OF NEW SURVEYS

Our final recommendation relates to new data collection activities, both replication of surveys that are not in current plans and fielding of new surveys. Perhaps the highest priority for the replication of a previous survey, which is not now scheduled to be repeated on a regular basis, should be accorded to repeating the children and youth cycles of the National Health and Nutrition Examination Survey. The value of this survey derives from the fact that it is the only major American data collection effort that includes health examinations. The replication of this survey should include information on the extent to

which children have received recommended care—including immunizations, the filling of decayed teeth, and the correction of nearsightedness. Components of the Wechsler Intelligence Scale should also be replicated to provide important information on trends in the cognitive ability of American children. This is needed to augment nationally administered tests such as the Scholastic Aptitude Test and the Preliminary Scholastic Aptitude Test, which measure the achievements of only certain children in eleventh and twelfth grade, and the National Assessment of Educational Progress, which is more concerned with skills and knowledge than with ability.

An important new survey is underway to measure the time use of 500 children conducted by the Institute for Social Research at the University of Michigan. The current small sample is a starting point for a time use study of children (and associated adults), which should be replicated every five or ten years. Valuable information should be obtained from such surveys regarding the exposure of children to parental and nonparental caretakers, non-college-track educational activities, extra-curricular school activities, time spent sick in bed, time spent in joint family activities, time spent in artistic, musical, athletic, or mechanical activities, and time spent watching television. The value of such information has been indicated in earlier sections of the report, and it has many uses outside the child and family area. The cost is quite high, but the cost of ill-informed judgments that affect our social and individual choices is exorbitant.

Perhaps highest priority for a major new data collection effort should be for a National Youth Panel Study. Although several years and a substantial research effort would be required to conceive, design, test and implement such a survey, the resulting longitudinal information would be extremely valuable. This study could provide the information needed to map the cumulative experience of succeeding cohorts of children and the cross-cohort changes that occur through time. Information could be collected from the children themselves as well as from parents.

Topics mentioned in this report which warrant investigation by means of a youth panel are the nature of and changes in the health related behavior of children, and the cumulative experience of children according to the changing work status of their fathers and mothers. By combining cumulative information collected on a current

basis with recall information about the children and parents, and their changing household and work situations, it would be possible to develop indicators that reflect the impact on the development of children of complex sets of interacting factors. How children view their own situation, and how this view changes through time are important in deriving a complete picture of the developmental changes through which children move and how these are interrelated. The developmental stage of the survey should include the exploration of ideas about the practicality and potential value of obtaining information from the schools of the children and from health care providers as a means of securing an even more comprehensive assessment of the nature and causes of the changing developmental status of children.

An important consideration is the length of the time period during which the same panel should be followed. The panel might consist of two five-year age cohorts of children and adolescents from whom information could be collected on an annual basis for a period of five years, with questions appropriate for the two age groups. Extensive deliberation and perhaps special pre-tests would be required to arrive at a decision on length of observation, but a five-year period now seems plausible, as being long enough to collect considerable cumulative information but short enough to minimize potential sample attrition which causes a sample to become increasingly unrepresentative as time goes on. Further study of several methodological considerations including optimal sample design would also be needed.

The longitudinal surveys of the high school class of 1972, and the subsequent "High School and Beyond" panel surveys sponsored by the National Center for Education Statistics may provide some very valuable experience for panel studies of younger groups. It is possible that the NCES would be the best agency for taking the lead in developing and sponsoring the childhood and adolescent panels.

Replications of other surveys that have been carried out in the past but are not now scheduled to be repeated should also be considered. Past surveys provide baseline information that often merits consideration for replication from the viewpoint of child and family indicators. Important ones include the *National Survey of Children* by the Foundation for Child Development and the Purdue Opinion Panel studies of social and political attitudes of youth. In addition, two data

collection efforts that have apparently been set aside for the time being, but which merit renewed attention for future funding, are (1) the *Mid-Decade Census*, because it would provide an important intermediate data point in the now overly-long ten-year period that separates censuses; and (2) the *Survey of Income and Program Participation*, because it has been designed to be a major multiwave survey focusing particularly on the lower part of the income distribution, encompassing an extremely broad array of topics of direct relevance to the social and economic environment of children.

APPENDIX

NINE KEY DATA SOURCES FOR CHILD AND FAMILY INDICATORS*

I NANE Decennial Census of Population and Housing
SPONSOR. U.S Bureau of the Census
CONTACT. Customer Services Branch
Data User Services Division
U.S. Bureau of the Census
Washington. DC 20233
301/763-4100

II NAME Current Population Survey
SPONSOR U.S. Bureau of the Census for the U.S. Bureau of Labor Statistics
CONTACT Customer Services Branch
Data User Services Division
U S. Bureau of the Census
Washington. DC 20233
301/763-4100

III. NAME. Vital Statistics
SPONSOR. U.S National Center for Health Statistics
CONTACT. Scientific and Technical Information Branch
3700 East-West Highway
Hyattsville. MD 20782
301/436-8500

IV. NAME National Health Interview Survey
SPONSOR: U.S National Center for Health Statistics
CONTACT: Scientific and Technical Information Branch
3700 East-West Highway
Hyattsville. MD 20782
301/436-8500

* Taeuber. Richard C , and Richard C Rockwell. "National Social Data Series. A Compendium of Brief Descriptions." *Review of Public Data Use*. June. 1982 (forthcoming).

V NAME: Consumer Expenditure Survey
SPONSOR. U.S. Department of Labor. Bureau of Labor Statistics
CONTACT U.S Department of Labor
Bureau of Labor Statistics
Washington. DC 20212
202/272-5156

VI NAME National Assessment of Educational Progress
SPONSOR National Institute of Education
CONTACT Education Committee of the States/National Assessment of Education Progress
1860 Lincoln St., Suite 700
Denver. CO 80295
303/830-3752

VII NAME National Health and Nutrition Examination Survey
SPONSOR U.S. National Center for Health Statistics
CONTACT Scientific and Technical Information Branch
3700 East-West Highway
Hyattsville. MD 20782
301/436-8500

VIII NAME National Survey of Family Growth (NSFG)
National Fertility Survey (NFS)
Growth of American Families (GAF)
SPONSORS U S National Center for Health Statistics (for NSFG)
Office of Population Research. Princeton. New Jersey (for NFS)
University of Michigan (for GAF)
CONTACTS. Scientific and Technical Information Branch
3700 East-West Highway
Hyattsville. MD 20782
301/436-8500

Office of Population Research
Princeton University
Princeton. NJ 08540
609/452-5510

Data and Program Library Service
4452 Social Science Building
University of Wisconsin-Madison
Madison. WI 53706
608/262-7962

IX. NAME: Panel Study of Income Dynamics
SPONSORS. U.S. Department of Health and Human Services
National Science Foundation
Sloane Foundation
CONTACT. Survey Research Center
Institute for Social Research
University of Michigan
Ann Arbor, MI
313/764-8365

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