CREATING SYSTEMS OF DEVELOPMENTAL HEALTH CARE FOR CHILDREN

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INTRODUCTION

The delivery of health services for children proceeds from a recognition that childhood is, in its essence, a period of ongoing growth and development. Consequently, an emphasis on development differentiates children's health services from health services for adults of all ages and shapes the approach to health promotion for children in a profound manner. The health issues faced by children assume their medical and ethical significance in large part by virtue of how they affect the process of development and influence the future capacities of the child. Yet, too often, the systems and organizations responsible for children are not designed to facilitate a developmental approach to health. The thesis of this paper is that a developmental model should form the basis for understanding and evaluating children's health care needs, and that systems of care must be designed to reflect this perspective.

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This article builds on the arguments first published in *Developing a System of Care for All: How the Needs of Vulnerable Children Inform the Debate*, by Neal Halfon and Miles Hochstein, in R. Stein, ed., *Health Care for Children: What's Right, What's Wrong, What's Next*. New York: Hospital Fund of New York; 1997.

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DEVELOPMENTAL HEALTH SYSTEMS FOR CHILDREN'S HEALTH CARE

Recognition of the developmental context of health and well-being is shared across many of the professions, subspecialties, and disciplines concerned with children, including social work, nursing, pediatrics, family medicine, child psychiatry, psychology, nutrition, and others. This review considers a developmental approach to children's health care in terms of the systems of care—and innovations in system design—that would be needed to bring a developmental orientation to the health care provided for children. Despite the long-standing and growing recognition of the need to address developmental issues when providing health care to children, health providers have been limited in their ability to address such issues for several reasons. One part of the problem has been incomplete and fragmented delivery systems and financing arrangements for pediatric services that do not support a developmental approach. On a deeper level, attention to developmental issues is limited by the medical model that has defined the approach to health care delivery. This model views almost all ailments as the consequence of episodic, endogenous factors. The developmental model, in contrast, recognizes that much, if not all, human disease and disability is a function of the interaction between genes and the environment, as well as the history and response patterns to prior adaptations.

CHILD DEVELOPMENTAL HEALTH IN THE US

A developmental approach to children's health is hardly confined to the subspecialty of "developmental pediatrics." Each of the child-oriented health and health-related fields mentioned above has its own approach to applying knowledge about human development to service delivery. Nonetheless, the place of child development in pediatrics reflects broadly on the efforts of practitioners in many fields to bring a developmental approach to children's health and health-related services. Therefore, it provides a useful introduction to the gradual adoption of developmental approaches for child-focused health and health-related services.

In Shonkoff's 1993 review of the history of developmental pediatrics, he noted that, in the 1950s, the pediatric profession already acknowledged the centrality of growth and development to the process of health care for children.^{1,2} By the 1960s, Richmond had declared child development to be a "a basic science for pediatrics."^{3,4} Since that time, in each subsequent decade, developmental pediatrics has been declared to be the wave of the future.¹ Yet, the developmental approach has remained more an implicit goal than an explicit standard of care.

The importance of contextual factors in child health and development was highlighted anew in the mid-1970s with Haggerty and colleagues' important

article noting the growing predominance of behavioral and psychosocial "new morbidities" and the pediatric responsibility to address these issues.⁵ Yet, at roughly the same time, Richmond noted that training programs, in particular, had not kept pace with intellectual and theoretical acceptance of a developmental approach.⁴ The lack of training support was in part a function of financing and the organization of health services nationally.⁴

Over this same time period, the field of developmental psychology also was maturing, with a move from Piaget's biologically based notions of stages to explain cognitive development to Bronfenbrenner's ecological framework, which attempts to distinguish the role of exogenous factors on human development using a systems approach.⁶ Eisenberg and many others also presented variations on the same developmental model focusing on what Sameroff eventually termed the transactions between phenotype and environment.^{7,8}

In the 1980s, noting that developmental, psychosocial, and educational problems were still the major issues facing children, Green foresaw a "new age of pediatrics."⁹ In fact, by the mid-1980s, the pediatric specialty had become more developmentally focused.¹⁰ One survey of 3,000 pediatricians who completed residency after 1978 found that pediatricians who completed their residency between 1984 and 1988 reported a significant improvement in the quality of their training in developmental and behavioral pediatrics and adolescent medicine in comparison to physicians who completed their training prior to 1978.¹¹ The survey also identified a significant increase in the number of pediatricians who identified either a subspecialty interest or a subspecialty practice in developmental or behavioral pediatrics.¹¹ Another survey found that recent graduates thought that child development and anticipatory guidance training were among the most useful parts of their training.¹² Furthermore, interest in development is not confined to psychosocial and behavioral issues, but extends to other subspecialty areas, such as pediatric orthopedics.¹³

A particularly noteworthy recent development has been the creation of the *Bright Futures* document, which describes a full range of developmentally oriented preventive services.¹⁴ A product of a collaboration between the Maternal and Child Health Bureau and the Health Care Financing Administration, this document provides the groundwork for standards of developmentally appropriate care for children. Yet, the extent to which managed-care organizations are prepared to implement *Bright Futures* recommendations is very much in doubt, notwithstanding professions of general interest in the idea by insurers.¹⁵

In the late 1990s, the promise of a more developmental focus continues to be limited by factors that are beyond the control of individual health providers and

organizations. These factors instead are rooted in the structure and financing of the health care system and in the limited incentives to managed-care organizations for providing developmental services. *Bright Futures* represented a major effort to create a developmental-contextual view of pediatric care, trying to focus providers on specific developmental questions that would allow for a more developmentally contingent provision of services. Today, *Bright Futures* and other guidelines for the provision of pediatric care are much more developmentally focused than those issued even 10 years ago,¹⁶ but as always, a developmental approach to health requires more than provider buy in and advocacy. It also requires institutional and financial support.

SYSTEMS OF CARE FOR CHILDREN

Wider use of a contextual and developmental approach to children's health in the US has been limited, in part because those concerned with health system issues affecting children have been forced to address issues more basic than the developmental appropriateness of care. In the hierarchy of needs of the children's health system in the US, issues of insurance and of organization have predominated, while higher-order needs involving developmental appropriateness often have been relegated to lesser status. In particular, two major policy questions have confronted those interested in improving the delivery of health services to children: how to ensure access to health care services (the insurance question) and how to ensure that health services are organized to meet children's basic health care needs (the systems question).¹⁷ Those addressing the first question have focused on the important role of health insurance in providing access, as well as on the role of nonfinancial barriers such as lack of transportation, outreach, and translation services. Those addressing the system design question have focused on the kinds of services that should be provided for children and on how different health and related services can be coordinated into family-centered, community-based systems of care; increasingly, they have focused on issues of quality as well. More recently, the recognition that much of the inability to coordinate the vast array of programs potentially available to children (a systems issue) is a function of how services are financed and administered (an insurance issue) has fueled new efforts to integrate services through decategorization of separate funding streams.¹⁸ Yet, efforts to improve financing and systems of care for children have had neither the opportunity nor the resources to address more profound underlying questions concerning the active promotion of children's health and the kinds of systems of care that would be needed to accomplish this.

Today, basic trends in the US health care system are creating new opportunities

to infuse children's health services with a much stronger developmental orientation. Below, we review those trends and then describe how, in sometimes paradoxical ways, contemporary trends create an opportunity to build new systems of care that can, for the first time, implement a developmental approach to child health on a much wider scale than has been possible in the past.

MAJOR HEALTH SYSTEM TRENDS AFFECTING CHILDREN

The most important trends now facing children's health care in the US involve interdependent issues of financial, organizational, and technical change. In particular, the children's health care system is characterized today by (1) changes in patterns of insurance, (2) the growth of managed care, (3) the growth of marketplace competition, and (4) the Title XXI/State Children's Health Insurance Program (SCHIP) (which, together with Medicaid, constitutes an expanded safety net for children in families with lower incomes). These changes have created both dangers and opportunities for the developmental health of children. While the dangers are relatively self-evident, realization of the opportunities created by these trends requires recognition and support for two other important trends. These trends are (5) the creation of more tightly integrated public and public-private systems and (6) the ongoing development of new ways of assessing and measuring the performance of organizations.

CHANGING SOURCES OF INSURANCE

Currently in the US, the number of uninsured children is growing, although the implementation of the Title XXI/SCHIP program has the potential to alter that trend and may have already done so. Whether it will do so is a question that remains unanswered at this time. For most of the 1990s, prior to the passage of Title XXI/SCHIP, several trends were observed nationally.

- The number of children receiving coverage through a parent's employer was decreasing.^{19,20}
- Medicaid coverage was increasing even more rapidly than employer coverage was decreasing, until Aid to Families with Dependent Children was replaced by Temporary Assistance for Needy Families in 1996, when Medicaid coverage also began to decline.
- As a consequence of trends 1 and 2 alone, the number of uninsured children was increasing.
- However, at this time, the effect of SCHIP remains uncertain. SCHIP could increase the overall level of insurance coverage of children above the Medicaid income threshold for coverage, but also might lead employers to drop

coverage for low-income workers ("crowd-out"), producing little or no net improvement.

THE GROWTH OF MANAGED CARE

The expansion of managed care continues to alter the context in which medical services for children are delivered in the US. Health care organizations move toward "care management" because they seek to compete on the basis of price and, purportedly, on the basis of quality.²¹ *Managed care*, defined as a coordinated system of health services designed to control costs and quality, is rapidly becoming the normative health care environment for children. The goal of managed care, in economic terms, is to control costs. The *potential* of managed care, in clinical terms, is also to control, and to improve, quality. However, there is no inherent guarantee that achievement of the economic goals of managed care will ensure that its clinical potential will be realized.²²

The fact that the growth of managed care is primarily a result of aggressive competition among large corporate managed-care organizations for health purchaser's dollars, and of the desire of large health purchasers to decrease their health care costs, suggests that the quality potential of managed care is in danger of being relegated to secondary status. Until child-specific quality measures now in development become used more widely, it will continue to be difficult to ensure that competition on quality does take place or that the full range of developmental services that all children need are made available. Yet, with appropriate measurement tools and appropriate incentives provided by purchasers, systems of care managed for efficiency and quality offer tremendous potential as promoters of developmental health objectives.

COMPETITION IN ALL AREAS OF MEDICAL CARE

In the last two decades, the health care marketplace in the US has been transformed from a relatively noncompetitive environment comprised of not-for-profit hospitals and single-physician and small group practices into a battleground of larger purchasers, competitive insurance companies, vertically integrated health care corporations, expanding physician groups, and aggressive for-profit hospital chains. The imperatives of the marketplace have tended to dominate the concerns of all players, including purchasers, providers, and insurers. In some cases, a by-product of a competitive environment is the formation of systems of managed care that offer the opportunity to improve access and availability of basic services for some children. But, in an environment of change and aggressive economic competition, it also has proved difficult to make the case for the provision of complex and multidimensional developmental services for children. Without a

clear articulation of the potential economic and social value of developmental services, considerations of cost inevitably will predominate and tend to squeeze out such developmental health services.

**STATE CHILDREN'S HEALTH INSURANCE PROGRAM/TITLE XXI
EXPANSION OF CHILDREN'S HEALTH INSURANCE**

Against a background of an increasing number of uninsured in the 1990s, the enactment of Title XXI/SCHIP (August 1997) promised to bring \$48 billion to children's health services over a 10-year period and potentially to insure about half of the 11 million uninsured children in the US.²³ Title XXI/SCHIP represents the first major federal-level effort to expand health insurance coverage for children in families at higher multiples of the federal poverty level than were covered under existing Medicaid programs. The effect of Title XXI on the overall insurance status of children remains a subject for ongoing evaluation. The expanded coverage it offers has great potential to improve access to medical services, but details of implementation in 50 states mean that its actual impact will vary based on how states design their efforts.

PUBLIC AND PUBLIC-PRIVATE SERVICE INTEGRATION EFFORTS

In numerous communities, efforts are now under way to create community health systems comprised of traditional public service providers and coordinated with private managed-care organizations. The example of Monroe County, New York (discussed below), is important because of its use of decategorized federal funds to create integrated delivery systems that focus on young children and their families. The effort to create integrated delivery systems for child and family services has only just begun in localities throughout the US.

ADVANCES IN MEASUREMENT AND ASSESSMENT

Recent interest in measuring the processes and outcomes associated with health services has led to intensive work by the National Committee on Quality Assurance to develop the Health-Plan Employer Data Information Set, now in version 3, and by the Foundation for Accountability to develop its own consumer-oriented data-collection methodologies. Each of these efforts reflects the pressing need to evaluate the value of health care (quality relative to cost) and not simply the cost. The National Committee on Quality Assurance is currently actively expanding its relatively small child-oriented data set, and the Foundation for Accountability is in the process of creating a new set of measures to provide a more comprehensive and developmentally oriented set of quality measures. While such efforts are in the early stages relative to the complexity of the problem of assessing the

developmental appropriateness and quality of health care for children, they represent an important component of the current system's evolution.

Each of the major trends noted above is part of a metamorphosis of the health care system from an amalgamation of not-for-profit entities and private practices into a for-profit market involving large corporate units. In this health care environment, economic issues have become increasingly central to all health care encounters. Health care organizations compete for covered lives, and medical groups and providers find their medical decisions subject to economic scrutiny. Patients, too, are increasingly asked to bear a greater part of the overall cost of services.

As the health system evolves, government purchases of the services of commercial health plans also are playing a growing role. For example, Title XXI/SCHIP as implemented in many states, relies on commercial health plans to provide services, either a standard Medicaid benefit package or another off-the-shelf benefit package. Beyond government purchases of commercial health services, other important, although hardly systemwide, public policy efforts to improve the health care system incrementally for children are under way. These efforts include both the public and private sectors and offer the promise of more-integrated systems of care and of greater understanding and monitoring of health care provision. These public and public-private efforts will do much to determine how children will fare in a market-based system in which health services are increasingly viewed not as a social good, but as a commodity.²⁴

PROBLEMS WITH THE EXISTING "NONSYSTEM" OF CHILDREN'S SERVICES

HISTORICAL BASIS OF THE PROBLEM

The mismatch between the needs of children and the dominant adult-oriented health care system has its historical origins in several interrelated factors.²⁵ These include how children's health insurance has been paid as an adjunct to adult employer-based coverage. They also include how children's programs have been conceived by policymakers as welfare programs—as second-chance programs, designed for the exceptional child in a family that is assumed to be unable to meet the child's needs directly. As remains the case for many US social institutions, the health care system embodies structures and assumptions that are often at odds with changing social conditions (e.g., declining neighborhood social capital,^{26,27} changing family structures and gender relations²⁸) and may fail to correspond to new understandings about the determinants of health (which include psychosocial and economic factors). The health care system remains oriented toward

the provision of a relatively narrow set of medical services. Moving the health system toward a broader concern with community health, for example, has proved difficult.²⁹ Realization of broader population health goals is a 20- to 30-year process of transformation based on a new vision and a set of parameters that embody constructs like being responsive to children's development, not something that can be addressed easily within the framework of contemporary structures and organizations.³⁰

FINANCIAL BASIS OF THE PROBLEM

Children's health care needs are influenced strongly by their parent's economic status, but they are largely independent of their parent's employment status. This simple fact points to the illogical nature of a children's health system based on parental employer-based insurance. Many employers do not provide insurance for their employees or are reluctant to provide dependent coverage. When dependent coverage is provided, parents may be unable to afford the additional premiums associated with such coverage when it is offered.³¹ As a consequence, the employment-based private insurance mechanism of financing health care for most American children does not guarantee security of coverage.^{32,33} Children most in need of developmental services are not always those whose parents can afford, or who know to advocate for, such services. Another significant barrier to the fashioning of a more developmentally focused health system for children is a tendency to use off-the-shelf health plans and benefit packages, in spite of the fact that the specific health needs of children often create a need for child-specific solutions and approaches. This has most recently been an issue in those states (about a third of 35 studied³⁴) in which Title XXI/SCHIP is being implemented using what is basically an adult insurance benefit package without the inclusion of Medicaid Early Periodic Screening, Diagnosis, and Treatment benefits that are designed for children (e.g., with vision, dental, and medical necessity provisions tailored to children).³⁵

Even for those children who do receive insurance, there is something fundamentally wrong on a conceptual level with the use of "insurance" to meet children's health needs. The use of insurance is inappropriate for a population whose basic needs involve a predictable range of preventive and health-related support services.³² Even more than for adults, the health care needs of children are predictable. The major health needs of children involve preventive care, ideally provided in a developmental framework, with a focus on the full range of health issues (both biomedical and psychosocial) that impinge on growth and development. Children's health care needs are characterized less by expensive

and unpredictable episodic care than they are by somewhat regular and predictable health interventions (e.g., immunizations, well-child care, etc.). Notwithstanding the conceptual incompatibility of an insurance-based mechanism with children's health needs, for the foreseeable future public and private solutions will continue to rely on insurance as the primary health care financing mechanism.

ORGANIZATIONAL BASIS OF THE PROBLEM

The existing system of publicly supported children's health services is a patchwork of resources and programs. Few of the available programs are funded at levels that allow them to serve all who are eligible. Few programs for children lend themselves to integration with the personal medical services of the old fee-for-service employer-based system. At present, it appears that the existing patchwork of programs for children continues to exist in a "parallel universe" alongside managed-care organizations and other insurance plans under which children may receive health services. To date, there have been relatively few successful efforts to integrate such programs into the new world of managed care and competitive markets.

TECHNICAL BASIS OF THE PROBLEM

Significant technical limitations affect the capacity of contemporary systems of care to provide developmentally appropriate care. These limitations include the absence of tools and instruments that could be used to build more child-appropriate managed-care organizations. The tools that will be required to ensure that children's health services can address the specific needs of children include improved quality measurement techniques and quality improvement systems, improved risk-adjustment mechanisms, and improved medical necessity criteria and medical decision tools (guidelines and standards of care).

- Quality measurement and quality improvement systems are needed together to ensure that the care received by a child with, for example, diabetes, cystic fibrosis, or a severe emotional disorder is of high technical and interpersonal quality. Such tools also are needed to ensure that, over time, a given organization's performance and outcomes are controlled and steadily improved.
- Better risk-adjustment mechanisms are needed so that reimbursement mechanisms can account for complex differences in needed resources for individual children. Such differences between children include not only the diagnosis and severity of the child's ailment, but also unique family and social circumstances that may create the need for additional services and resources.
- Clear medical necessity criteria are needed to ensure that the benefit language

used to control payment for, and access to, covered benefits is based on a consensus concerning what constitutes developmentally appropriate health care. To help create such benefit language, a clearly articulated child standard is needed that can be used to judge the extent to which specific health plan benefit language is consistent with scientific and professional opinion.

THE SEARCH FOR SOLUTIONS

OVERCOMING THE FRAGMENTATION OF HEALTH CARE FINANCING

For health care to promote child development actively, children need a wide range of acute, chronic, and rehabilitative health services, as well as appropriate preventive and health-promoting services. Beyond the contributions of employer-based private insurance, at present this full range of services (personal, community based, and other) is financed through a combination of Medicaid, out-of-pocket expenditures by families, and a wide range of federal, state, and local community health and health-related support programs. In planning for the future, it is valuable to consider what the total potential allocation of public resources is for children's health and then to consider how that allocation can be used best to maximize the production of health for the child population. From an abstract perspective, the current system of fragmented and categorical funding seems impractical and poorly designed. In point of fact, it has not been designed. Instead, it has accumulated incrementally, as law makers have addressed specific issues and concerns.

Yet, overcoming categorical funding's inherent and obvious limitations is not uncontroversial. Two schools of thought can be identified concerning how to advance the interests of children in this regard.^{36,37} One school argues that the fragmentary nature of funding for children's health services ensures that the multitude of services and programs for children that do exist are protected by a wide range of political constituencies and interested policymakers. The sheer complexity and diversity of programs ensures continuity and stable funding. In this view, the variety of uncoordinated programs represents a "diversified portfolio" that ensures a certain level of constancy in the funding of services. Inefficiency is seen as a necessary, but acceptable, price to pay for diversification. On the other side, there are those who argue, with some justification, that while fragmentation protects children from cuts in spending, it also ensures that the systems of care on which children rely remain confusing, difficult to understand and access, and ultimately far less useful than they might otherwise be. Given the extent to which system complexity in the US hampers the development of a more coherent system for children, consideration of more unified financing

mechanisms at both the federal and state levels may well be in order. Such integration and "decategorization" would be very difficult to achieve given the multiple layers of political authority (local, state, and national), the divided responsibilities of the US political system, including presidential and congressional powers, and, within Congress, the division of responsibilities between different Congressional committees.

NATIONAL EFFORTS TO IMPROVE CHILDREN'S HEALTH STATUS

The most recent of the recurring American impulses to create universal health insurance reached its high tide with the 1994 Clinton health reform proposals. The defeat of the Clinton proposals by a coalition of insurance companies and other corporations created an environment for the foreseeable future in which relatively stop-gap and local solutions to the health needs of children will need to be the primary policy focus. Those solutions will need to take into account Title XXI/SCHIP. Congressional passage of Title XXI/SCHIP in 1997 represented the first major new health care initiative since the passage of Medicare in 1965. However, Title XXI/SCHIP represented a very different kind of initiative from previous efforts, one that created no entitlement to coverage, and one that allowed states unprecedented freedom in defining the policies, and even the size, of the program that would be instituted to meet the needs of uninsured children.

WORKING WITH TITLE XXI/STATE CHILDREN'S HEALTH INSURANCE PROGRAM

The problems associated with Title XXI/SCHIP are already becoming apparent. Enrollment appears to be growing more slowly than anticipated, and there are questions concerning whether Title XXI/SCHIP will cover all of the 5 million children it was projected to reach. Furthermore, the extent to which Title XXI/SCHIP funds are providing more than the most rudimentary care for enrolled children remains unknown.* If more sophisticated developmental services are to be provided, it may be necessary to ensure the existence of coordinated "wraparound" programs. At present, these wraparound services are provided through a fragmented array of different programs that vary from state to state and between local jurisdictions within a state. For example, many children with chronic medical conditions receive wraparound services through Title V programs for children with special health care needs.

DECATEGORIZATION OF PUBLIC FUNDING CAN IMPROVE THE SYSTEM

State and local efforts to decategorize funding streams and create more integrated local networks of community health services represent another important part

*N. Halfon, M. Inkelas, H. DuPlessis, and P. W. Newacheck, Measuring access to coverage and health care in SCHIP. Submitted to *Health Affairs*.

of the search for a more developmentally oriented approach to children's health services.^{38,39} Decategorization promises to create flexible funding pools that could be used by local communities to develop their own set of customized service packages. Decategorization of funding streams could make it easier for children and parents to gain one-stop access to a range of health and health-related services in newly rationalized community-organized delivery systems.

A particular notable example of such an effort is now under way in Monroe County and the city of Rochester, New York. After a lengthy planning process, considerable opposition from a number of federal departments, and the ultimate receipt of high-level support through the National Performance Review, eight different categorical funding streams now have been combined in a single Child and Family Health Grant to the Monroe County Health Department. The difficulties associated with the Monroe County effort, which ultimately required review by the National Performance Review, reflect the fact that the "rationalization" of systems of care for children and families requires new kinds of flexibility from funding agencies. The unified funding achieved in Monroe County now is being used to break down internal barriers between departments and staff members, to develop a unified intake instrument, and to move toward a single-point-of-entry model for clients of the Monroe County Health Department. The advantages of such a model lie in its potential for greater capacity to meet the full range of client needs and the opportunity to do so with greater efficiency. However, as noted above, decategorization processes like Monroe County's also may make it more difficult for state officials, advocates, and legislators to know how allocated monies are being spent and require increasingly sophisticated accountability procedures. Such measures are being developed in Monroe County to meet these concerns.

MANAGED CARE AS PART OF THE SOLUTION

As already described, competitive pressures on health care providers have rapidly increased the growth of managed-care systems. Managed care's proven ability to control costs has yet to be demonstrated and to be matched by an equal ability to improve quality for children. Quality for children includes, in particular, the provision of developmental health services. However, the very fact that cost controls require a higher level of systematization and organization of services suggests that managed care offers an opportunity to advance the health of children. For this to occur, managed-care organizations will need specific child-appropriate tools and understanding of what constitutes child-appropriate health services.

Since private managed-care organizations are becoming the fundamental unit of service delivery within the health system, fiscal alternatives to expand services must reconcile the financial demands of managed-care organizations' profit-maximizing strategies with society's interest in long-term investment in child health development. In order for private managed-care organizations to embrace initiatives to broaden the scope of services or provide linkages to developmental services, it will be important to demonstrate that such services offer improved health outcomes and economic benefits to the provider organization. Determining whether funds are saved and the points at which those savings accrue is a fundamental policy conundrum. For example, home-visiting programs and other early intervention programs targeted at high-risk children have proven cost effective in improving health status, cognitive functioning, and academic performance while decreasing dependence on public assistance.⁴⁰ However, few of these successful demonstration programs have been implemented on a larger scale, in part because the cost savings and other benefits accrued to public sector programs and not to the private sector institutions providing the services or the insurance for the services. Currently, a managed-care organization that makes a significant health investment in a potentially learning disabled child and saves a school district thousands of dollars in special education services can anticipate no economic reward for its prevention activities. Lacking formal financial and organizational relationships with other sectors that may benefit from its prevention activities, the managed-care organization has no economic incentives to generate savings that accrue only to other sectors. Probably the only incentives such an organization could have would be direct subsidies to cover such services.

In the absence of a universal system of health care that would bring all health and developmental services under a single umbrella, more complex and unwieldy mechanisms are required to link institutions separated by economic perspectives, by time, and by geography. The contrast between what is known about human development and the current structure of health and health-related services in the US is instructive in this regard. We know that the developmental process in childhood is a continual one, in which each stage is linked to the next and in which each new capability builds on the last. Yet, the organizations that support the chain of child development are not so linked and thus are less capable than they might be of supporting the developmental process. Innovations in financing and organization are needed to tie socially desirable and economically beneficial outcomes in one sector or organization (say, a managed-care organization) to those in another (say, the public schools or the juvenile justice system) so that

organizations in each of these sectors can act as a coordinated virtual organization, promoting mutual goals.

CREATING SYSTEMS TO PROMOTE DEVELOPMENTAL HEALTH

THE ORGANIZATION OF A DEVELOPMENTAL HEALTH SYSTEM

Examination of the specific developmental health needs of children suggests that integration of different kinds and intensities of service and the provision of those integrated services across an extended time frame are particularly important to improve the quality of care. There are three kinds of integration that are potentially valuable for a developmental health care system for children. These include vertical integration along the "health production" chain (e.g., primary, secondary, tertiary, rehabilitative, and long-term care), horizontal integration of health-related services in different sectors, and longitudinal integration of services provided over an extended time period. Below, we discuss the potential value of the simultaneous integration of services on these three dimensions.⁴¹

Vertical integration. The need to compete in a competitive market is already driving managed-care organizations to link primary, secondary, and tertiary care as a means to increase production efficiency and to achieve an efficient allocation of generalists and specialists. While recent studies have pointed to a lack of empirical evidence concerning the economic value of vertical integration for hospital organizations,⁴² there is good reason to assert that vertically integrated systems can help rationalize care for children if these vertically integrated systems are specifically adapted to cope with the unique challenges posed by the nature of the developmental process.⁴³

Unfortunately, contemporary tightly organized, medically focused, vertically integrated managed-care organizations also pose threats to children. For example, many managed-care organizations lack the capacity or the willingness to provide the specialized nonmedical services that many children require. In some cases, cost-conscious managed-care organizations may insist that access to pediatric subspecialists is not "necessary" and may rely on adult specialists alone.⁴⁴ With the appropriate standards and quality-measurement tools, vertically integrated managed care could be fashioned to deliver medical care of reasonably good quality. However, without such standards and tools, it will be difficult for families or public agencies charged with ensuring accountability to know whether the quality of care that is being delivered is sufficient to ensure the developmental health of enrolled children.⁴⁵

Horizontal integration. A developmental approach is explicitly concerned with multiple domains of functioning and their influences on each other. Consequently, it is important that a developmental health system have the capacity to provide multidisciplinary care. Broad cross-sectoral horizontal integration (between health and health-related services and including education and other social service organizations as well) requires the active cooperation between private sector managed-care organizations and various public institutions. Social health maintenance organizations (HMOs) have demonstrated the feasibility of providing horizontally integrated social services for the elderly (on a limited basis), but the goal of providing integrated care for children remains a prisoner of a long history of policy and service fragmentation.⁴⁶ Early efforts to create somewhat analogous systems for children are now under way, but much work needs to be done.

Longitudinal integration. Longitudinal integration refers to the coordination of services provided at two points in time and to the relevance of services provided to future health needs. Longitudinal integration further implies that, over the child's developmental trajectory, each new contact with the health services system coherently reflects the child's previous contacts with the system and advances the child's development and well-being. To provide longitudinally integrated services, coverage needs to be continuous and children need to accumulate a single, complete developmental health record that accounts for all health inputs, evaluations, and adverse events. Full longitudinal integration means that care is provided within the time framework of the full two decades of childhood and adolescence, and that "medical necessity" is understood in terms of a procedure's impact not only on present functional level, but also on functional level two and three decades in the future.

Longitudinal integration for children will be difficult to achieve. In the public sector, planning horizons of more than a few years are rare, and no single organization is empowered to track and guard a child's health over a two-decade span. In the private sector, managed-care organizations generally operate under time constraints that are defined by the marketplace in which they operate and by the rate of churning among their enrollees. Solutions to the current lack of longitudinal integration must take into account health plan's commercial concerns with cost control and economic survival and the conceptual and financial difficulties posed by the long time horizons of human development. For example, preventive services may reduce utilization of services at some distant future date when a given child may no longer be enrolled in the managed-care organization.

The provision of such services may be ethically and economically compelling, but nonetheless difficult to justify in commercial terms. The time frames that governments are accustomed to working with (2-, 4-, and 6-year electoral cycles and, with term limits, increasingly short periods of tenure in office) may not encourage a multidecade approach to health. Likewise, the time frames that publicly traded corporations must consider, reflected by quarterly financial statements and stock market value, also may be discordant with the public interest in the long-term health and well-being of child populations.

FROM IDEA TO REALITY

How can these important conceptual dimensions of integration be realized in the real world of competitive managed-care organizations, struggling public service providers, and a large reservoir of unmet need for developmental health services? In the contemporary US context, near-term solutions are likely to be incremental, building on the contemporary mix of public and private insurance. A developmental health system might be comprised of organizations that function much as HMOs do, incorporating both insurance functions and provider organizations. However, for developmental health promotion to succeed, such a system also would need to be horizontally integrated with other health-related services, linking multiple organizations in the public and private sectors. The social HMO for the frail elderly provides one suggestive model of how such an arrangement might work. Most important, a developmental health organization would have a strong longitudinal focus, integrating services provided to children today with their anticipated health needs and environment over a multidecade span as they grow into adults.⁴⁶ We have referred elsewhere to such an organization as a health development organization.⁴¹

THE GOVERNANCE OF A DEVELOPMENTAL HEALTH SYSTEM: COMMUNITY OUTCOMES TRUSTS

In the longer term, it is important to consider the larger governance and community issues associated with developmental health promotion. A developmental health system should ultimately be situated in a set of legal, institutional, and economic arrangements that would give its provider organizations interest in actively developing the health of children over a multidecade time period. Recently, the idea of "outcomes trusts" has been advanced as a way of creating community health systems that are accountable for the full range of child health outcomes and responsible for allocating investment in children between sectors and services to maximize health and developmental outcomes.³⁰ Outcomes trusts would function in a manner similar to health insurance purchasing cooperatives.^{47,48}

In order for community outcomes trusts to achieve their goals for child development and health in a community with maximal efficiency and effectiveness, they will need to work to drive simultaneous changes in the organization, financing, and technical assessment of children's health care. Some of the needed changes are already under way (consolidation, integration of systems), and a community outcomes trust could encourage them to continue. At the same time, an outcomes trust could drive the reorganization and integration of the health care system along more developmentally appropriate lines, encouraging vertical, horizontal, and longitudinal integration of services as outlined above. Finally, the outcomes trust could work on the technical front to encourage the development of new technical tools and procedures that enable the developmentally oriented health care organization to coordinate its activities better on behalf of enrolled children. Those tools also will enable payers (at the financial and community level) and system administrators (at the organizational level) know how well a health system is promoting the developmental health of its enrollees and where change and improvement are needed.

CONCLUSION

The value of innovation must be measured against the costs, financial and political, associated with changing the current employer-based insurance system and the Medicaid, Title V, Title XXI/SCHIP, and other federal and state programs that supplement it. Although imperfect, this system still provides most children with insurance, and in the near term, it will need to continue to do so. Administrators, child advocates, and politicians understand how it works and how to make it work for many children. Yet, no close observer of the children's health "nonsystem" can escape the uneasy awareness that uninsurance, access barriers, and inadequate benefit packages and a lack of attention to developmental monitoring and services continue to constitute serious problems, particularly for lower-income children. However, many of the very trends and forces that complicate and are undermining the current children's health care system may suggest the potential shape of solutions. For example, the desire of payers to control costs and the consequent growth of large integrated managed-care organizations that focus primarily on cost control issues also has created new opportunities to improve quality. The key to quality improvement seems to be the improved measurement and evaluation techniques that more-integrated organizations can potentially bring to bear on developmental health. Another key to a more developmental approach to health is the creation of community oversight mechanisms, possibly in the form of outcomes trusts or health insurance purchasing coopera-

tives, that allocate funding for services based on a larger vision of developmental health outcomes. To do this, communities will first need to develop a vision of developmental health and then to begin to create the outcomes trusts that can coordinate the full range of services needed to promote developmental health. As communities develop a shared vision of developmental and contextual health promotion, the contemporary emergence of integrated managed-care organizations may ultimately prove to have been a necessary precursor to more-comprehensive "three-dimensionally" integrated systems of developmental health care for all children.

ACKNOWLEDGEMENT

The authors gratefully acknowledge the support of the Maternal and Child Health Bureau, Health Resources and Services Administration, under grant MCU 069385.

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