Health Care Resources for Children and Pregnant Women

Janet D. Perloff

Abstract

The author of this paper reviews evidence about the health care resources currently available to children and pregnant women in the United States. The data reveal that the overall supply of physicians has grown steadily in recent years. However, as a result of factors such as physicians’ preferences for metropolitan practice locations, rising malpractice premiums, and physicians’ reluctance to accept Medicaid patients, the increase in supply has not improved access for many underserved women and children. At the same time, there has been a significant decline in the number of organized settings—hospital clinics, public health clinics, and migrant and community health centers—on which many of the underserved rely. Further, the capacity of remaining facilities has been greatly diminished by reductions in support for public programs. Even if the supply of health care resources is adequate to meet the needs of most women and children, the persistent maldistribution of maternal and child health care providers will continue to pose a serious threat to health care access for the women and children at greatest risk for adverse pregnancy outcomes and morbidity and mortality during childhood.

Policy strategies suggested to maintain and improve the availability of maternal and child health resources include: bolstering the supply of family physicians; reducing the problems related to medical professional liability; supporting the National Health Service Corps (NHSC) scholarship and loan repayment programs; increasing participation of physicians in serving Medicaid-eligible women and children; developing systematic data to evaluate the supply of maternal and child health care available in organized settings; and enhancing the capacity of organized settings to meet the needs of underserved children and pregnant women.

During the past decade, strides have been taken toward lowering financial barriers to the health care needed by children and pregnant women. Private third-party payers have begun to cover more of the costs of children’s preventive and primary care, and Medicaid financing is available not only for the care of poor children and pregnant women but also for many women and children living in families with incomes above the federal poverty level. As financial barriers to care are lowered, problems in the supply and distribution of health care resources become more important than ever before.
This paper reviews evidence about health care resources currently available to children and pregnant women in the United States and concludes that, while the supply and distribution of these resources may be adequate to meet the needs of most women and children, those who are black, poor, and/or residents of rural and inner city communities remain underserved. The problem of maldistribution of maternal and child health care resources is not new; however, data reviewed here demonstrate that the dimensions of this problem have changed in recent years. The overall supply of physicians (and the supply of medical and surgical subspecialists, in particular) has grown; but as a result of factors such as physicians’ preferences for metropolitan practice locations, rising malpractice premiums, and physicians’ reluctance to accept Medicaid patients, this increase in supply has not necessarily meant improved access for underserved women and children. At the same time, data reviewed here document that there have been significant declines in the supply of the organized settings on which many of the underserved rely—hospital clinics, public health clinics, and migrant and community health centers—and that the capacity of remaining facilities has been greatly diminished by reductions in support for various public programs. The available evidence suggests that, to the extent that maldistribution of maternal and child health care persists, it will pose a serious threat to the usefulness of third-party coverage in enabling access to health care for the very women and children who are at greatest risk for adverse pregnancy outcomes and morbidity and mortality during childhood.

**Health Care Resources for Pregnant Women**

**The Supply, Distribution, and Accessibility of Maternity Care**

**Physicians and Certified Nurse Midwives**

Most maternity care in the United States is provided by obstetrician-gynecologists, family physicians and general practitioners, and certified nurse midwives. Factors influencing the supply, distribution, and accessibility of these health professionals figure prominently in women’s access to maternity care. These factors include (1) the tendency for these professionals to locate in metropolitan areas, (2) the high cost of medical liability insurance for these providers and physicians’ perceptions about the risks of being sued by obstetric patients, and (3) the reluctance of these professionals to serve Medicaid patients.

**Obstetrician-Gynecologists**

According to the American Medical Association Masterfile, the most complete source of information about the supply of physicians, there were 31,364 obstetrician-gynecologists in the United States in 1986. The supply of obstetrician-gynecologists is growing, and the future is likely to bring increasing competition for patients. Projections indicate that the population of obstetrician-gynecologists will grow to a total of 40,000 to 44,600 by the year 2000. Using an adjusted needs-based model developed in 1980 by the Graduate Medical Education National Advisory Committee (GMENAC)—a quasi-governmental body charged with making recommendations
The geographic maldistribution of obstetrician-gynecologists is compounded by two additional factors. First, the high cost of medical malpractice insurance and perceptions about the risks of being sued have caused a substantial proportion of obstetrician-gynecologists to drop the obstetrical portion of their practices and to curtail the delivery of maternity care to high-risk women. Second, many obstetrician-gynecologists decline to accept patients whose care is paid for through Medicaid. As a result of these factors, although obstetrician-gynecologists are in relatively generous supply, their services often are inaccessible, particularly to low-income women and those at high risk for adverse pregnancy outcomes.

Family Physicians and General Practitioners The nation’s roughly 68,000 general and family physicians, 28,000 of whom are board-certified in family practice, are an important source of obstetrical care. When compared with obstetrician-gynecologists, general practitioners and family practice physicians are more evenly distributed across counties of all types and sizes. Because of the malpractice crisis, however, many of these physicians discontinued the practice of obstetrics in the late 1980s. Thus, while general practitioners and family physicians currently provide an estimated two thirds of all private obstetrical care in rural areas, it has been estimated that only 35% of rural general practitioners and family physicians currently offer obstetrical services. A number of sources indicate that general practitioners and family physicians are somewhat more likely than obstetrician-gynecologists to participate in Medicaid and, as a result, these physicians may be somewhat more accessible to low-income pregnant women.

Certified Nurse Midwives Certified nurse midwives (CNMs) are registered nurses who have received special training in midwifery and who have been certified by the American College of Nurse-Midwives. At the present time only about 2,600 CNMs practice in the United States, but they are slowly growing in number. It is estimated that 200 to 250 new CNMs are certified each year, and from 1975 to 1988 the proportion of births attended by CNMs increased from 0.9% to 3.4%. Eighty-seven percent of midwife-attended births...
occurred in a hospital in 1988, and the women served by midwives practicing in hospitals are increasingly poor and minority mothers.\textsuperscript{17}

Despite numerous studies documenting the high quality of care provided by CNMs,\textsuperscript{17,18} economic, interprofessional, and medical liability factors have hampered practice of the full range of CNM services and the growth of the profession. Until recently, only limited third-party coverage was available for CNM services. Some improvements in reimbursement for CNM services provided under public programs resulted from federal legislation passed during the 1980s.\textsuperscript{19} In addition, many states have statutes and regulations restricting the scope of nursing practice. Even where third-party payment is available and the scope of permissible nursing practice is broad, resistance from the medical profession sometimes results in the inability of CNMs to obtain admitting privileges at local hospitals.\textsuperscript{19} Finally, CNMs have experienced problems obtaining malpractice insurance, have had to pay malpractice premiums representing a sizeable and growing proportion of their salaries, and, as a result of liability problems, have sometimes lost hospital privileges and opportunities for collaborative practice with physicians.\textsuperscript{16}

Office-based and Organized Prenatal Care Settings

Although a great many women receive their prenatal care in private physicians’ offices, low-income women and women without any third-party coverage frequently obtain prenatal care in “organized settings” such as hospital outpatient departments, community and migrant health centers, public health department clinics, and other clinic settings. It is estimated that approximately 20% of women receive their obstetrical care from these organized settings,\textsuperscript{5} and national surveys confirm that these sources are particularly important to poor women and for young, unmarried, black, or Hispanic women.\textsuperscript{20}

There is evidence that the demand for maternity care from organized settings is growing but that the supply of care in these settings is becoming increasingly inadequate. Comprehensive national and state data about capacity in organized settings are not available, but the IOM report concluded that “in some communities the capacity of the clinic systems relied on by low-income women is so limited that prompt care is not always available and that in some additional areas care is unavailable altogether.”\textsuperscript{20}

There is evidence that the demand for maternity care from organized settings is growing but that the supply of care in these settings is becoming increasingly inadequate.

Hospital Outpatient Departments

The nation’s 5,871 nonfederal, short-term general hospitals—particularly its 1,784 public hospitals and 160 academic medical centers—are an important source of prenatal care for low-income and minority women and for those residing in underserved communities. Demand for these services is thought to be increasing, although national data on the supply and distribution of outpatient prenatal care services and on trends in patient load are not available.\textsuperscript{20}

One important factor affecting the supply of hospital-based maternity care has been recent hospital closures. Between 1980 and 1989 a total of 508 hospitals closed;\textsuperscript{21} many of these were in rural areas and most were small and underutilized.\textsuperscript{22}

The impact of hospital closures on access to care in general and to prenatal care in particular remains unclear. Some appraisals conclude that closures do not seem to have hampered access to emergency and acute care while others disagree. Such generalizations may obscure the actual impact of individual hospital closures, however, because this depends on characteristics and circumstances of the hospital and the community it served.\textsuperscript{22} For example, a significant proportion of hospital closures since 1980 have included public sector facilities vital to the prenatal care of women who are poor, nonwhite, lack health insurance, and/or live in underserved areas.\textsuperscript{23} Public hospital closings significantly reduce access to care for the uninsured population residing in the communities served by these facilities.\textsuperscript{24} A large proportion of this
population is comprised of women seeking prenatal care.

**Public Health Clinics** State and local health departments play an important role in provision of prenatal care. A 1986 survey of 46 state health agencies indicated that, while states vary considerably in their health assurance activities, prenatal care was among the few personal health services provided by all 46 agencies. The broad reach of these public health activities and their positive impact on access to prenatal care in some localities are suggested by a recent survey which identified 2,306 local prenatal care sites funded by state health agencies: 2,017 were operated directly by health departments, and 289 were operated by other agencies.

Because of low salaries, undesirable location, and unfavorable working conditions, community health centers often have considerable difficulty attracting and retaining physician personnel. During the 1970s and 1980s, the National Health Service Corps (NHSC)—a program offering scholarships and loans for the educational expenses of health professionals in exchange for a period of service in an underserved community—had been a very important source of primary care physicians for community health centers. In 1989, for example, the NHSC supplied nearly one half of the physicians working in community and migrant health centers. However, field strength of the NHSC diminished rapidly over the 1980s. As a result, the General Accounting Office reported that there were 800 vacancies in community and migrant health centers which had to be filled in order to reach full staffing of about 2,700 physicians in 1990.

**The Supply and Distribution of Labor and Delivery Services**

**Hospitals**

Ninety-nine percent of U.S. births take place in hospitals, and general trends in the hospital sector have therefore had an important impact on the supply and distribution of labor and delivery services. During the 1980s, in part as a result of the closure of a significant number of small, rural, and public hospitals, labor and delivery services were somewhat redistributed across hospitals. The total number of hospital obstetric beds—most of which are in private, not-for-profit hospitals—increased, while the number of obstetric beds in public hospitals decreased. Although the full impact of this redistribution of obstetric beds on access to labor services is not well documented.
and delivery services is not known, Kler-
man and Scholle note that the decrease in
public obstetric beds will have its biggest
impact on access to labor and delivery
services for the poor who rely dispropor-
tionately on these facilities.16

Although most short-term general hos-
pitals offer labor and delivery services, the
scope of the services offered varies consid-
erably. For example, only 65% of hospitals
responding to the American Hospital
Association’s 1989 Annual Survey of Hos-
pitals reported having birthing rooms,
only 39.1% reported offering reproduc-
tive health services, and only 9.4% re-
ported offering genetic counseling and
screening.21

**Neonatal Intensive Care**

Neonatal intensive care units (NICUs) provide the high technology equipment
and services and the highly trained staff
needed to care for the seriously ill infant.
One important influence on the supply
and distribution of neonatal intensive care
has been the attempt on the part of the
medical profession to regionalize peri-
natal services. Regionalization differenti-
ates levels of perinatal services and
attempts to avoid costly duplication and
inefficient use of the most technologically
sophisticated professionals and services.
(See discussion of regionalization in the
Racine, Joyce, and Grossman article in this
journal issue.) Routine care for normal
infants (Level I care) and Level II care for
moderately to seriously ill infants can be
found in hospitals throughout the coun-
try, but the most technologically sophisti-
cated Level III or Level IV care is primarily
located in children’s hospitals and in ur-
ban teaching hospitals with large high-risk
delivery services. Although Level III nurs-
eries typically treat sicker infants providing
a high intensity of care and a great diversity
of specialists, the distinction between
Level II and Level III facilities may become
blurred because their equipment and
staffing tend to be similar.31

As reported by Racine, Joyce, and
Grossman in this journal issue, the num-
ber of NICU beds has increased rapidly in
recent years while the cost of NICU care
(as reported by Lewit and Monheit in this
journal issue) has exploded. Explicit crite-
ria have not been developed to judge the
adequacy of the nation’s supply of NICU
beds so it is not possible to determine
whether the current supply of NICUs is
appropriate or whether their distribution

---

**Health Care Resources for Children**

**The Supply and Distribution of Child
Health Care Providers**

**Physicians and Pediatric Nurse Practitioners**

In 1987, physicians’ offices were the usual
source of care for 86% of children under
19.32 Private office-based pediatricians
and family physicians are the major
providers of children’s preventive and pri-
mary care, and they account for almost
90% of the physicians treating children.33
There are significant differences in the
current and predicted supply and distribu-
tion of pediatricians and family physicians,
however, and these patterns are described
more fully below.

**Pediatricians** Excellent access to health care,
especially primary care, is experienced
by many children—especially children
under 6 years of age—and is due in part
to a generous supply of pediatricians,
which has been growing at a rate much faster than the U.S. population of children. Between 1970 and 1985 the population of pediatricians grew by 89% to a total of 35,617 pediatricians, while the number of children under 10 years of age increased by only 21%. 34

The question of whether the nation is, in fact, producing too many pediatricians has been the subject of considerable debate. In 1980, GMENAC predicted a surplus of 5,000 pediatricians in the United States by 1990, although this report ultimately concluded that supply and demand for pediatric services would be nearly in balance by 1990. 35 Abt Associates’ recently published revision of GMENAC’s earlier forecasts predicts a surplus of 7,000 pediatricians in 1990 and a surplus of nearly 13,000 pediatricians by the year 2000. The American Academy of Pediatrics (AAP) takes exception with many of Abt’s assumptions, arguing in part that Abt has substantially overestimated the role of pediatric nurse practitioners in caring for children and substantially underestimated the birth rate. As a result, the Academy “thoroughly disagrees with those projections.” 36,37

The apparently generous supply of pediatricians masks the equally apparent geographic maldistribution of pediatricians. While pediatrics is a primary care specialty dedicated to the care of children, there is considerable agreement—even within the medical profession—that the geographic distribution of pediatricians does not match that of U.S. children. 34,37 While 29% of all U.S. children lived in nonmetropolitan areas in 1981, only 11% of pediatricians practiced in these areas; in the same year only 37% of children lived in metropolitan areas, while 57% of pediatricians practiced there. 34

Within metropolitan areas pediatricians also are maldistributed, favoring locations close to major pediatric hospital centers or in relatively prosperous residential communities. In Chicago in 1987, for example, there were almost twice as many children per office-based pediatrician in inner city residential areas as in the most prosperous areas and 60% more children per child health provider in the poorest areas than in the best served residential areas. While care available from inner city hospitals and clinics offsets some of these disparities, the average children-to-pediatrician ratios in Chicago’s inner city communities (5,887) were more than twice the AAP’s underservice standard of 2,500 children per pediatrician. Significant levels of underservice are observed even after the inclusion in the ratio of one quarter of the family physicians practicing in Chicago’s inner city communities. 34

Whether or not there is a surplus of pediatricians, and whether the outcomes of such a surplus should be considered either positive or negative, it seems apparent that the child-to-pediatrician ratio will continue to decline in coming years. Data from the Bureau of Health Professions indicate that nationally the number of children per pediatrician declined from 3,098 in 1970 to 2,082 in 1983 and is projected to drop to 1,254 in 2000, a ratio of less than half as many children per pediatrician as in 1970. 34 The fact that family physicians also provide a significant portion of children’s health care compounds this trend. Defining the number of child health physicians to include all pediatricians plus one-fourth the number of general practitioners/family physicians (as has been recommended by the AAP), the ratio of children to child health physician declined from 1,590 in 1970 to 1,414 in 1983 and is projected to decline to 913 in 2000. 34 It is worth noting that the AAP’s rule of thumb is that an area is underserved if there are more than 2,500 children per child health physician. 38

Access problems caused by the geographic maldistribution of pediatricians are exacerbated by the unwillingness of some pediatricians to serve children whose care is paid for by Medicaid. Low Medicaid payments are frequently cited as a prime factor in low pediatrician participation in Medicaid, although this participation is higher than in any other specialty except for family practice. Recent federal and state initiatives have begun to raise these payment levels. 39-41 Because of the fundamental geographic maldistribution of pediatricians, however, in-
creases in Medicaid reimbursement are unlikely to improve access for all Medicaid-eligible children. Higher reimbursement levels are likely to improve access for near-poor children living in areas richly supplied with physicians, but they will have little effect on the availability of office-based care for poorer and sicker children residing in inner cities. 15

More important, perhaps, the geographic distribution of family physicians closely mirrors that of children.  

Family Physicians The supply and distribution of family physicians also contributes significantly to the excellent access to health care experienced by most children. Following a decline in the supply of general practitioners/family physicians between 1963 and 1975, GMENAC predicted in 1980 that the supply of this type of physician would increase between 1978 and 1990. Increases were indeed observed such that the supply of family physicians is currently judged to be roughly in balance with the needs of the U.S. population and is predicted to continue to be so through the year 2000. 7 Others have projected, however, that over the next 15 years the supply of family physicians will grow much more slowly than both the overall physician population and the U.S. population and, as a result, the demand for the services of family physicians may well exceed the supply. 9,42

Family physicians are an extremely important source of medical care for children living in nonmetropolitan areas. Family physicians receive training in a broad range of medical care and are therefore well-suited to serve patients drawn from all age groups. This flexibility in patient base makes it more feasible for family physicians to maintain economically viable medical practices in less densely populated communities. Indeed, when compared with other primary care physicians, family physicians are by far the most evenly distributed across all county types and sizes, although few can be found in the nation’s most sparsely populated rural counties. 3

More important, perhaps, the geographic distribution of family physicians closely mirrors that of children. As a result, “in 1981, 60% of children in nonmetropolitan areas had a general/family practitioner as their regular physician, compared with only 18% of children in those areas who had a regular relationship with a pediatrician.”34

Even within metropolitan areas, family physicians tend to be broadly dispersed across residential communities when compared with pediatricians. In addition, the Medicaid participation of family physicians tends to be higher than that of pediatricians. This fact, combined with their greater willingness to practice in inner city and rural communities, makes family physicians an extremely important resource for low-income and minority children. 15

Pediatric Nurse Practitioners Pediatric nurse practitioners (PNPs) provide care for both healthy and chronically ill infants and children, and have particular expertise in growth, development, and physical assessment. Currently there are approximately 6,000 PNPs in the United States, a number that has been relatively constant for the past decade. Prior to 1992, certification of PNPs was limited to licensed registered nurses with additional special training for this expanded role; beginning in 1992, certification of PNPs will require a master’s degree in nursing. 43

Historically, most pediatric nurse practitioners have worked in hospital-based and community-based clinics in inner city communities, and only a small proportion of nurse practitioners has practiced in rural areas. 44,45 Because of their limited numbers, pediatric nurse practitioners are currently estimated to supply no more than 5% to 15% of pediatric care. 36

There is considerable evidence about the efficacy and cost-effectiveness of the nurse practitioner role in a wide variety of settings—from hospital outpatient departments and public health clinics to health maintenance organizations—and in conjunction with the care of many different special populations and problems. 46-48 However, historically, complex economic and legal factors constrained growth in the supply of nurse practitioners, inhibited their diffusion into underserved areas, and limited the scope of their practice. These factors included the inability to obtain direct reimbursement for services, the costliness of medical liability insurance, and interstate variation in the permissible scope of practice (including, particularly, the authority to prescribe). Some of these
barriers to PNP practice were lowered in the late 1980s and the early 1990s including a new provision for direct reimbursement of PNPs by Medicaid, and these changes may result in an increased supply and a broadened distribution of PNPs in the coming years.

**Office-based and Organized Primary Care Settings**

There is widespread agreement that the majority of children in this country have excellent access to primary care. Substantial numbers of children are underserved, however, including children who reside in inner cities and rural areas and children who are poor or black. In 1988, for example, 90% of U.S. children had a usual source of routine care, but 15% of poor children had no usual source of care.

Data from the 1987 National Medical Expenditure Survey (NMES) indicate that, overall, children’s access to health care continues to be excellent. Preliminary NMES data indicate that 92% of children under 6 years of age and 87% of children between the ages of 6 and 18 years have a usual source of care. Eighty-four percent of children under 6 and 87% of children ages 6 to 18 are reported to travel less than 30 minutes to their usual source of care. Eighty-six percent of children with a usual source of care rely on physicians’ offices, while 5% rely on hospital outpatient departments and emergency rooms and 8% rely on other nonhospital facilities such as health centers, company clinics, school clinics, and walk-in clinics.

Cross-tabulations of NMES data by age, ethnic and racial background, family income, and place of residence have not yet been published, but these data can be expected to highlight children who continue to be among the structurally underserved—that is, low-income and minority children, adolescents, and inner city and rural children. Monheit and Cunningham in this journal issue use data from the NMES to examine the effect of health insurance coverage on the presence of a usual source of medical care. They report that children lacking health insurance were less likely to have a usual source of care than were children with either private or public insurance coverage (Monheit and Cunningham table 2). Earlier data suggest that many low-income children have little access to office-based care and are among those relying on organized settings, including hospital emergency rooms, as their regular source of care.

**Hospital Outpatient Clinics and Emergency Rooms**

The dependence of some children on hospital outpatient clinics and emergency rooms for preventive and primary care has long been cited as one of the greatest shortcomings of the health care system serving children. Care in these settings is thought to lack the continuity and comprehensive-ness which should characterize children’s health care, and it also is regarded as unnecessarily expensive. Reliance on these settings is more common among minority children, those who are poor, those who lack health insurance, and those living in underserved communities. Preliminary data from the 1987 NMES—although not focused specifically on children—indicate that blacks and Hispanics with a usual source of care were more than twice as likely as whites to go to hospital outpatient departments and emergency rooms or health centers and other non-hospital facilities as their usual source of care. For 15.8% of blacks, a hospital outpatient department or emergency room was the site of their usual source of care, compared with 9.9% of Hispanics.
and 4.4% of whites. Poor children also are more likely to be taken to emergency rooms. Data from the 1987 National Health Interview Survey indicate that 11% of visits made by poor children were to emergency rooms as compared with only 4% of visits by nonpoor children.

There are few data with which to describe the supply and distribution of hospital outpatient department and emergency room facilities serving children or with which to judge the adequacy of the capacity in these settings. Much as is true for pregnant women, while empirical evidence is lacking, hospital closures—particularly the closure of public hospitals—have had an important impact on access to preventive and primary care for the children relying on these settings.

Public Health Clinics and Community Health Centers: Local health department clinics and other facilities receiving Title V Maternal and Child Health Block Grant funds are an important resource for children, but their focus is primarily limited to preventive care and few states are able to offer services on a statewide basis. (For more information about these providers, see the article by Hill in this journal issue.) A 1986 survey of Title V maternal and child health agencies found that, while 46 of 51 state agencies have pediatric outpatient programs, only 13 states offer these services on a statewide basis and no state provides either comprehensive services or services for at least some acute care needs on a statewide basis. All of the agencies offering pediatric outpatient services offered well-child care, but only 11 states reported furnishing any acute care services to children. Nineteen agencies relied exclusively on the local health departments for the provision of pediatric outpatient care, but 32 states made use of private providers, community health centers, and other clinics.

It has been estimated that 36% of all migrant and community health center patients are children under the age of 14, however, little systematic evidence is available with which to judge the adequacy of the capacity in these settings. Much as is true for pregnant women, the cutoff of funds to many centers in the early 1980s left service gaps in many communities, and the difficulties that the remaining centers experience in attracting physicians limit their capacity.

Schools: At the present time, school-based health services are a limited but potentially important preventive and primary care resource for children. Compelling arguments have been made with regard to the efficiency, effectiveness, and equity of school-based health services, and most of the disagreement about school-based services seems to center on exactly how much primary care should be provided in the schools. (See the Spring 1992 issue of The Future of Children for an in-depth analysis of school-linked services.)

Comprehensive school-based clinics, although limited in number, are thought to be a promising strategy for reaching adolescents . . . .

Both funding sources and levels of investment in school health services vary greatly from state to state. Little information is available on the supply of school health services, although great variation in the supply is evident in pupil-to-nurse ratios: in 1985-86 the average pupil-to-nurse ratio was 2,473 to 1 for all districts, but this number varied across districts from 1,156 to 1 to 4,903 to 1.

Comprehensive school-based clinics, although limited in number, are thought to be a promising strategy for reaching adolescents and, in particular, for improving opportunities for adolescents to avoid unintended pregnancies. In 1987 there were 85 clinics affiliated with junior high or high schools throughout the country. Such clinics are usually staffed by nurse practitioners, clinic aides, part-time physicians, social workers, nutritionists, and other professionals.

The Supply and Distribution of Physicians Providing Specialized Care to Children

Although the predominant health care need among children is for primary care, the services of various specialists and subspecialists are also of great importance to the health of children. It is therefore important to consider the supply and distribution of specialty and subspecialty physicians serving children and to consider the adequacy of the supply of highly specialized care relative to the supply of primary care.
Data from the U.S. Bureau of Health Professions indicate that in 1986 there were 60,700 medical specialists serving all age groups in the U.S. and that their numbers are rapidly increasing: the overall number of medical specialists is projected to increase by 63% between 1986 and 2000 and by 91% between 1986 and 2020. This aggregate trend masks differences among the pediatric medical subspecialties, however. For example, the supply of pediatric allergists is expected to decline by 21% between 1986 and 2000, while the supply of pediatric cardiologists is projected to increase by 11%. Other pediatric subspecialists (a category which includes adolescent medicine, genetics, neonatal medicine, pediatric neurology, pediatric endocrinology, child psychiatry, pediatric pulmonology, pediatric hematology-oncology, pediatric immunology, pediatric infectious diseases, pediatric gastroenterology, and pediatric nephrology) are projected to increase by 54% between 1986 and 2000 and by 86% between 1986 and 2020. The trends also do not take into account the amount of time pediatric subspecialists, who are mostly full-time academic faculty (in contrast to many adult subspecialists), spend in research and educational activities.

Data with which to evaluate the adequacy of the current supply and distribution of specific pediatric specialists and subspecialists are not available. However, data from the U.S. Bureau of Health Professions shed some light on overall trends. These data indicate that, while the overall supply of physicians is increasing rapidly and the total number of physicians required in 2000 will exceed requirements by 50,101 physicians, the excess of supply over requirements is far greater for specialists (32,020) than for generalist physicians (general/family medicine, general internal medicine and general pediatrics) (17,990). As noted elsewhere in this paper, the abundant supply of specialists and subspecialists serving children has greatly improved access to specialized care for acutely and chronically ill children. However, the imbalance in the projected excess of providers of general and specialty care services raises important questions about what directions future policy should take with regard to the training of different types of physicians.

The Supply and Distribution of Hospital Care for Acutely and Chronically Ill Children

Most children never require hospitalization; but some children, especially those with chronic and disabling conditions, require multiple and sometimes prolonged hospital stays. The access of children requiring inpatient and/or specialized hospital outpatient care has undoubtedly been affected by the same broad trends in the health care system described elsewhere in this paper—that is, hospital closures, mergers, and acquisitions which have reduced the supply of care, particularly from small, rural and public hospitals—although research is lacking on the impact of these trends on children. In urban areas children often have many inpatient and specialized outpatient resources available to them, including the highly specialized services of children’s hospitals, although recent public hospital closures have undoubtedly limited choices available to low-income families. Choices available to most rural children are undoubtedly much more limited and may entail travel over considerable distances.

Because a great many of the children requiring acute care in hospitals have been injured, trends in the supply and distribution of emergency and trauma care—especially care tailored to meet the special characteristics and needs of children—have particularly important
Implications for this group. The American Hospital Association notes that during the 1980s, the number of hospitals equipped to handle emergencies on a 24-hour basis increased, but despite this encouraging trend, the availability of specialized trauma care diminished. This unfortunate trend is attributed to the high costs of operating trauma centers which, together with the burden of the uninsured and low payments from Medicaid, have forced many hospitals to close their trauma centers. Even among the 154 children’s hospitals described in a recent report, only 41 facilities have a certified pediatric trauma center.

**Services for Children with Chronic and Disabling Conditions**

When compared with other children, the nation’s 3.3 million children with chronic and disabling conditions require a great many medical and nonmedical services. They make more physician visits, require more hospitalizations, and are more likely to have multiple sources of health care. According to Perrin and Ireys, the past 2 decades have seen great improvements in the supply and distribution of the highly specialized medical care needed by children with chronic and disabling conditions—particularly in urban areas—and it is now primarily chronically ill children living in rural areas for whom access to services is the most problematic.

As noted above, the number of highly specialized physicians has been increasing rapidly in recent years. While increases in the numbers of specialists and subspecialists in urban areas remedied many of the supply problems that formerly impeded access to care for chronically ill children, the medical care of chronically ill children continues to be characterized by a great deal of confusion and fragmentation. Chronically ill children tend to have multiple providers, collaboration and coordination among these providers is often lacking, and the preventive and primary care needs of these children are often overlooked. In addition, whereas access to specialized medical care from office-based physicians and hospital outpatient clinics may be excellent in many urban areas, the availability of the wide array of nonmedical services needed by chronically ill children tends to be much more variable in both urban and rural communities.

**Conclusions**

The foregoing review reaffirms a longstanding paradox in the health care system serving the nation’s children and pregnant women: some communities and populations enjoy an embarrassment of riches of health care resources, while others remain underserved. And the very women and children who are most woefully underserved also are among those at greatest risk for low birth weight births, infant deaths, and morbidity and mortality during childhood.

While the maldistribution of many maternal and child health care resources is not new, the foregoing review suggests that some of the dimensions of the problem of maldistribution have changed in recent years. In the private office-based sector, the supply of family physicians has grown, bringing greatly improved access to primary care particularly for children in nonmetropolitan areas. The supply of pediatricians and pediatric subspecialists also has grown, although because of their continuing maldistribution relative to children, these increases have not benefitted many children who remain underserved—especially chronically ill children residing in rural areas. The rising costs of medical liability insurance made what was a serious problem—the geographic maldistribution of obstetrician-gynecologists—significantly worse by impairing the ability of family physicians, certified nurse midwives, and even some obstetricians and gynecologists to provide maternity services to pregnant women who are otherwise underserved. And the continuing problem of physicians’ reluctance to participate in Medicaid has also contributed to the difficulties that many women and children experience in obtaining needed care. Some of the most dramatic changes have occurred in the supply and distribution of health care resources in the institutional sector, including closures of many hospitals and community health centers, reductions in core funding of many community...
health centers and local public health clinics, and budget reductions in many of the categorical and block grant health service programs which have traditionally been offered to women and children in these settings.

The foregoing review suggests some policy strategies that seem particularly important to efforts to maintain and improve upon the present configuration of maternal and child health care resources in the coming years:

1. Continue efforts to bolster the supply of family physicians. Because family physicians are able to maintain viable practices in nonmetropolitan and other underserved areas and are apparently willing to practice in these communities and to participate in Medicaid, the maintenance of a generous supply of these physicians represents an especially important resource for children and pregnant women. The foregoing review suggests some disagreement about whether the future supply of family physicians will be adequate to meet the demand for their services. The vital importance of family physicians to underserved populations suggests that the Council on Graduate Medical Education would do well to conclude its deliberations with recommendations for future health professional supply which err on the side of producing too many family physicians rather than too few.

2. Adopt strategies to lessen the problems that medical professional liability issues pose for all maternity care providers. A number of promising strategies for addressing this problem have been proposed by the Institute of Medicine.5 While a review of these strategies is beyond the scope of this paper, the evidence presented here makes clear the distortions in the supply of maternity care providers which have resulted from the medical professional liability problem. Resolution of this problem would free up considerable capacity for the provision of maternity care services by family physicians and certified nurse midwives as well as provide needed relief from the costs of malpractice insurance for organized settings.

3. Continue support for the National Health Service Corps (NHSC) scholarship and loan repayment programs. Some rural and inner city communities will always have difficulty attracting and retaining physicians. However, the NHSC has had demonstrable effectiveness in filling some of these gaps. Although this program was very nearly eliminated in the early 1980s, in the face of the negative effects cutbacks were having in underserved areas, it was reinstated by Congress in 1990.22 This action has slowed the rate of decline in the numbers of physicians in the NHSC pipeline. Because of its important role in placing primary care physicians in underserved communities, continued and expanded support for this program will be an important factor in future access to maternal and child health care.

Members of the NHSC are particularly important in the staffing of migrant and community health centers. Because these centers are supported by public resources and are targeted for underserved communities, it is especially important that they be able to function at their maximum capacity. Because in the short run, federal budget constraints may mitigate against significant expansions of the NHSC, it may be worthwhile to create special incentives for physicians and other health professionals to fulfill NHSC service obligations through work in migrant and community health centers.

4. Continue efforts to ensure the fullest possible participation of physicians in serving Medicaid-eligible women and children. The most universally accepted strategy for accomplishing this is to ensure adequate Medicaid reimbursement levels. The federal Omnibus Budget Reconciliation Act (OBRA) of 1989 required that states document and ensure the adequacy of their Medicaid pediatric and obstetric fees, and a number of states have recently instituted fee increases. At the same time, the limitations of Medicaid reimbursement increases for improving access to maternal and child health services should be recognized: empirical evidence suggests it is unlikely that reimbursement increases will be of sufficient magnitude to encourage physicians to locate in underserved areas, and in these communities—where maternal and child health care needs are also greatest—other policy strategies to expand the supply of services will be needed if access is to be improved (see recommendation 6, below).

5. Develop systematic data with which to describe and evaluate the adequacy of the supply of maternal and child health care available in organized settings. Utilization data from national surveys make it evident that a great many women and children depend
on the resources of hospital clinics, public health clinics, migrant and community health centers, and school-based health services. Yet, with the exception of the occasional special-purpose survey, relatively little information is available to assist planners and policymakers in making judgments about whether the supply is adequate to meet the growing demand for care in various organized settings and to evaluate the impact of capacity shortfalls on utilization and health status. Available information suggests that in many communities the capacity in these settings is inadequate, but systematic information describing the magnitude of these problems, collected on a periodic basis, would improve both our understanding of this situation and the likelihood that the federal government’s scarce discretionary resources will be committed to addressing this problem.

6. Enhance the capacity of organized settings to meet the needs of underserved children and pregnant women. Even in the absence of systematic data, the foregoing review suggests the need for capacity-building in organized settings. The clinics of public hospitals and academic medical centers, public health clinics, community and migrant health centers, and schools represent a considerable foundation of institutions upon which to expand the preventive and primary care capacity in underserved communities. Some have argued against expanding organized settings on the basis that it will displace private office-based care, but care from organized settings has been found to expand the overall availability of care rather than displacing care from private physicians. Others have argued against expanding organized settings because it will create a “two-tiered system” of health care, but Williams and Miller make a compelling case that this stance oversimplifies and ultimately dodges the very complex question of how best and most feasibly to meet the needs of the underserved.

In recent years the financial pressures experienced by many organized settings have made capacity-building very difficult: many of the public health programs financing care in these settings were reduced or eliminated during the 1980s and increases in others failed to keep pace with medical care price inflation. Medicaid reimbursements frequently failed to cover costs; malpractice premiums and other practice costs rose and the numbers of medically indigent patients seeking service increased.

There are a number of vehicles for providing organized settings with the resources they need to expand their capacity. The most direct approach to building capacity in community and migrant health centers is to expand the core operating grants which currently comprise nearly half of their funding. Alternatively, grant programs can be developed specifically for capacity-building purposes. For example, in 1989, the federal Department of Health and Human Services awarded $22 million to help community and migrant health centers recruit new personnel and retain NHSC physicians past their period of obligation. Other similar initiatives would be helpful to efforts to better meet the preventive and primary care needs of the underserved.

A more indirect but nonetheless helpful approach would be to enhance the Medicaid reimbursement levels paid for care provided in organized settings. While Medicaid reimbursement can only be used to pay for services, increased payment levels would relieve some of the fiscal pressures faced by these institutions and help them maintain viability. The OBRAs of 1989 and 1990 took important steps in this direction by requiring that state Medicaid programs reimburse community health centers and other look-alike federally qualified health centers on the basis of 100% of the costs of providing care. While community health centers will benefit from this new policy direction, the full impact of this policy change on the institutions serving children and pregnant women will depend on whether federal regulations (not yet published) enable hospital outpatient and local public health clinics to obtain the look-alike designation and its associated cost-based reimbursement.

The preceding list of policy strategies confirms what one might have suspected—that is, that it will not be possible to improve the supply and distribution of preventive and primary care for children and pregnant women without additional resources. Moreover, unless the health service delivery programs presently serving women and children are funded at the level of medical care price inflation, additional erosion
in the capacity of organized settings is likely to occur in the future.

In an era of tight federal and state budget constraints, prospects for redressing persistent imbalances in maternal and child health care resources are limited, and there is even some degree of likelihood that these imbalances will be allowed to worsen. Unlike health and welfare entitlement programs (such as Medicaid) for which appropriations are open-ended, many of the programs that fund health care in organized settings are discretionary programs for which budget allocations are made each year. As a result, these programs are very vulnerable to limited growth, reduction, or elimination during periods of tight budget constraints. The budget rules established by the Budget Enforcement Act of 1990 will make it very difficult to increase funding for the National Health Service Corps, the Maternal and Child Health Block Grant, or community and migrant health centers because these increases will need to be offset by cuts in military, international, or domestic discretionary spending—cuts which a number of onlookers agree may be politically difficult to achieve.\textsuperscript{15,65}

\begin{enumerate}
\item Ricketts, T.C. \textit{Barriers to access to services provided by physicians in general/family practice, general internal medicine, general pediatrics, general surgery, obstetrics/gynecology, and general and child psychiatry}. Paper prepared for the Council on Graduate Medical Education, July 1991.
\item Fossett, J.W., Perloff, J.D., Kletke, P.R., and Peterson, J.A. Medicaid patients' access to office-based obstetricians. \textit{Journal of Health Care for the Poor and Underserved} (Spring 1991) 1:405-21.
\item Fossett, J.W., Perloff, J.D., Kletke, P.R., and Peterson, J. Medicaid and access to child health care in Chicago. \textit{Journal of Health Politics, Policy and Law}. Forthcoming.
\end{enumerate}


