System-based Mobile Primary Pediatric Care for Homeless Children: The Anatomy of a Working Program

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The New York Children's Health Project (NYCHP) of the Montefiore Medical Center-Albert Einstein College of Medicine has been providing comprehensive health services to homeless and medically underserved children since 1987. Fully equipped mobile child health offices have been the major mechanism for bringing pediatrician-led teams to places that are convenient for and accessible to underserved children and their families.

The program was initiated in November 1987. Through December 1993, the NYCHP has provided care to 18,296 children at 79,695 program encounters. Additionally, 4,872 specialty referrals have been made for these patients (Table).

The target patient population of the NYCHP ranges from 0 through 21 years of age. Approximately 95% of the homeless children seen by the NYCHP are currently living with one or both parents or with a guardian. The remainder are unattached homeless youth who receive health services via NYCHP mobile teams working at a drop-in center for runaways, or at a foster care facility.

Mobile units have been used for decades in a variety of health care settings. However, most applications have been for episodic care programs, health screening initiatives, or health education. The NYCHP is designed to provide primary health care with a

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TABLE
NEW YORK CHILDREN'S HEALTH PROJECT SUMMARY PROGRAM ANNUAL DATA*

	1987	1988	1989	1990	1991	1992	1993
Patients	394	3,147	3,742	4,224	4,019	4,184	3,661
Parent participants						167	560
Medical encounters	488	6,894	8,812	8,569	11,038	11,221	10,146
Expanded program encounters	0	771	3,130	3,971	4,288	4,783	5,604
Total program encounters	488	7,665	11,942	12,540	15,326	16,004	15,750
Subspeciality and emergency referrals	21	319	648	1,031	871	993	989

* Overall program totals (November 1987–December 1993): 19,023 total participants (18,296 pediatric patients [unduplicated], including 383 Substance Abuse Prevention Program patients, and 727 parent/group participants [1992–1993 only]); 79,715 total program encounters (57,168 medical encounters and 22,547 expanded program encounters), 4,872 subspecialty and emergency referrals.

focus on continuity and comprehensive services, even though the core patient population, consisting of homeless children and youth, is transiently housed in the city's shelter system.

Over the course of 1 year, more than 11,000 families, with nearly 20,000 children, are sheltered within the system.[1] Most families are placed in shelters well outside their original communities, often in other boroughs. This reality adversely affects the delivery of health care to homeless families. Families that have been dislocated lose their relationship to the clinical services and primary care programs they had been utilizing before becoming homeless.

Economic and other barriers preclude easy access to former providers, so homeless children become dependent upon clinical resources in the new "shelter neighborhoods." Because most shelters are located in areas characterized by severe deficiencies in the quantity and quality of pediatric care providers, many homeless children are functionally blocked from gaining access to appropriate and comprehensive primary health care services. In an effort to overcome many of the inherent barriers to care for homeless children, the NYCHP's approach utilizes mobile medical units that function as but one component of an organized health system.

Core Program Elements of the NYCHP

Four major programmatic components define the NYCHP approach to managing an effective primary care system for homeless

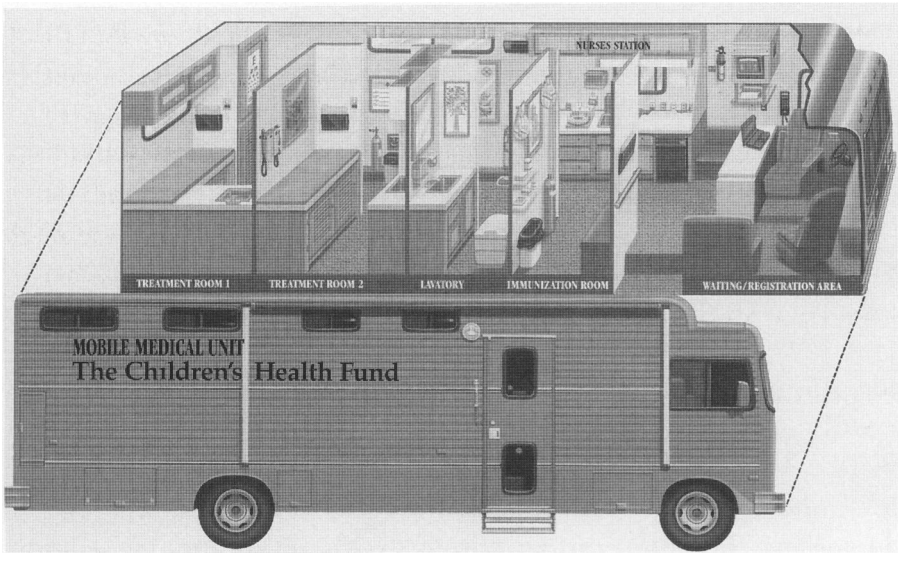

FIG. 1. Interior view of mobile medical unit. (Diagram supplied by Children's Health Fund supporter Lederle Laboratories.)

children in New York City: the mobile medical facility, an operational headquarters, the institutional base, and the information system. All of these elements work in a highly coordinated fashion, each performing a specific set of functions and contributing to a system that enhances access, improves compliance with referral needs, and generally provides a sense of "continuity" for patients as well as providers.

This type of approach, which includes the provision of comprehensive, continuous, preventive, and coordinated care, is referred to in the pediatric literature as a "medical home."[2] The four elements that enable the NYCHP to provide a medical home are described below.

1. The Mobile Medical Unit (MMU)

The MMU, often the most visible component of the system, functions as a pediatric clinic "on wheels." Each of the three NYCHP units is 33 feet long, 8 feet wide, and 10.5 feet high. This was considered to be the largest shell that could fulfill program needs and still maneuver around urban streets (Figure 1).

Patients and families enter the MMU through a side door and

proceed directly into the reception/waiting area. In the reception area, patients are registered and are able to watch health education materials on a built-in VCR while they wait for services.

For patients with scheduled appointments, the hard copy medical records are available in the MMU. For new patients, demographic data, medical history, and other information are incorporated in a newly prepared chart. Patients are assigned an official medical records number from the back-up referral institution. For previously registered patients who require an *unscheduled* encounter, relevant medical records will generally be found in the on-board computerized data base.

The MMU contains two fully equipped examination rooms, at least one of which is able to accommodate pelvic examinations for adolescent or young adult patients. There is a nurse station/laboratory area, including scales and counter space for a centrifuge and other basic equipment. There is also a small interview/procedures room.

Each mobile unit site is visited by the same medical team on a regularly scheduled day of the week, each and every week. This is designed to reinforce in patients' minds the predictability of available care. Furthermore, patients are encouraged to call a 24-hour NYCHP help line if they have medical questions or concerns.

The MMU team, led by a pediatrician, emphasizes the notion that the NYCHP can and will serve as the child's medical provider for as long as the family wishes these services and until the family gains permanent housing with a stable tie to a traditional primary care provider. Other members of the team include a nurse practitioner (or other second provider), staff nurse, registrar, and driver.

Services actually provided on the MMU are similar to what is available in a typical pediatric office-based practice or clinic. Well-child care, anticipatory guidance, preventive care, immunizations, acute care and chronic illness management are included in the clinical agenda. In the event of medical need, referrals can be made, including on an urgent basis, to hospital or subspecialty care. On-board cellular telephones facilitate any necessary communications.

2. Project Headquarters

The NYCHP MMUs operate in four boroughs of New York City. As indicated, units visit sites on a regularly scheduled basis. All operational and programmatic components of the project, including expanded services, educational activities, and research and information systems, are located at project headquarters in Manhattan. (This same facility houses the headquarters of the Division of Community Pediatrics of the Department of Pediatrics of the Montefiore Medical Center-Albert Einstein College of Medicine—the institutional umbrella for the NYCHP.)

MMU staff for daily site sessions are picked up and returned to headquarters at the beginning and end of the day. Consumable supplies are replenished, needed medical records are gathered, and other details are attended to by the team and central staff.

Central staff based at headquarters include executive and medical directors, the operations manager, the management information director, data entry staff, and administrative support personnel. Additionally, the project headquarters house the mental health and case management staff. These latter services are available to the entire project on a referral basis. Actual mental health evaluations, for example, are fulfilled at the central location, rather than on the MMU.

The *health educator* is based at headquarters. Programs for providers and patients (and families) are designed by the educator and implemented at program sites of the NYCHP and/or Division of Community Pediatrics.

One of the most important components of the overall system is the *referral management program.* This component operates from a base at headquarters and involves five full-time personnel. One person is assigned to the main referral hospital to facilitate patient linkages to special services, including subspecialty evaluations and care requested by the NYCHP provider.

The referral management staff makes requested appointments, implements a patient appointment reminder process, and arranges transportation and other related functions. They also provide feedback to the families and referring primary care providers. This

process facilitates the linkage and communication between primary care providers and hospital-based subspecialists.

3. The Institutional Base

The NYCHP relationship to the Montefiore Medical Center (MMC)-Albert Einstein College of Medicine is functionally and conceptually important. Clinical activities of the NYCHP are a part of the Division of Community Pediatrics, which is a program of the institution's Department of Pediatrics.

From a practical point of view, the intimate connection between the NYCHP and the major academic center offers extensive back-up capacity and a host of special services. Preliminary data from the NYCHP show a very high rate of utilization of specialty and subspecialty care. One of every 15 primary care patient encounters results in a referral. This is approximately 4.5 times the expected rate in a typical pediatric practice. The relationship with MMC facilitates the process of referral management, ranging from obtaining specialty clinic appointments to ensuring adequate follow-up.

All physician staff of the NYCHP are members of the MMC medical staff and faculty of the Albert Einstein College of Medicine of Yeshiva University.

Another important consequence of the relationship with the academic medical center is the teaching functions of the program and the exposure of medical students, pediatric residents and postgraduate fellows to a working community-based child health program. Such an environment enhances the level of attention paid to accountability and quality of care offered in the program.

On a less-tangible basis, there is a sense that the NYCHP's connections with a major teaching hospital and medical school add stability and credibility, an important issue for community programs that serve very disadvantaged and/or disenfranchised children.

4. The Information System

There are grim realities associated with the provision of comprehensive health care to a vulnerable, homeless and poor, high-

need inner-city child population. One obvious but highly significant challenge is that the patients are difficult to track because they do not have a permanent, stable address. City officials assign homeless families to a city or agency-run shelter or to a privately managed "welfare hotel." Unattached or runaway homeless youth are particularly transient and difficult to follow, since their comings and goings are totally unmonitored and unpredictable.

During the 6 months to a year or more that families are in the official homeless shelter system, they are often moved from one shelter to another, even across borough or county lines. Thus, homeless children are not only high-need patients with a high rate of medical and health-related concerns; they also live with profound geographic instability.

As a result of these factors, the provision of organized health services becomes especially challenging. The NYCHP, working with John Snow, Inc. of Boston (JSI), developed a software package and computer-based medical records system to record essential demographic and medical information on each patient and every encounter. Specifically designed forms are completed by the providers at the time of the health care encounter.

The day after a medical encounter, the data team at project headquarters enters recorded information from the previous day's work on all MMUs. These data are stored in the project's central computer. Twice a week, the entire data base is down-loaded to portable computers on board each MMU. Thus, providers have immediate access to relevant medical information for any patient ever seen by the NYCHP, at any site, since the program began operation. Critical data, such as immunizations received or the existence of chronic medical conditions, are immediately available to providers at the time of service.

The JSI system (now referred to as the National Pediatric Access Network, or NPAN) is also able to produce reports on services delivered by the NYCHP and track referral compliance initiatives of the program. In fact, NPAN is currently being adapted for use in similar health care delivery programs for underserved children in other parts of the country.

For a program committed to providing comprehensive services to a high-need population, the ability to access data, track key medical information, and monitor quality and quantity of services is essential. JSI's NPAN has served this function for the NYCHP.

Finally, the information system produces a problem-oriented medical and immunization record. This information is the basis of the medical summary utilized in the transfer of patient care to a traditional provider once the family is in permanent housing.

Conclusion

As it becomes increasingly necessary to find ways of including *all* children in the nation's health care safety network, some populations will present logistic challenges that may seem particularly daunting. The New York City homeless child population clearly falls into this category.

The larger solutions to such gaps in the health care system will eventually require more-definitive solutions. Universal health insurance, which provides comprehensive medical services, as well as the resources to actually ensure functional accessibility of health services to the poor and medically underserved, are part of the ultimate answer. (Even this, however, will not eliminate some of the important precursor factors, like homelessness and poverty, which drive much of the increased health risk faced by disenfranchised and poor communities.)

But children cannot—and should not—wait for "definitive" answers. Solutions to immediate problems of access to care must be identified.

In a certain sense, the NYCHP is a "stop-gap" solution to a complex problem. There is no question that children would be better off living in stable, secure housing with ready access to a true primary care-based "medical home." Although this might be the ultimate goal of policy-makers and child health providers, its realization is unlikely in the foreseeable future.

Under these conditions, a mobile-based primary care service is able to provide good primary care to a defined medically under-

served population. For such a program to succeed, it must function within the context of a medical system that is able to provide continuity, structure, referral management, and extended services. When such conditions are met, the stop-gap initiative may fulfill a valuable function in making good health services truly accessible to a population otherwise unable to secure such care.

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