# District Nursing: The Cost Benefits of a Population-Based Practice

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**Abstract:** This paper presents some serendipitous findings from an ethnohistorical study of public health nursing in rural New England. In the course of that study, a model of population-based nursing revealed itself that some would condemn as antiquated; it may, however, hold great possibilities for addressing the nation's current and future health problems, particularly health maintenance of the elderly and care of the chronically ill. In keeping with the criteria used to evaluate primary health care, the model is examined for the extent to which it is accessible, available, accountable, acceptable, comprehensive, coordinated, and cost-effective. The policy implications of this model for the organization and financing of community health care are explored. (*Am J Public Health* 1984; 74:1107–1111.)

*Introduction*

The early part of this century witnessed the development of public health nursing services throughout the United States, mainly through the efforts of voluntary groups such as the American Red Cross. In rural New England, which is organized geopolitically into townships, community nursing services were developed at the town level, forming a highly decentralized delivery system much like the "district nurse" model which prevailed in England and Ireland. Along with elementary education, police and fire protection, maintenance of the town hall, road repair and sanitation, most New England towns supported a town nurse who provided community health services to residents. Originally, the major focus of the district nurse practice was maternal-child health and communicable diseases, but it has gradually shifted in emphasis to chronic illness and home care of the elderly. While the functions of the town nurse vary according to local needs, they have included typically both wellness care (school health, community health education, well-baby visits, screening, and immunizations) and illness care (home nursing services in households with an elderly or chronically ill member).

First appearing in the 1920s, this model of community health services flourished for many decades. More recently, however, in a nationwide trend toward centralization and specialization in health care, the district nurse model is rapidly being phased out and replaced by centralized visiting nurse agencies, usually located in the nearest large town or city. Quality and efficiency of services are cited as the two major reasons for this movement. The town nurse, often lacking the appropriate academic degrees, is said to be a remnant of a past era, technically deficient for the management of the complex procedures that recently discharged hospital patients require. Larger agencies, on the other hand, are believed to be more capable of attracting and retaining more highly educated nurses; they can generate special project funds from both private and public sources and operate on economies of scale to reduce costs.

The advent of Medicaid and Medicare reimbursement schemes has been a major catalyst in producing these changes in the organization of community health care. The need to maximize investment in the space, staff, and equipment needed to meet structure criteria for certification generated a competition for patients (*reimbursable* patients) which continues to be a reality for home health agencies today. Thus home care became a business in need of customers as well as a service. In this context, small town officials were encouraged to relinquish their one or two nurse agencies with the promise that the same range and an even higher quality of services could be provided by a centralized agency at considerably less cost to the towns. Town governments, plagued with their own fiscal problems, were easily convinced, and one-by-one, abdicated responsibility for the health care of their residents in the wake of federal and state reimbursement schemes. While everyone presumed that the newer model must be better, there was never any systematic investigation of the successes and failures of the old.

This paper presents some unanticipated findings from a study of public health nursing in rural New England. In the course of that study, several features of what is now an almost extinct model of community health services emerged which, ironically, suggest its potential for meeting some of today's most pressing health problems, specifically health promotion, and maintenance of the chronically ill.

*Methods*

Undertaken in 1982, this study examined the development of community nursing services in the political, social, and economic context of a rural New England county during this century. The data collected were both qualitative and quantitative in nature and derived from direct observations, public records dating back to 1900, census compilations, and open-ended interviews with town residents, public officials, medical care providers, and retired and active public health nurses.

Hamilton* County, which served as the site for this study, is located in New England foothills and consists of 26 townships, with a population of approximately 57,000. The towns range in density and size from a county seat, called Maintown, in which approximately one-third of the county's population resides, to three small manufacturing towns, to

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*In order to protect the identity of all persons, organizations, and communities, the names used in this paper are fictitious.

several remote and sparsely populated farming communities. Socioeconomically, the people of the county are primarily working class—small farmers, tradesmen, mill workers, machinists—with a small percentage of business and professional people. Routine medical care is provided in the county by approximately 75 physicians and two voluntary hospitals linked in a referral system to urban medical centers for specialty services.

A centralized visiting nurse and home health agency covers a service area of 19 of the 26 towns. This was not always so. At one time, each of the towns either employed a nurse or, if the population were small, shared a nurse with two or three other towns forming "health districts." In the early 1970s, a merger of all town nurses was attempted as a state effort to establish a county-wide agency which could be certified for reimbursement. This endeavor met with considerable local resistance, however, and seven of the 26 towns found alternative means to meet certification criteria and maintain their independent status. The 19 towns without certified agencies were absorbed into the county agency service area although 11 of these continued to support a town nurse as well. These town nurses were perceived as competition by the county agency which launched a gradual but persistent effort to convince the towns to let them take over all their nursing services. Today, only five of the 19 towns continue to have a town nurse. Four of these towns have, for decades, pooled their resources to employ a district nurse. Since this is the most traditional example of district nursing in the county, this paper will describe the experience of this four-town district, called East Hill.

The four townships comprising the East Hill district have a total population of almost 2,250 residing in 106 square miles of rugged terrain. The form of government for each of the towns is the annual town meeting in which residents convene to voice their approval or opposition to town expenditures and activities. Three selectpersons are elected from each town who are responsible, on a part-time basis, for the management of town activities throughout the year.

There are no physicians located in the health district, but two general practitioners and a rural medical center staffed by two family physicians are located near to the four towns. They provide primary and secondary medical care for local residents. Otherwise, routine medical care is obtained in Maintown.

## *Results*

Mrs. Broderick, the district nurse, reports to the Board of Health on which there is representation from each of the four towns. As with other town-based services, the activities of the town nurse are administered locally and paid for by revenues collected from property taxes. Thus Mrs. Broderick is a salaried employee of the towns and is not remunerated directly by patients or by third party reimbursers. The total health budget for the East Hill District in 1982 was $12,897, the largest share of which was allocated for salary and benefits for the district nurse. Mrs. Broderick's official work hours are 8 am to 1 pm and for this five-eighths position she receives an annual compensation of $8,500 plus $150 for liability insurance, a county retirement plan of $1,500 per annum, and a one-month vacation in August. She uses her own car and is reimbursed by the district for mileage. This compensation is consistent with that paid to other community health nurses in rural New England which ranges from $12,000 to $16,000 for a full-time position.

Her tenure in the position of district nurse as of 1982 was 13 years. The nurse who preceded her held the job for 18 years. Mrs. Broderick was born and grew up in one of the four towns, married a local man, and, except for the time she was in nursing school, has lived in the community all of her life. Thus, typically, Mrs. Broderick is tied to the community in a variety of ways and is extremely popular with local residents.

Her responsibilities as district nurse are divided into three major categories: school nursing, health promotion and prevention, and home health care. Mrs. Broderick provides school health services in two primary schools with an average enrollment of 250 children. She is also responsible for organizing and implementing health promotion and prevention programs including annual flu clinics, blood pressure screening, fluoride mouth rinses for children, and various nutrition and health education programs.** These first two components consume approximately one-half of her time.

The remaining component of her practice is supervising the health of the chronically ill and elderly and caring for the sick. A review of annual reports revealed that Mrs. Broderick makes an average of over 1,200 visits per year to residents of the four towns. The major proportion of these visits consists of monitoring vital signs, managing chronic conditions, and providing health guidance, counseling, and reassurance.

Also serving the home health needs of the East Hill District is the Hamilton County Home Health and Visiting Nurse Agency, located in Maintown, 20 miles away. In 1982, this agency made 255 skilled nursing visits to a total of 28 patients in the East Hill district.

If we support the position that the feature which distinguishes public health nursing from other kinds of nursing practice is its emphasis on the care of populations,[1-3] the criteria by which we evaluate the costs and benefits of a system must be those which apply to the population as a whole and not just those which apply to current recipients of care. The criteria must include not only the quality of patient care rendered but the extent to which the system is accessible and available, accountable and acceptable, comprehensive, coordinated, and cost-effective.[4] These criteria are very much interrelated but, for the purposes of analysis, will be reviewed separately in the following discussion.

### Availability and Accessibility

Perhaps the most impressive feature of the district nurse is that a full range of nursing services is accessible to all 2,250 residents of the East Hill District regardless of their ability to pay or to meet third-party eligibility criteria. In fact, of the 35 individuals whom Mrs. Broderick visited during a one-week period of intensive observation, only two met eligibility criteria for Medicare or Medicaid although all required some form of health management. That means that without a district nurse, at least 30 people in this community, currently receiving community nursing services, would not have received care because they would not be so "entitled."

With regard to availability, Mrs. Broderick holds regularly scheduled office hours at the various town halls each week during which time residents may come to have their blood pressures taken, receive their routine parenteral medication, or seek health counseling. She can be reached by

**For example, in her written monthly reports to the town she has provided instruction to the townpeople on how to recognize Reye syndrome, the treatment of allergies, salt and its misuse, how to get senior citizen discounts, and the benefits of generic drugs.

telephone at all hours; if a resident is unable to come to the office, she will visit him/her at home. Thus the patients' lack of mobility is not an obstacle to receiving nursing services. Living several miles and a toll call from professional assistance, residents in the outlying areas place a high value on the security of having a nurse in residence whom they can call during the night and on weekends to handle serious problems or emergencies. Interestingly, observations and interviews revealed that residents tended not to exploit the availability of the district nurse and were very apologetic when compelled to call her during off hours. Emergency calls are rare and residents make good use of her scheduled hours although a considerable amount of health "business" occurs in chance meetings at the post office, hardware store, church, etc.

#### Accountability and Acceptability

As a salaried worker of the four towns, Mrs. Broderick is employed by the very people for whom she provides services. As her employers, the townspeople can express their dissatisfaction with the district nurse simply by complaining to their selectpersons and ultimately by their votes at the annual town meeting. She is also held accountable by her *social* position within the community. The people for whom she provides health care are not only her patients but are also neighbors, kin, friends, or fellow members of various associations. She is structurally obligated to meet their health care needs not only for professional reasons but for personal and social ones as well.

The other side of accountability is acceptability, an often neglected criterion by which to evaluate the success of a program and one which is very difficult to measure. In comparing their experiences with the town nurse and the county nurse, town members emphasized repeatedly how important it was, at a time of crisis, to have a nurse to whom and with whom they are already familiar. Many residents volunteered that they considered Mrs. Broderick much more approachable for this reason. They were not afraid to ask what might be considered a silly question and claimed that she often anticipated and answered questions before they were asked. Residents admittedly trust her and confide in her which renders Mrs. Broderick particularly effective in case finding and dealing with sensitive issues.

#### Comprehensiveness

A comparison of records and observations from various towns indicates that East Hill residents receive a more comprehensive range of health services—particularly in the area of health promotion and prevention—than their counterparts which do not employ the services of a town nurse. But perhaps even more important than her various programs is her role as an on-site resource for health guidance, education, and advocacy. For example, in one week she was consulted on what to do about insect bites, possible reactions to medication, evaluating a child's fever, advising about an elderly parent who is often disoriented, how to prevent and control asthma, and a potential case of child abuse.

By having responsibility for both curative and preventive services, Mrs. Broderick is able to be more effective and efficient. For example, her observations of dietary patterns among her hypertensive patients prompted her to initiate a program for schoolchildren on the misuse of salt and its relation to high blood pressure. She expects the children will both learn new nutritional habits and reinforce her advice to their parents and grandparents. Being a generalist and serving all age groups and sub-populations within the four communities allows her to have several points of intervention for both care and casefinding. It is not unusual, for example, to ask a grandmother during a home visit about how her grandson is managing his insulin injections and keeping up in school.

Nor is her care restricted to intervention for medically defined conditions. Rather it is guided by psychological and social factors as well. Since she is unencumbered by eligibility criteria, her practice is shaped more by local needs and desires and often embraces services that patients and families may identify as important but which third party payors typically do not cover, e.g., bereavement care, nutrition counseling, family crisis intervention, health education, and other health promotion and maintenance activities.

#### Continuity and Coordination

Continuity and coordination are closely linked, the former providing a vehicle by which to achieve the latter. Because of the highly fragmented and uncoordinated nature of our health care system, it is easy for the unknowledgeable or unmotivated consumer to slip through the cracks, particularly in the area of prevention and health promotion. Mrs. Broderick uses birth registrations, school records, voting registration, and census data as well as her knowledge of the community over generations. From these sources she prepares newly updated lists of pre-schoolers, school age children, persons over age 65, and individuals with chronic health problems, including mental illness and retardation, which she uses to ensure that all individuals at risk receive the necessary services. For example, at her annual flu clinic she not only knew who attended the clinic but also who did *not* attend and quickly followed up so that every person who needed immunization was immunized. Moreover, she knew within two days, simply by asking a few key people in the district, whether any of the more than 90 persons immunized had suffered a reaction to the vaccine.

An equally important aspect of coordination is the extent to which her efforts are synchronized with those of the physicians. Local doctors claim that it is much easier to deal with the same nurse who sees the patients both when well and when ill. On each health maintenance visit, Mrs. Broderick records the patient's blood pressure, vital signs, or any other observations that should be brought to the attention of the physician. The patient then carries this information on his or her next doctor's visit. This is particularly important for some of the frail elderly who have difficulty remembering or describing their symptoms.

In addition, the continuity of her role and presence in the community puts her in an optimal position to marshal existing community resources both for curative and preventive services. For example, she is often instrumental in coordinating neighbors, friends, and relatives to bring in food, clean house, or simply visit sick or homebound residents. She has persuaded patients and families to donate equipment that they no longer use such as a wheelchair, commode, hospital bed, walker, etc.; these are then maintained at the town halls to be used, free-of-charge, by any needy residents in the district. She convinced the Lion's Club and Firemen's Association to purchase new vision and hearing equipment for screening school age children and even collected old ski poles from a local ski area which she gave to elderly residents to assist them to walk on icy streets during the winter.

**Cost**

Many cost-saving advantages attend this system of community health care. In 1982, the cost to the taxpayers of East Hill District for a full range of nursing services was only $6.23 per person per annum. During this time, Mrs. Broderick made 1,236 visits for the year or an average of 25.75 visits per week working less than half time. If we allocate half of the East Hill district health budget, or $6,448.10, for the home care component of her practice and divide by the total number of visits, we arrive at an average cost to the taxpayer of only $5.22 per visit. In the same year, the Hamilton County Agency, using 10 full-time staff nurses and two nursing administrators, made 9,755 visits annually throughout the county, averaging 19.5 visits per nurse per week, the majority of which are billed to Medicare at the rate of $32*** per visit (which has recently been raised to $35 per visit). Using the Medicare charge of $32 per visit, the cost to the taxpayer for the county agency's 255 visits in East Hill was $8,160, almost equaling Mrs. Broderick's total salary.

What accounts for these remarkable differences in productivity and costs between the two systems of nursing care? The obvious answer is that the county agency's patients are sicker and require much more sophisticated and complex care. The visits are thus considerably longer, whereas the majority of the district nurse's visits are health maintenance and monitoring the elderly and those with chronic, rather than acute, health problems. On the other hand, the town nurse is not exempt from extended, complex visits when the patient is unable to reach the Visiting Nurse Service or when recently hospitalized patients specifically request that Mrs. Broderick supervise their care.

There are additional reasons for the high productivity of the district nurse. First, because of the continuity and coordination inherent in this system, long and expensive nursing assessment visits are usually unnecessary or can be streamlined. Most of her sick patients are already being monitored and under her care when they are well and regular telephone calls to patients and their support persons permit Mrs. Broderick to be very economical about her visits. Moreover, she usually knows exactly what she will find when she gets there and thus is already prepared for the contingencies that may occur.

The time and expense involved in travel is another factor which influences the cost of services. The total annual travel expenses for the East Hill district is only $850 for over 1,200 visits at the reimbursement rate of twenty cents per mile. The county agency is located 20 miles from the nearest point in the East Hill district. Figuring conservatively that four visits could be made each day, traveling the minimum 20 miles to and from the agency, the agency's 255 visits would cost a very minimum of $510.

A third factor in increasing the productivity and reducing the costs of the district nurse is that there are fewer records to keep and no billing to be done. Although Mrs. Broderick is responsible for recording the vital statistics for the four towns and makes a monthly report to the board of health stating her activities and the numbers of residents visited, she is not required to keep elaborate records to satisfy billing and certification requirements of third party reimbursers. In the Hamilton County Agency, at least 20 per cent of the budget went into administrative costs associated with reimbursement and the staff nurses often complained that 20 to 25 per cent of their time is consumed in record keeping. The same can be said of the expenses associated with maintaining the physical plant. Town nurses are based in the town hall, a fixed expense for most town governments. For the East Hill district, only the telephone expenses of $275 per year can be truly counted as material costs. The office rent of $700 and the treasurer's salary of $200 per annum are fixed expenses assumed by the town in any case but for the purposes of budget justification, are apportioned to various town services. However, even if those were included, the total administrative cost would come to only 9 per cent of the total budget.

Another economical feature of this system is that costly incentives are not needed to attract town nurses to these areas. They are already there—married to farmers or tradesmen or small businessmen—and regard town nursing as a prized opportunity to engage in a flexible, autonomous practice without having to travel to large urban centers. A review of town records throughout the county from the last 60 years revealed an extraordinarily low average turnover rate for town nurses (every 14 years), confirming the desirability of such positions and itself a cost-saving feature when one considers the expense associated with orientation and training.

For the purposes of this paper, issues surrounding the evaluation of direct patient care have been temporarily set aside, not because they are unimportant but because they would require a different kind of study. Consequently, many readers may argue that the district nurse simply does not or cannot provide the kind of sophisticated care required in today's complex nursing situations. On the other hand, it has not been demonstrated that town nurses necessarily give poorer quality care; nor has it been determined what percentage of all those needing nursing care require a highly technical kind of nursing intervention. While a high standard of nursing care is essential and a goal to which we must all direct our efforts, any attempt to evaluate the quality of community health services must also include its capacity to serve the entire community.[5] In the latter respect, the experience of this four-town rural district is telling.

*Discussion*

The findings of this explorative study suggest that, while administrative and certain clinical specialties can and probably should be centralized, labor intensive, primary health services best remain at the grass roots level where individuals and families are well-known to a provider who is sensitive to the context in which they must live out their daily lives. While the requirements for centralization and expansion to meet certification criteria may, at first blush, promise to be of higher quality, more cost efficient by operating on economies of scale, and more democratic since eligibility is not subject to local variations in resources, the benefits are lost when services become both limited and expensive.

If the person providing for the personal health services of a community is physically based in or near that community, they become well-known personally as well as professionally to the population. Availability generates a sense of security and nurtures a kind of social accountability in addition to being less expensive.

Local control fosters accountability to the population served. This is not to say that the federal and state govern-

***In one respect, the cost-per-visit charge is not an appropriate mechanism for comparing the two systems since for the district nurse, the more visits she makes the less the cost per visit.

ments should discontinue to pay for community and home health services but that the resources for such services be distributed in a way in which local political units can retain some governance with regard to the social welfare of their constituencies.

Preventive, curative, and health maintenance services would appear to be most effective—at least at the local level—when all three functions reside within the same individual. This not only fosters continuity and comprehensiveness for the individual patients but also permits greater coordination thereby reducing the likelihood that they will slip through the cracks. Indeed, this is the model recommended for most developing countries yet curiously discounted in our own.

Rather than access to care being determined by eligibility criteria established at the suprastructure, the decisions about who needs and who does not need care should lie with the provider, at the infrastructure, based on professional rather than bureaucratic judgment. For example, it is likely that even a terminally ill, bedridden patient, if residing with a family that is prepared to and interested in providing much of the care, may be in less need of professional nursing services than the chronically ill patient who is ambulatory but lives alone, disenfranchised from the family. The criteria advanced at the federal and state levels simply cannot take such individual circumstances into consideration and consequently the *need* for nursing care is not always consistent with *access* to care. This point has already been well made by Mundinger who suggests that reimbursement on a per-nurse rather than per-nursing visit seems to be a cost-effective alternative worth exploring.[6]

Obviously, several other issues can be raised, for example, the access of patients to related services such as speech and physical therapy or whether the district nursing system would work in a more transient urban community or where the geopolitical units are larger. Without routine supervision, assuring the quality of nursing care may pose special problems—particularly in the isolated context in which most town nurses practice. Not all town nurses are Mrs. Brodericks and the system is not immune to poor or inappropriate or excessive care. However, if further research revealed that the quality of direct patient care provided by district nurses was deficient, there are several vehicles that could be instituted to enhance the quality of care without discarding the benefits of this population-based system. These might include:

- setting educational and experience requirements for district nurse positions, including mandatory continuing education;
- supervision and consultation from a centralized staff consisting of related services such as physical and speech therapy and clinical specialists in such fields as maternal-child health nursing, oncology nursing, community mental health, etc.;
- routinely scheduled conferences to reduce the isolationism of the district nurse.

This paper is not intended to compare a population-based practice with a visiting nurse practice. Such comparisons are spurious not only because the two models serve different goals and perform different functions but because each is shaped by its reimbursement structure. Despite their protestations of commitment to community health in the broader sense than just home care, the current reimbursement scheme which is geared only to physician-referred illness care precludes visiting nurse agencies from taking a more aggregate view and fulfilling their stated mandate of caring for the health of the public. There simply is no money left to do that. It is likely that neither town governments nor visiting nurse agencies anticipated the limitations that would occur when they subscribed to the newer model and accountability for the health of the public shifted from local to federal levels. Thus, in eliminating the town nurse, they eliminated not only the home health nurse but also prevention, promotion and maintenance care. Ironically, the system condemned as antiquated may hold much better possibilities for addressing the nation's current and future health problems.

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