paper by Knodel and Hermalin can only in part resolve outstanding controversial issues. Nevertheless, these German data on 9,000 women and 48,000 births have three distinct advantages: the number of observations is sufficient for adjustment or stratification by subgroups of particular interest; the population did not practice birth control, so self-selection for higher birth orders should be minimal; and unlike cross-sectional or truncated longitudinal studies, these historic data are based on completed reproductive histories over a woman's entire reproductive life. The authors confirm previous findings that extremes of maternal age or short preceding birth intervals are independently associated with an increased risk of infant death. However, they also show that larger completed families have higher mortality at each birth order, even after controlling for maternal age and the length of the preceding birth interval, whereas birth order *per se* is not independently associated with mortality risk. This effect is most pronounced in families with seven or more children. These findings suggest that membership of a larger family confers a higher risk of dying at all stages of family formation, and it is the characteristics of larger families that influence mortality risks via behavioral or biological mechanisms. Unfortunately, these historical data do not allow us to unravel causal mechanisms, but it is likely that breast-feeding was a critical factor since certain villages with a short duration of lactation also have shorter birth intervals, higher mortality, and a larger average completed family size.

The importance of completed family size as a determinant of mortality has implications both for research and policy. From the research perspective, it is clear that the association between higher birth order or parity and increased mortality observed in previous retrospective or cross-sectional studies[2,7] is, in part, an artifact due to the inappropriate comparison of families at different stages of formation, since lower birth ranks may arise from either small or incomplete larger families, but higher birth ranks can only occur in larger families. Conversely, the declining mortality risk with higher parity reported in truncated prospective studies[8] is also probably in part an artifact whereby women who lose children selectively progress to further pregnancies, but women without child loss selectively stop reproduction.[14,15] There is, however, still need for further research to determine what specific factors associated with larger families lead to poorer child survival, and what are the mechanisms through which these factors influence mortality risk.

From the perspective of policy, it is clear that priority in the provision of family planning services should be given to those women with large families, women at the extremes of reproductive life, and women who have recently had a birth. Such policies would potentially minimize the risk of infant and child loss, and contribute to a reduction of maternal morbidity and mortality. Thus, the health rationale for family planning remains unchanged, although the quantification of the health benefits remains elusive.

RONALD H. GRAY, MD

Address reprint requests to Dr. Ronald H. Gray, Professor and Chairman, Department of Population Dynamics, Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, MD 21205.

© 1984 American Journal of Public Health 0090-0036/84 $1.50

REFERENCES

1. Knodel J, Hermalin AI: The effects of birth rank, maternal age, birth interval, and sibship size on infant and child mortality: evidence from 18th and 19th century reproductive histories. Am J Public Health 1984; 74:1098–1106.
2. Omran AR: *In:* Omran AR, Standley CC: (eds) Family Formation Patterns. Geneva: World Health Organization, 1976; 17–49.
3. Rinehart W, Kols A, Moore SH: Healthier mothers and children through family planning. Population Rep 1984; Series J, No. 27, 659–696.
4. Nortman D: Parental age as a factor in pregnancy outcome and child development. Rep Popul/Fam Plann 1974; 16:1–51.
5. DeSweemer C: The influence of child spacing on child survival. Popul Stud 1984; 38:47–72.
6. Winikoff B: The effects of birth spacing on child and maternal health. Stud Fam Plann 1983 14:231–245.
7. Hobcraft J, McDonald JW, Rutstein S: Child-spacing effects on infant and early child mortality. Popul Index 1983; 49(4): 585–618.
8. Bakketeig LS, Hoffman JH: Perinatal mortality by birth order within cohorts based on sibship size. Br Med J 1979; 2:693–696.
9. Chen LC, *et al:* Maternal mortality in Bangladesh. Stud Fam Plann 1975; 5:334–341.
10. Gendell M, Hellegers AE: The influence of the changes in maternal age, birth order and color on the changing perinatal mortality, Baltimore, 1961–66. Health Serv Rep 1973; 8:733–742.
11. Morris NM, Udry JR, Chase CL: Shifting age-parity distribution of births and the decrease in infant mortality. Am J Public Health 1975; 65:359–362.
12. Wright NH: Family planning and infant mortality rate decline in the United States. Am J Epidemiol 1975; 101:182–186.
13. Osborn J: A multiplicative model for the analysis of vital statistics rates. J R Statisti Soc 1975; Series C, 24:75–84.
14. Billewicz WZ: Some implications of self-selection for pregnancy. Br J Prev Soc Med 1973; 27:49–52.
15. Golding J, Vivian S, Newcombe R: Fetal loss, gravidity and pregnancy order. Is the truncated cascade analysis valid? Human Development 1982; 6:71.

Can a Time-Honored Model Solve the Dilemma of Public Health Nursing?

Public health nursing embodies all the best in the ideals in American nursing and yet also all the failings that have plagued the field since its 19th century origins. With the publication in this issue of the Journal of Melanie Dreher's strongly positive analysis of a historically popular form of public health nursing,[1] we are given the opportunity to reflect upon these hopes and dilemmas. As historians and health policy analysts, we are pleased to see a well-argued plea for this model in which public health nurses provide both bedside and preventive care.

Generalized district nursing, as this model is labeled, has an intrinsic appeal to many: to nurses anxious to create a more "rational" division of labor than the present physician-dominated arrangement; to over-burdened families of the chronically ill; and to policy makers searching for less costly alternative systems of care. Despite complex social, medical, and economic problems that create a contemporary need for just this kind of home-based nursing care however, it remains an ideal obtainable only in the rarest circumstances. It is imperative that historical evidence be considered in

understanding why this model has not been implemented nationally, despite numerous well-funded attempts to do so throughout the 20th century.

District nursing began in the United States in the late 19th century under the control of small groups of wealthy women who hired one or two nurses to visit the sick poor in their homes. These nurses quickly became both bedside caretakers and missionaries of health. They were expected to take the latest knowledge of scientific medicine and public health practice and translate it into the terms of personal responsibility. The district nurse taught the importance of exercise, proper diet, sunshine, fresh air, and cleanliness. Some public health officials and nurses thought this "health" nursing differed so greatly from "sick" nursing it might one day constitute a distinct profession.

This new field did grow and became what we now call public health nursing. By 1910, most of the larger visiting nurse associations had initiated new preventive programs for school children, infants, mothers, and tuberculosis patients. But many voluntary organizations saw these programs as primarily experimental. Their responsibility ended, they believed, once the work was established and public interest aroused. Many of these programs were taken over either by boards of health or education. But a division of labor was created that left innovation and "sick" nursing in the hands of voluntary associations, teaching and prevention in the bailiwick of the publicly funded agencies.

Health officers often favored this division, viewing any unnecessary association with curative programs as an unwise and politically indefensible extension of public health activities. They believed that nurses who spent any significant part of their time providing bedside care should not even be classified as public health nurses. Such a role was therapeutic rather than hygenic, it was argued, and dealt with individuals rather than the maintenance of community health.[2]

In contrast, by the 1920s many nursing leaders were campaigning for the public health nurse to become again the "community mother, the trained and scientific representative of the good neighbor," as described by public health leader C.-E.A. Winslow.[3] Realizing that separating curative and preventive functions in public health nursing had been a mistake, they argued for a combined model that would unite both the voluntary and publicly funded agencies. These views were substantiated in numerous demonstration projects and major reports throughout the 1920s and 1930s.[4-6] Despite widespread support for this unification model and its proven ability to meet the needs of most patients effectively, it remained more a nursing ideal than an obtainable reality.

It is this "failure to thrive" that bears explaining. While public and private agencies viewed themselves as integral to their community's health care system, most still operated in isolation. Relationships to other providers were casual and haphazard, except where foundation funds made cooperation possible.[4-6] Public health nursing was administered on an agency basis without any rational division of labor or clear lines for catchment areas. This meant both gaps and duplication in services. With both public and private agencies providing a perplexing assortment of both bedside and preventive nursing services, the meaning of public health nursing seemed vague, idiosyncratic, and confusing to the public.

However, in some small communities, it was possible to create a nursing service which provided both preventive and bedside care in a defined district. Many of these nurses were supported in rural areas through the Red Cross in the post World War I years. While at its peak, some 2100 Red Cross public health nursing services had been organized. But by 1931, only 268 remained. Looking back on this disaster, Red Cross public health nursing director Elizabeth Fox concluded that success had been obstructed "by general apprehension of Red Cross's intention and capacities, by vigorous opposition from health authorities, by coldness and open hostility on the part of the medical profession, by the inexperience of the (Red Cross) chapters, by lack of standards in rural nursing, and by a scarcity of qualified nurses."[7] Developing under the aegis of a variety of disparate, different, and often competitive private and public agencies, public health nursing never succeeded in generating the kind of structure that might have allowed it to become a cohesive, recognized, and powerful group within the health care system.

Even if the historical circumstances had been different, the district model presents a number of difficulties. The district nurse *cum* "community mother" as embodied in Nurse Broderick and described by Dreher,[1] suggests the problems inherent in the "native healer." Mrs. Broderick is socially accountable to her neighbors in the ways of her predecessors, the neighborhood or "professed" nurses who rode through the same Berkshire hills of New England 200 years ago. As a known and respected figure in the community, she can be asked the most personal of questions, at all hours of the night, and can be expected to remember when a grandchild needs shots, and when a grandparent has missed a clinic visit. But as public health planners found in the 1920s and 1930s, the knowledgeable and powerful local public health nurse often knew too much. She could be relied upon by those who paid her to report on moral lapses in community norms that resulted in unwanted pregnancies or venereal disease, or a mistress and extra children in a back hollow cabin. Furthermore, in the rural South, it was often the local public health nurse whose close fit with community norms left the Black population with little or no decent health care services.* A Mrs. Broderick may be acceptable and accountable to her community, but that indeed can be a double-edged sword.

On the other hand, public health planners have for years stressed the value of the seemingly more neutral outsider who could be expected not to share certain expectations of individuals or the prejudices of the local community, while bringing in what was perceived as an alien class culture. It is naive to assume that contemporary professionalism would protect a community from both these dilemmas. But the difficulty of the trade-off between an acceptable local community nurse and a more distant outsider has to be assessed. As the Red Cross Town and Country service found earlier in the century, it was often a question of finding the right individual in these situations. A usable model for public health nursing, however, cannot rely only upon personality.

Many of the district nursing models of the past foundered on the shoals of town financing. In the model described by Dreher, the nurse is paid for a five-eights position out of the town coffers. But as a Montana nursing leader noted in recent Congressional hearings on rural health care: "Rural nurses are asked to assume greater responsibility, are often on call 24 hours a day. . . . Rural public health nurses find their salaries and working conditions determined by county commissioners who are often more concerned with building and maintaining roads and bridges than quality health

care."[8] District nurses have always been expected to do more, for less, especially in rural areas. In the Massachusetts example, turnover may have been almost nil. But elsewhere in the country it has been the all too frequent norm.

Reliance upon what might be labeled "state nursing"—available to the entire population regardless of ability to pay—may indeed be an ideal to which many of us would like to strive. Historical examples of the challenges to this model, from the New York State medical society's 1920s attacks on state funded health care centers to the more recent defeats of national health insurance, are too numerous and painful to recount. But they prompt us to take a more sophisticated and sobered look at the political realities surrounding any model which forces health care into the battle for public funding.

Furthermore, it is imperative that we assess the context in which the ever-changing boundaries are drawn between "health" and "sick" nursing. As both medicine and general nursing are increasingly appropriating aspects of prevention into their own practice, we are left to raise, once again, the question of where the public health nurse fits. If prevention continues to be a commoditized health care product, what will the public health nurse be left to "give away" or even "to sell?" Will public health nurses be able to mount the kind of political momentum necessary to define their practice before, once again, it is shredded into pieces and parceled out among other more powerful providers?

The district public health nurse question thus permits us to remember that ultimately all public health decisions are questions of power, not merely of cost efficient administrative modeling. It is effective control over the powers in the health care system that continue to elude public health nursing and to undermine its ability to create a practice equal to its ideals. Can this history lesson be learned so that an ideal can also become implemented practice?

KAREN BUHLER-WILKERSON, RN, PHD
SUSAN REVERBY, PHD

Address reprint requests to either author: Karen Buhler-Wilkerson, RN, PhD, Assistant Professor of Clinical Nursing, School of Nursing, University of Pennsylvania, Philadelphia, PA 19104; Susan Reverby, PhD, Assistant Professor and Director, Women's Studies Program, Wellesley College, Wellesley, MA 02181.

© 1984 American Journal of Public Health 0090-0036/84$1.50

REFERENCES

1. Dreher M: District nursing: the cost benefits of a population-based practice. Am J Public Health 1984; 74:1107–1111.
2. Buhler-Wilkerson K: False Dawn: The Rise and Decline of Public Health Nursing, 1900–1930. PhD dissertation, University of Pennsylvania, 1984.
3. Winslow C-EA: The new profession of public health nursing and its educational needs. Speech 1917, Winslow Collection, Yale University Library.
4. Goldmark J: Nursing and Nursing Education in the United States. New York: MacMillan Company, 1923; New York: Garland Publishing Company, 1984, reprint edition.
5. National Organization for Public Health Nursing: Survey of Public Health Nursing: Administration and Practice. New York: Commonwealth Fund, 1934.
6. East Harlem Nursing and Health Service: A Comparative Study of Generalized and Specialized Health Services. New York: East Harlem Nursing and Health Service, 1926; New York: Garland Publishing Company, 1984, reprint edition.
7. Kernodle, Portia B: The Red Cross Nurse in Action: 1882–1948. New York: Harper and Brothers, 1949, pp. 256–285.
8. Buck P and Rosenkrantz B: Healthy, Wealthy and Wise. (book in progress).
9. Rural Health Care: Hearings before the Subcommittee on Health of the Committee on Finance, 97th Congress, 1st Session, 1981. Statement of Jo Anne Dodd, Montana Nurses' Association, p 40.

Venceremos

This issue of the Journal carries a brief account of the remarkable progress in health system reform achieved under the Sandinista regime in Nicaragua.[1] The Nicaraguan record resembles that of Cuba; many of the approaches and patterns of organization and service seem derived from eastern Europe via Cuba. The success of these particular approaches to health care and the governments from which they derive appear, at first blush, to point to their superiority over other systems, at least for developing countries. Like all simple associations, however, the appearance is deceiving. While some of Nicaragua's neighbors—notably Guatemala—show no sign of improving health status, others—notably Jamaica, Costa Rica, and Panama—are doing quite well; their current and projected health status indicators are almost identical to those of Cuba.[2,3]

What Cuba, Nicaragua and its neighbor Costa Rica have in common is not their form of government or the specific patterns of its health services and health resources. These are quite different from country to country. The commonality on which their success rests is a commitment to primary care and equity of access backed by the will to bring about change. The pre-revolutionary situation in Nicaragua was not unlike that which continues to exist in many Latin American countries: fragmented and disorganized services with a major portion of the available pie taken up by a minority of the population—those covered by social security care and living in cities. The very rich, meanwhile, may have had their own private hospitals or been flown to major medical centers in the United States for minor complaints.

Merging the resources of Latin American Social Security Systems with those of the Ministries of Health into a single system of health care has been done in different ways in different countries. This, too, is not the prerogative of a particular form of government but a reflection of the motivation and will to act in the best interests of all the people. It is interesting to contrast the behavior of a sizable portion of Cuban physicians (who fled) with that of the Nicaraguans, Costa Ricans, and Chileans who supported and even led the movement of unification.[4] It suggests that not all physicians are money grubbers, and that they can work as partners with government provided the government is honest and dedicated to the welfare of all.

There are other lessons to be learned from the Nicaraguan experience. For developing countries the changes that have occurred since 1979 show what organization and dedicated, well-prepared professional leaders can do when the