

Effectiveness of Public Health Nurse Home Visits to Primarous Mothers and Their Infants

VIOLET H. BARKAUSKAS, PHD, RN, CNM

Abstract: The purpose of this study was to determine the effects of public health nurse postpartum home visits by comparing the health outcomes of 67 randomly selected mother-infant pairs who had received such services with 43 randomly selected mother-infant pairs who had not received them. Health outcome variables were mother's health and health services utilization, infant's health and health services utilization, and mother's parenting practices. Data

were collected from birth certificates, health service records, and by home interviews and observations at six months postpartum. No significant differences were noted between home-visited and not-home-visited mother-infant pairs for the majority of health outcome variables. Major, differential health assets and liabilities between groups of Black and White mother-infant pairs were observed. (*Am J Public Health* 1983; 73:573-580.)

Introduction

Twenty years have passed since Roberts prodded public health nurses to explore the outcomes of their services to individuals and families.¹ A 1977 review of research in the field by Highriter indicated that many questions regarding service effectiveness have remained unanswered.² Because of current concerns about the cost-effectiveness of health services and appropriate utilization of professional nursing personnel, studies of service effectiveness are especially important and timely.

The home visit has been a major mechanism for the provision of public health nursing services to clients. The home has many advantages as a site for the receipt and delivery of health services. It is convenient for the client and family. For patients unable or reluctant to travel to other sites, the home may be the only option for the receipt of any health services. The home is a setting controlled by the patient. It can be a comfortable, relaxed environment for the discussion of concerns and needs.

A major disadvantage of home services to health care providers, and ultimately clients, is the cost of such services. Costs include the home visitor's travel expenses, time wasted in uncompleted home visits when the client or family is not at home, and decreased efficiency because only one client or family can receive attention at a time.

Families in the childbearing and early childrearing phases of family development have been a major focus of public health nursing services. The health information and counseling needs of prenatal and postpartum women and

their infants are well documented.³⁻⁵ In response to these needs, public health nurses have provided services to young families in home and clinic settings since the turn of the century. These services still comprise a major portion of the overall nursing program in many official health agencies.

The few published studies of the effectiveness of public health nurse home visits to women during the childbearing and early postpartum periods for the purposes of general health promotion have yielded inconsistent, but generally negative, results.

Lowe utilized an experimental design with random assignment to determine if public health nurse home visits heightened the compliance and self-care practices of prenatal patients.⁶ No differences in outcomes were observed between 28 home-visited and an equal number of not-home-visited subjects. The actual services provided to subjects were neither controlled nor documented.

A study by Yauger of the effects of community health nursing services on multiparous patients during the prenatal and postpartum periods indicated no difference between 21 visited and 26 control group families for health status, health behavior, and health knowledge variables measured ten to eleven months postpartum.⁷ Families in this study received the nursing services routinely provided by the study agency and a minimum of four home visits. As in the Lowe study, the actual services provided to subjects were neither controlled nor documented.

In contrast, Hall demonstrated that instruction focused on infant behavior during a home visit made several days after hospital discharge could have significant and beneficial effects on the primipara's perceptions of her newborn, measured at one month.⁸ Hall's intervention was structured health teaching concentrated in areas related to the study's outcome variables. The total sample for this study was 30 mothers. Programs of focused and extended public health nurse home services to infants at risk for unexpected infant death and child abuse have also demonstrated effectiveness in reducing risk.^{9,10}

Address reprint requests to Violet H. Barkauskas, PhD, Community Health Nursing, School of Nursing, University of Michigan, 400 N. Ingalls, Ann Arbor, MI 48109. This paper, submitted to the *Journal* March 22, 1982, was revised and accepted for publication August 10, 1982.

The effectiveness of home visits, consisting of structured health teaching to expectant and postpartum families for various health promotion purposes by paraprofessional health care workers who provided services similar to those of public health nurses, has been studied by several investigators.^{11,12} Findings from these studies, although inconsistent, have demonstrated a trend toward improved health outcomes when services were initiated prenatally and included frequent visits re-established early in the postpartum period and extended throughout the first year.

The purposes of this study were: to document the nature of public health nursing services provided to postpartum families during home visits; and to determine if home visits to primiparous mothers and their infants in their homes by public health nurses facilitate the achievement of health outcomes at a higher level than would be expected without such visits.

Materials and Method

The study site was a county in a midwestern state in the United States, with a population of slightly more than one million residents. The participating public health nursing agency was a unit of the county's health department. In 1979, this nursing service had approximately 220 budgeted positions, including 80 public health nurses.

Criteria for the selection of mother-infant pairs into the study were:

- Delivery at the county hospital;
- First live birth for mother;
- Infant 2,000 grams or larger at birth;
- Infant living with mother;
- Neither infant or mother hospitalized since delivery for a condition noted at the time of delivery;
- No separation longer than 14 days of mother and infant since delivery.

Mothers selected for the study were characteristically in their late teens, unmarried, and not high school graduates. They initiated care early in the second trimester and had an average of 10 to 11 prenatal care visits. Infants had a mean birthweight of 3282 grams, and a mean five minute Apgar score of 8.8. None had congenital anomalies noted at birth (see also Table 2).

Data Sources

Birth certificates provided the following data: sex, birthweight, mother's age, race, marital status, and education, education of father, month in which prenatal care was initiated, number of prenatal visits, Apgar scores at one minute and five minutes, and complications of pregnancy, labor, and delivery.

Other information was solicited during an interview with the mother when the infant was 24–28 weeks of age and included: infant's primary care giver, size of household, and assistance given to mother during the postpartum period. At this time, data regarding specific, dependent variables were also obtained reflecting health of mother, health of infant,

utilization of services for health promotion, and mother's parenting practices.

The independent variable was routine public health nursing service provided in the homes of the subjects and over the telephone between home visits. The investigator did not manipulate the routine services in any way. Public health nursing records were reviewed to obtain information on services delivered.

Instruments

A Postpartum Interview Questionnaire (PIQ) was constructed to measure variables relating to the health and the health services utilization of the mother and infant, and the mother's parenting practices. Before use, this was pre-tested with five mothers to assess clarity of wording and acceptability of content, and minor revisions made.

In addition, the Home Observation for Measurement of the Environment (HOME) tool^{13,14} was used to measure both the quality and quantity of social, emotional, and cognitive support within the home. This 45 binary choice item instrument involves both observational and interview questions which measure six factors within an infant's environment: emotional and verbal responsivity of the mother; avoidance of restriction and punishment; organization of the physical and temporal environment; provision of appropriate play materials; maternal involvement with the child; and opportunities for variety in daily stimulation. Elardo and others reported a consistent inter-rater agreement of 90% and predictive validity for the tool.¹⁴ HOME scores at six months of age were significantly correlated with Stanford-Binet test scores measured at 54 months of age.¹³

Procedures

Birth certificates for a four-month period (October 1978 through January 1979) were reviewed to obtain an initial list of subjects who apparently met the first three subject selection criteria. Then, mothers' names were searched in the public health nursing services index files to screen for additional infants and mothers who did not meet the remaining study subject selection criteria and to determine if the mothers and infants had been referred to and received public health nursing services.

Because the screened list of 429 mothers was almost equally divided between White and Black mothers, the sample was planned so that approximately half of the subjects would be from each racial group. The mothers were distributed among four sublists according to home-visited status and race. Using a random numbers table, the investigator selected one-third of the sample, 143 mother-infant pairs, for participation in the study. This percentage would achieve a sample of 120 with an anticipated 16 per cent attrition rate.

Early in the study the investigator found that sample attrition, mainly because of inability to locate mothers, was averaging around 50 per cent. Therefore additional mothers were randomly selected. A total of 256 mother-infant pairs were ultimately selected for the sample, including 146 pairs from whom data were not collected for various reasons and 110 pairs who were study subjects. The reasons for non-

TABLE 1—Reasons for Non-Participation of 146 Mother-Infant Pairs Selected for the Sample

Reason	Number of Mother-Infant Pairs	Percentage of Non-Participants
Family had no phone and was not at home at visit attempt	30	20.6
Family moved to unknown address	28	19.2
Family not home for appointment for data collection or refused to participate	25	17.1
Family had a phone, unable to contact before infant too old	24	16.4
Given address incorrect	18	12.3
Family moved out of area	11	7.5
Mother-infant pair did not meet study subject selection criteria when reviewed at 6 months	6	4.1
Extra pairs in groups already filled at end of study	4	2.7
TOTAL	146	99.9

participation of 146 sample pairs are displayed in Table 1. Failure to establish contact with mothers for various reasons accounted for 75.9 per cent of non-participation, while lack of mother's cooperation after contact was established accounted for only 17.2 per cent of non-participation. Attrition was unequally distributed, being 51.5 per cent for Black mothers, 60.0 per cent for White mothers, 14.8 per cent for home-visited mothers, and 74.3 per cent for not-home-visited mothers.

Table 2 contains a comparison of summary statistics for various variables among the three population subgroups—those not selected for the sample, those selected for the sample but from whom data were not obtained, and the study subjects. As previously noted, racial composition was manipulated by the investigator to obtain equal representation of Black and White mother-infant pairs in the sample. Although the mean age was lowest for the subjects, there is less than one year's difference between the means for the oldest and youngest groups. Thus, despite the large attrition, study subjects were similar to the population from which they were drawn and attrition did not seem to be selective according to any of the measured variables.

The distribution of study subjects by public health nurse visit and race variables is displayed in Table 3.

Multivariate contingency table and two-way analysis of variance techniques were the primary methods used to analyze data.

TABLE 2—Comparisons of Demographic Characteristics among Population Subgroups*

Variable	Mother-Infant Pairs			Significance ^b of Difference
	Not in Sample (n = 173)	In Sample not Subjects (n = 146)	Sample Subjects (n = 110)	
Male infants	50.0%	54.8%	54.5%	NS ^j
Black mothers ^c	38.2%	50.7%	58.2%	.003
Mean birthweight (grams)	3150.	3193.	3282.	NS
Mean age of mother (years)	18.7	19.1	18.2	.050
Mean years mothers' education	10.7	10.8	10.7	NS
Mean years fathers' education	10.7	11.1	10.7	NS
Married mothers ^d	28.2%	34.2%	24.5%	NS
Mothers with parity of 0000 ^e	84.4%	84.2%	82.6%	NS
Mean gestational age when prenatal care initiated (months)	3.6	3.5	3.5	NS
Mean # prenatal care visits	10.62	10.94	10.43	NS
Mean Apgar one minute (points)	7.3	7.6	7.5	NS
Mean Apgar five minute (points)	8.8	8.8	8.8	NS
Complications of pregnancy	0.0%	0.0%	0.0%	NS
Concurrent illnesses with pregnancy	0.0%	0.0%	0.9% ^h	NS
Complications of labor and delivery	0.6% ⁱ	4.8% ^g	3.7% ^j	NS
Congenital anomalies	0.0%	0.0%	0.0%	NS

*Population refers to births in the county hospital between October 1, 1978 through January 31, 1979 meeting study sample selection criteria.

^bDetermined by ANOVA or chi-square methods.

^cRemainder White.

^dRemainder unmarried.

^eIndicates no previous pregnancies.

^fOne case, Cesarean section (CS).

^gOne case, fetal distress; 6 cases, CS; 1 case, breech presentation.

^hOne case, premature rupture of membranes.

ⁱFour cases, CS.

^jNot significant at the .05 level

TABLE 3—Distribution of Study Mother-Infant Pairs by Home-Visit Status and Race

Race	Home-Visit Status		Total
	Home-Visited	Not-Home-Visited	
Black	35	29	64
White	32	14	46
TOTAL	67	43	110

Results

A number of variables were significantly related to race. Black mothers were significantly younger, better educated, more apt to be involved in work or school. They were more likely to reside in larger households and less likely to be married than White mothers. It is important to note that no significant public health nursing visit effects, which might indicate selection criteria for home visits, were observed among the descriptive variables.

A total of 48 nurses provided the public health nursing services to study subjects. The nurses' mean age was 35.9 years, with a median age of 31 years. Typically nurses were White and female; they had a median of seven years' total nursing experience, and a median of two years public health nursing experience. Seventy-seven per cent had at least a baccalaureate degree.

Public health nurses had a total of 236 completed and attempted contacts with the 67 families in the home-visited group. Of these 236 contacts, 143 (60.6 per cent) were completed home visits, 49 (20.8 per cent) were telephone calls, and 44 (18.7 per cent) were attempted home visits for which the mother was not home. The 35 Black families who were visited received an average of 2.08 home visits per mother-infant pair; and the 32 White families visited received an average of 2.18 home visits per family. The average age of Black infants at the first contact with a public health nurse was 3.17 weeks, and for White infants was 3.32 weeks. However, over half of initial contacts were made during the first two postpartum weeks.

Table 4 displays the services provided during 192 completed home visits and telephone calls. Assessment of mother, infant, and family services predominated in frequency when compared to frequencies of intervention and treatment services. Use of health services is the most frequently performed assessment activity in behalf of both mothers and infants. Instructions predominated as the primary interventions of the public health nurses with diet, child care, use of health services, and feeding methods the predominant instruction topics.

Of the 65 home-visited mothers who answered the question: "Were the public health nursing visits helpful to you?", 56 (86.2 per cent) responded that the visits were helpful and nine (13.8 per cent) responded that the visits were not helpful. The subjects' perceptions of what was helpful in the public health nursing visits indicated that information-giving was the major type of assistance (Table 5).

Group data for many of the dependent variables are

summarized in Table 6 with results of significance tests for effects of race and of public health nursing visit. Only one of the 18 variables demonstrated significant PHN effect: home-visited mothers were more apt to express concerns about health matters than not-home-visited mothers. Neither self-estimation of health nor use of birth control differed significantly by PHN visit or race. However, White mothers were more likely to report the presence of postpartum health problems, but less likely to have a postpartum examination than Black mothers. Three of four White mothers who reported a second pregnancy had received PHN home visits.

No significant PHN visit effects were noted for home scores. Black mothers demonstrated lower total home scores than white mothers, $F(1, 107) = 14, 468, p < .01$.

Discussion

Only one statistically significant difference in health outcome was observed between home-visited and not-home-visited mother-infant pairs: home-visited mothers were more likely to express health concerns than not-home-visited mothers. Since this was only one of more than 18 variables examined, chance itself could account for the statistical significance.

An incidental finding is the differential in health assets and deficits between the study's two racial groups despite their similar economic status and health system experience. Findings for White mothers reflect a theme of illness and lack of compliance. Black mothers reflect needs relating to several, basic mothering skills.

The finding of no difference between home-visited and not-home-visited families for most dependent variables could be related to limitations in the study's methodology, the public health nursing services provided to study subjects, or the basic structure of public health nursing services for families.

A major limitation of the study's methodology was the lack of random assignment to treatment and comparison groups and the concomitant lack of control over services provided to mother-infant pairs. This limitation was necessitated by ethical concerns of agency personnel regarding the denial of services to families ordinarily receiving them, a concern not unique to public health nursing settings and identified as a major objection to experimentation in many types of human services.¹⁶ Nevertheless, the random selection process seems to have selected a group of subjects similar to the population except for the investigator-manipulated, race characteristic (Table 2). The sample selection and attrition processes did not appear to be biased by any variable documented on the birth certificates which were a useful source of information for descriptive and comparative data.

Non-participation was large, and the investigator probably collected data from the more stable and receptive of the mothers chosen for the sample. Thus the overall data may be biased in a positive direction. It is also possible that the home-visited families were at greater risk for health problems than the not-home-visited families. The finding of little

TABLE 4—Services Provided to Study Subjects during Completed Home Visits and Telephone Contracts^a

Service	Frequency	% Completed Contacts in Which Service Occurred	Rank ^b
Assessment of Mother			
Health services use	79	(41.1)	3.5
Physical status	76	(39.6)	5
Family planning practices	62	(32.3)	7
Plans for work/school	59	(30.7)	8
Mothering Skills	53	(27.6)	9
Self-care practices	42	(21.9)	14.5
Health history	34	(17.7)	18
Support systems	33	(17.2)	19
Psychological status	27	(14.1)	22
Assessment of Infant			
Health services use	107	(55.7)	1
Diet	99	(51.6)	2
Physical status	79	(41.1)	3.5
Development	65	(33.9)	6
Method of feeding	46	(24.0)	12
Health history	46	(24.0)	12
Sleep	30	(15.6)	20.5
Assessment of Family			
Relationships	46	(24.0)	12
Finances	42	(21.9)	14.5
Environment	36	(18.8)	17
Dynamics	6	(3.1)	
Instructions			
Diet-general	47	(24.5)	10
General child care, including growth and development information	40	(20.8)	16
Use of health services	30	(15.6)	20.5
Feeding methods for infant	10	(5.2)	
Re-instruction of instructions of others	9	(4.7)	
Safety	8	(4.2)	
Social, cognitive, growth fostering activities for infant	8	(4.2)	
Use of thermometer	7	(3.6)	
Family Planning	6	(3.1)	
Other areas of instruction (11 areas noted 1–5 times each)	27	(14.1)	
Follow-up of Problems			
Positive gonorrhea culture	3	(1.6)	
Emergency room visit	3	(1.6)	
Referrals			
To Well-Child Clinic	10	(5.2)	
Other referrals to six types of services noted 1–5 times each	18	(9.4)	
General Supportive Interactions	17	(8.8)	
Miscellaneous Activities			
Inform about resources	9	(4.7)	
Other miscellaneous activities (six activities noted 1–5 times each)	19	(9.9)	

^an = 192^bOnly individual items at a frequency of greater than 20 are ranked.

difference at six months postpartum may indicate that home-visited families were brought to levels of health and functioning comparable to the hypothetically low-risk, not-home-visited families. Nevertheless, the lack of PHN visit effect for the descriptive variables noted on birth certificates and the lack of specification of reasons for home-visit service selection on the family records weaken this argument. Low-income, primiparous mothers were considered high-risk by the study agency, and evidence exists that home visits were unsuccessfully attempted with many of the families in the not-home-visited group.

Although the young, primiparous, low-income mother can be classified as being at increased risk,¹⁶ study data suggest that not all such mothers need or benefit from public health nurse home visitation. Future studies to determine specific risk factors which would identify primiparous mothers who need and would benefit from home visits are indicated.

Over three-fourths of the nurses who provided the study interventions were prepared at the baccalaureate or higher level, reflecting a higher educational level than the national figure of approximately 41 per cent in 1977.¹⁷ It is therefore

TABLE 5—Respondents' Replies to Question Regarding Ways in which Public Health Nursing Visits Were Helpful

Response	Frequency ^b
Provided information, or taught generally or specifically about: feeding, diet, thermometer reading, eye care, babies' cries, handling babies, child care, clinic visits, resources	56
Checked baby, navel, circumcision	12
Provided availability to a health care provider	11
Provided general support, reassurance	6
Heightened awareness of health	3
Helped to obtain things	1

^an = 56

^bColumn total is >56 because some respondents provided two responses.

reasonable to assume that the potency of the interventions was as optimal as that in public health nursing practice nationally.

Descriptions of PHN services were obtained from recordings and are consequently subject to the limitations of records as accurate data sources. The recorded services provided to study subjects reflected a nursing process with a major emphasis on assessment. A home visit only for assessment does not meet cost-effectiveness criteria for screening techniques. Perhaps screening by nurses working with mothers and families in antenatal clinics, postpartum units, and postpartum clinics could be used more effectively and systematically in the identification and referral of high-risk mothers.

Instruction appears to be the primary intervention of public health nurses with well mothers and infants. One-on-

TABLE 6—Dependent Variable Data Summary (n = 110)

Variable	Percentages				Effects ^a	
	Home-Visited		Not-Home-Visited		PHN Visit	Race
	Black (n = 35)	White (n = 32)	Black (n = 29)	White (n = 14)		
<i>Mother's Health and Health Services Utilization Variables</i>						
Mother's health					NS ^b	NS
very good	45.7	25.0	34.5	35.7		
good	40.0	46.9	51.7	57.1		
fair	14.3	28.1	13.8	7.1		
Postpartum Health Problems					NS	**
yes	22.9	59.4	24.1	35.7		
no	77.1	40.6	75.9	64.3		
Use of Birth Control					NS	NS
yes	74.3	65.6	65.5	57.1		
no	25.7	34.4	34.5	42.9		
History of Postpartum Examination					NS	*
yes	91.4	71.9	93.1	85.7		
no	8.6	28.1	6.9	14.3		
Satisfaction with Mothering					NS	NS
very/quite satisfied	97.1	71.9	86.2	100.0		
moderately satisfied	2.9	21.9	6.9	0.0		
not too satisfied/unsatisfied	0.0	6.2	6.9	0.0		
Satisfaction with Baby					NS	NS
very/quite satisfied	100.0	90.6	93.1	100.0		
moderately satisfied	0.0	9.4	6.9	0.0		
Concerns about Health					*	NS
yes	41.2	50.0	20.7	28.6		
no	58.8	50.0	79.3	71.4		
<i>Infant Health and Health Services Utilization Variables</i>						
Infant's Health					NS	NS
very good	54.3	59.4	31.0	57.1		
good	40.0	34.4	58.6	35.7		
fair	5.7	6.2	10.3	7.1		
Well-Child Clinic Visits					NS	NS
0-3	42.4	44.8	26.9	54.5		
4 or more	57.6	55.2	73.1	45.4		
Received 2nd DPT and Polio Immunization					NS	NS
yes	75.0	88.5	89.3	63.6		
no	25.0	11.5	10.7	36.4		
Illness Visits to Clinic					NS	**
0-1	68.6	40.6	58.6	28.5		
2 or more	31.4	59.4	41.4	71.4		

TABLE 6—Continued

Variable	Percentages				Effects ^a	
	Home-Visited		Not-Home-Visited		PHN Visit	Race
	Black (n = 35)	White (n = 32)	Black (n = 29)	White (n = 14)		
Total Number of Health Problems					NS	NS
0–1	25.7	21.9	31.0	42.9		
2–3	54.3	53.1	44.8	50.0		
4 or more	20.0	25.0	24.1	7.1		
<i>Parenting Variables</i>						
Infant's Primary Caregiver					NS	*
Mother	85.7	96.9	89.7	100.0		
Other	14.3	3.1	10.3	0.0		
Uses Appropriate Type of Milk ^c					NS	*
yes	87.9	71.9	82.8	64.3		
no	12.1	28.1	17.2	35.7		
Uses Appropriate Diet ^d					NS	NS
yes	52.9	53.1	51.7	50.0		
no	47.1	46.9	48.3	50.0		
Uses Thermometer					NS	**
yes	65.5	75.0	57.7	92.9		
no	34.5	25.0	42.3	7.1		
History of Accident					NS	NS
yes	48.6	65.6	65.5	42.9		
no	51.4	34.4	34.5	57.1		
Number of Accidents					NS	NS
None	51.4	34.4	34.5	57.1		
1	25.7	34.4	24.1	21.4		
2 or more	22.9	31.2	41.4	21.4		

*p < .05

**p < .01

^aDetermined by multivariate contingency table analyses^bp > .05^cBreast milk or iron fortified formula^dDaily consumption of 0–2 servings of cereal, 0–1 slice of toast, 0–½ jar of meat, 1 jar of fruit or vegetable, and 24–32 oz. of appropriate milk; minimal use of table foods; and no routine use of snack foods.

one teaching is a very expensive instructional modality. Group instruction is an alternative and can be as effective as individual instruction.¹⁸

The expectant or postpartum mother and her infant are usually in a period of intense involvement with health care providers and systems. In most cases, the home visit is supplementary to primary care services provided in another setting and often by others. Although public health nurses have established comprehensive health goals for their services to families, these goals may need focus and specification for individual families.

Public health nursing interactions in the home are a very small part of the lives of the mother-infant pairs served. Considering the amounts of energy and time which change and learning require, the expectation of major achievements from interactions lasting up to several total hours may be unreasonable. The study outcome of heightened health concern may be a realistic goal for such short-term services to well families.

The need for further evaluative research of public health nursing services, especially those for preventive purposes, is a major recommendation for future research. Because of limitations on the findings of quasi-experimental designs,

research should utilize as controlled a design as possible within the field setting in order to fully maximize the benefits of random assignment.

Descriptive research is indicated as well. Only a small amount of data have been published regarding the characteristics of the populations actually being served by public health nurses and the interventions being utilized by them.

Public health nurses can no longer afford to look upon the home visit as a general, therapeutic event. The specific goals and interventions of home visits must be determined if this practice is to be scientifically and financially justified.

REFERENCES

1. Roberts DE: How effective is public health nursing? *Am J Public Health* 1962; 52:1077–1083.
2. Hightower ME: The status of community health nursing research. *Nurs Res* 1977; 26:183–192.
3. Benson ER, McDevitt JQ: *Community Health and Nursing Practice*, 2nd Ed. Englewood Cliffs, NJ: Prentice Hall, 1980.
4. McCabe SN: Anticipatory guidance for families with infants. *In*: Hymovich DH, Barnard MU (eds): *Family Health Care: Developmental and Situational Crises (Vol 2)*. New York: McGraw-Hill, 1979.
5. US Department of Health, Education, and Welfare: *Healthy*

- People: The Surgeon General's Report on Health Promotion and Disease Prevention. Washington, DC: GPO, 1979.
6. Lowe ML: Effectiveness of teaching as measured by compliance with medical recommendations. *Nurs Res* 1970; 19:59-63.
 7. Yauger RA: Does family centered care make a difference? *Nurs Outlook* 1972; 20:320-323.
 8. Hall LA: Effect of teaching on primiparas' perception of their newborn. *Nurs Res* 1980; 29:317-321.
 9. Carpenter RG, Emery JL: Identification and follow-up of infants at risk of sudden infant death in infancy. *Nature* 1974; 250:729.
 10. Kempe CH: Child abuse: The pediatrician's role in child advocacy and preventive pediatrics. *Am J Dis Child* 1978; 132:255-260.
 11. Siegel E, Bauman KE, Schaefer ES, *et al*: Hospital and home support during infancy: impact on maternal attachment, child abuse and neglect, and health care utilization. *Pediatrics* 1980; 66:183-190.
 12. Larson CP: Efficacy of prenatal and postpartum visits on child health and development. *Pediatrics* 1980; 66:191-197.
 13. Bradley RH, Caldwell BM: Early home environment and changes in mental test performance in children from 6 to 36 months. *Dev Psychol* 1976; 12:93-97.
 14. Elardo R, Bradley R, Caldwell BM: The relation of infants' home environments to mental test performance from six to thirty-six months: A longitudinal analysis. *Child Dev* 1975; 46:71-76.
 15. Reicken HW, Boruch RF (eds): *Social experimentation: A method for planning and evaluating social intervention*. New York: Academic Press, 1974.
 16. Chase HC (ed): *A study of risks, medical care and infant mortality*. *Am J Public Health (Supplement)* 1973; 63:1-56.
 17. American Nurses' Association: *Facts about nursing: 1980-81*. New York: ANA, 1981.
 18. McNeil HJ, Holland SS: *A comparative study of public health nurse teaching in groups and in home visits*. *Am J Public Health* 1972; 62:1629-1637.

ACKNOWLEDGMENTS

This research was partially supported by a National Research Service Award, no. 5F31NU05H103, from the Department of Health and Human Resources, 1978-1980. The assistance of Drs. Shu-Pi Chen and Deborah Oakley in critiquing earlier drafts of this paper is acknowledged.

Johnson Foundation Sponsors Grants Program on Health Care Costs

Helping imaginative efforts aimed at containing the spiraling costs of health care is the goal of a new grant program announced by the Robert Wood Johnson Foundation. The Program for Research and Development on Health Care Costs is designed to help encourage new ideas for providing quality health care to people who need it at an affordable price. Grants of up to \$300,000 each for a total of \$3 million will be made to projects under the auspices of a variety of health care, academic, and other not-for-profit institutions for periods of one to three years.

Grant proposals for two types of projects are sought: efforts to develop, implement, and assess new and previously untried approaches to reducing health care costs while maintaining quality and access to care, and efforts to evaluate existing approaches believed to be cost-saving but which have not been assessed. They must focus on strategies which might reduce costs for providing clinical care, organizing medical services, or financing these services. For example, such initiatives could develop or evaluate cost-saving approaches in the diagnostic and therapeutic aspects of patient care; the use of alternative medical professionals; the regionalization of high-cost technologies; or the arrangements for payment to hospitals, physicians, and nursing homes.

Individuals interested in applying for a grant under this program should send a letter requesting application materials. The procedures and timetable are as follows:

By May 4, 1983, letters due requesting application materials.

By July 25, 1983, completed applications must be mailed, as evidenced by their postmarks.

After December 31, 1983, grant recipients to be announced by the Foundation.

Copies of the program prospectus can be obtained by writing to:

Marilyn Williams
 Program for Research and Development on Health Care Costs
 The Robert Wood Johnson Foundation
 Post Office Box 2316
 Princeton, NJ 08540
 Tel: 609/452-8701