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Midlevel Personnel in Obstetrics and Gynecology Practices

Cost-Effectiveness and Consumer Benefits

RICHARD M. BRIGGS, MD; DURLIN E. HICKOK, MD; DENISE S. RASSIER, RN; N. JEAN BRICKELL, RN, *and* SUZETTE R. KAKAR, MD, *Seattle*

Two private obstetrics-gynecology practices, in adjacent Northwest cities, which employ midlevel nurse practitioners for routine obstetric and gynecologic care were the subject of this study. At site A fees charged by the practitioner were 44 percent less than those for identical services provided by the physician. This was an attempt to pass cost savings directly to patients. At site B, fees were the same for both physician and practitioner, yielding a significant net income to the practice. At this latter site a proportion of the income was passed to patients by* not *increasing office fees for the years 1975 (when the practitioner was hired) through 1977, during which time the average fees of ten other physicians increased. The study shows that the use of midlevel personnel in private offices is highly cost-effective and profitable. Ideally, this profit can be passed on to patients by reduced overall office fees.

THE HEALTH CARE DELIVERY SYSTEM has experienced a radical change in recent years with the emergence of midlevel, nonphysician, direct-care practitioners assuming new roles in response to the need for better distribution of care and the need to retard rocketing health care costs. As Appel states, "whether cost saving will be realized and passed on to the consumer has been the subject of conjecture."[1] Several studies[2,3] have shown cost-effectiveness of midlevel personnel in prepaid medical clinics and general practice settings. The present study examines the experience of two registered nurse practitioners in different fee-for-service private obstetric and gynecologic practices in the Northwest, the incomes which they generated, and the overhead they incurred over a year's period. The study focuses on how cost savings were passed on to patients in two different ways.

From the Women's Health Care Division of the Department of Obstetrics and Gynecology, University of Washington, School of Medicine, Seattle.

Reprint requests to: Richard M. Briggs, MD, U.S. Public Health Service Hospital, 1131 14th Avenue South, Seattle, WA 98114.

Materials and Methods

Practice Locations

The first practice setting (site A) is located in urban Seattle and consists of five board-certified obstetrician-gynecologists, who are part of a large multispecialty clinic. The practitioner (D.S.R.) is a British-trained graduate of a four-year nursing program and a midwifery post-

graduate course. Her office practice training in Seattle has been largely accomplished on the job. At her job site she has her own consultation room and assistant and uses the general examination room complex. At present, a third of her practice is routine obstetrics and two thirds of her patient visits involve annual examinations and gynecologic office procedures, including repeat Papanicolaou (Pap) smears on patients from the entire clinic. She also gives prenatal classes (two hours per week) to current obstetric patients. Previous or new patients may specifically request an appointment with the practitioner or be referred to her because generally they will be seen more quickly than by one of the physicians. Consultation with physicians for problems that the practitioner cannot manage is immediately available because a physician is always present in clinic.

The other practice setting (site B) is located in urban Tacoma, a smaller city than Seattle located 25 miles to the south. This practice consists of an office space and call-sharing group practice of three board-certified obstetric-gynecologic physicians. Each physician maintains his own financial records and pays his own expenses. For simplicity of comparison the midlevel practitioner's activities for only *one* of the three physicians (for whom she works two days per week) are the subject of this study. Therefore, her patient load and income will appear significantly less in the study than that of her Seattle counterpart. This practitioner (N.J.B.) is a certified registered nurse, who was a graduate of the Gynecorps-Women's Health Care Specialist Training program in 1975.[4] Her practice consists primarily of family planning, counseling and carrying out gynecologic office procedures. She has no clinical or teaching duties. Consultation, when urgent, is accomplished by any of the three physicians, one of whom is always present in his office; otherwise, patients are seen by one of these physicians another day. The practitioner uses the physician's office, the examination rooms and another room for consultation. After three years with one practice most of her appointments originate from specific requests by patients, although, as in site A, new patients often can be seen by her sooner than by the physicians. A comparison of sites A and B is shown in Table 1.

Analysis of Income

Information about income generated by the practitioners at both sites was obtained from a review of their records and appointment ledgers. At site A, the practitioner often saw one of the physician's patients when he was not available because of a conflicting obstetric delivery or operation. When this occurred, the practitioner was credited with her customary fee for that service.

Determining the income generated at site B was considerably easier because a separate ledger was provided for the nurse practitioner, which listed patients seen, type of visit and fee charged.

Income generated from doing Pap smears at both sites reflects only the professional fees and does not include cytology laboratory fees.

Analysis of Overhead

At site A the overhead expense was computed at 50 percent of the gross charges made by each physician throughout the entire clinic, including all specialities. The practitioner's portion of her overhead was calculated in the same way (50 percent of her charges).

Although the clinic is associated with an inpatient hospital facility, the overhead is calculated only from outpatient revenues and costs. The facilities used by the nurse practitioner would go unused if she were not present.

At site B the overhead cost charged to the practitioner was computed at 100 percent of the rent, salaries of office personnel and utilities on those days she worked alone in the office. N.J.B.,

TABLE 1.—*Comparison of Practice Sites A and B*

	Site A	*Site B*
Practice setting	Large multispeciality clinic with four obstetrician-gynecologists	Group practice with three obstetrician-gynecologists
Practitioner's training	RN, nurse-midwifery, and on-the-job	RN and Gynecorps training program
Type of patient visits	A third, obstetric; two thirds, annual examination and office gynecologic procedures	Family planning, counseling and office gynecologic procedures
Method of apportionment	Direct or referred by physician	Direct or referred by physician
Type of consultation available	Physician—immediate	Physician—immediate or the next day

TABLE 2.—*Fee Schedules at Practice Sites A and B*

Service	Site A Nurse Practitioner	Site A Obstetrician-Gynecologist	Site B Nurse Practitioner/ Obstetrician-Gynecologist
New patient visit	$12	$18	$28
Yearly examination	9-12	12-16	20
Office call	9-12	12-16	13
Insertion of intrauterine device	*	40	39
Counseling	0-12	0-30	14
(Average)†	(12)	(21)	(14)
Differential	$−9 (44 percent)		0

*D.S.R. does not insert intrauterine devices.
†Average of fees rounded to the nearest dollar.

however, regularly worked a second day when a physician was present in the office, and on these days she was charged 50 percent of the expenses.

Fee Schedules

For comparison, five common office practice activities were chosen as representative of charges levied to patients for services generally rendered by both physician and nurse practitioner. These services included (1) new patient office visit, (2) yearly examination, (3) office call (nonextended visit), (4) insertion of intrauterine device (IUD) and (5) counseling (charge per half hour).

Fee schedules on the above five services were obtained from sites A and B (both physician and practitioner) and from ten other obstetrician-gynecologists practicing in Tacoma without midlevel care practitioners for the years 1975 to 1977. This information was obtained by sending questionnaires to the 22 physicians in the Tacoma telephone directory listed as obstetrician-gynecologists. Ten of the 22 responded (45 percent).

Consultations

During the study period, consultations with physicians were reviewed when a problem beyond the capabilities of the midlevel practitioners was encountered. At site A, a month (beginning in February 1978) was monitored, and at site B, 150 consecutive patients in September 1977 were monitored to determine the rates of consultation. The rates and cost of physician consultation time (because it is nonreimbursable) were calculated and added to the practitioner's overhead.

Results

At site A a fee differential existed for patient visit charges depending on whether the patient saw a physician or the midlevel practitioner. At site B no such differential existed. Table 2 compares the MD/RN fee schedules at sites A and B.

At site A the schedules for service rendered involved a "range" which is based usually on time spent with the patient. Fees were documented by reference to day-sheets which indicated that the average charge to patients for office visits was $21.00 for the physician and $11.90 for the nurse practitioner, a difference of $9.10 or 44 percent.

Table 3 summarizes patient visits, income generated, overhead, salaries and net income to sites A and B.

The consultation rates for the practitioner at sites A and B were determined to be 8.4 percent and 10 percent, respectively. Assuming five minutes for consult at each site, $5.00 would be the cost at Site A (a sixth of $30.00—the half hour rate); 8.4 percent of 3,476 gynecology patients at $5.00 per patient amounts to $1,459.92 of additional overhead for consultations. At site B, $2.25 would be the cost (a sixth of $13.50); 10 percent of 1,738 at $2.25 per patient is $391.05 of additional overhead.

The income generated by the nurse practitioner at site A includes 2,195 gynecology visits totaling $26,120.00; 927 prenatal visits totaling $16,222.50; and 236 Pap smears totaling $2,124.00. The practitioner's total income generated was $44,467. Deducting 50 percent for overhead ($22,234) plus $1,460 for physician consultation and D.S.R.'s salary and fringe benefits, left a net income for the clinic of $2,774 for the year 1977.

From site B, the practitioner's own ledger showed a total of 1,738 patient visits from September 1976 through August 1977, which generated $24,040. Overhead came to a total of $6,307 representing supplies ($275) and office costs charged against income at a rate approximately $116 per day on days when the practitioner was in the office alone and $58 per day (50 percent) when she shared the office with the physician, plus $391 for physician consultation. Salary on a per diem basis was $65 per day in September 1976 and $70 per day after October 1, 1976, for a total of $6,270 per year. By subtracting N.J.B.'s salary and overhead charged to her from the income she generated we determined a net income to the practice of $11,072 ($27,680 extrapolated to a 40-hour week).

Table 4 compares the "frozen" fees for five types of visits charged by both physician and

practitioner at site B with the average of those fees charged by ten other obstetrician-gynecologists in Tacoma over the same period (1975 to 1977) who did not employ midlevel practitioners.

In 1975 the fees charged by the site B physician and the midlevel practitioner were about average for the community except that their fee for IUD insertion was 22 percent higher than the ten-physician average, and their counseling fee was 35.7 percent lower. By 1977 the ratio had changed. Fees in the community had increased as much as a third for some services (counseling) while those of site B had remained the same. In 1977, site B fees ranged from 3.7 percent less (IUD insertion) to 58.7 percent less (for a half hour of counseling) than the average of those in the community.

TABLE 4.—*Average Fee Schedule at Site B and for Ten Other Obstetrician-Gynecologists in Tacoma, 1975-1977*

Type of Visit	*Site B*	*Average of 10 Physicians*
	1975	1975
New patient	$28.00	$25.11
Yearly examination	20.50	20.31
Office call	12.50	13.22
Insertion of IUD	38.50	31.38
Counseling (½ hour)	13.50	21.00
	1976	1976
New patient	28.00	29.11
Yearly examination	20.50	21.24
Office call	12.50	14.55
Insertion of IUD	38.50	39.19
Counseling (½ hour)	13.50	30.22
	1977	1977
New patient	28.00	30.22
Yearly examination	20.50	21.95
Office call	12.50	16.50
Insertion of IUD	38.50	40.00
Counseling (½ hour)	13.50	32.77

IUD = intrauterine device

Discussion

The effectiveness of midlevel nurse practitioners in obstetrics and gynecology has been shown by "process" measures of care including patient acceptance[5-9] and performance of procedures such as IUD insertions.[10] Outcome of health in patients managed by nurse practitioners and physicians also has proved comparable.[3,11] Cost-effectiveness has been shown for private practices[2,12] and prepaid health maintenance organizations[13] in specialities other than obstetrics and gynecology. In the present study, measures of care were not assessed other than cost savings in the private practice setting.

The subject of cost-effectiveness of midlevel personnel has been argued extensively and approached in various ways. In evaluating cost-effectiveness, two pitfalls must be avoided. Care must be taken to include in the overhead all nonreimbursable activities, such as cost of consultation time for the nurse practitioner with the physician.[14] One must also avoid the danger of equating cost-effectiveness with saving of physician time without showing that physician time is used more significantly elsewhere.

In this study, as in others,[2,3,12] the cost-effectiveness has been shown based on income from each of the practices. This calculation has included the cost for physician consultation at a rate which was 10 percent or less at each site and was not considered a significant nonreimbursable cost factor (see Table 3). Because of the fee-for-service nature of the practice sites, neither laboratory nor medication cost was examined.

Conclusion

The methods by which cost savings have been passed on to patients are quite different for each of the two sites. At site A the net profit to the

TABLE 3.—*Profit Generated by Employing Midlevel Nurse Practitioners*

	Site A	*Site B*	
Study period	January 1977-December 1977	September 1976-August-1977	
Hours employed per week	40	16	40*
Total patients seen	3,476	1,738	4,345
12-month income generated	$44,467	$24,040	$60,100
Overhead			
Practitioner	$22,234	$ 6,307	$15,768
Physician consultation	$ 1,460	$ 391	$ 977
Salary and fringe benefits	$18,000	$ 6,270	$15,675
Net income to site†	$ 2,774	$11,072	$27,680

*Figures in this column extrapolated to a 40-hour week, including physician consultation time.
†Calculated by subtracting overhead, salary and fringe benefits from income generated.

practice was minuscule compared with the income generated because the cost savings were passed directly on to patients and overhead expenses were relatively high. At site B, a rather unique way of passing cost savings on to patients was achieved by *not* increasing office fees for three years. During these three years the average fee charged for five measurements of care by ten other obstetrician-gynecologists in Tacoma (who did not employ midlevel personnel) increased each year (Table 4). By 1977 all five fees charged at site B were *less* than the average charged by the ten other obstetrician-gynecologists in the same city. Thus, total health care cost at site B was lower in 1977, thereby benefiting *all* patients at that site. It is our contention that the use of midlevel personnel generates profits and keeps down all office fees, and that this best serves patients at a time when health costs are dramatically rising.

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Propranolol for Lowering Serum Calcium

AN UNUSUAL GROUP of patients are those with hyperthyroidism who have hypercalcemia. If you control the hyperthyroidism with antithyroid drugs, of course you can control the hypercalcemia, but the control of hyperthyroidism takes weeks if not a month or two. If a patient is symptomatic with a calcium level of 12 or 13 ml per dl, you can give propranolol intravenously or even propranolol orally in higher doses. It very nicely and acutely lowers the serum calcium. You stop the infusion, and back up goes the calcium. It is felt that the effect of excessive thyroid hormone is on the bone cells directly, stimulating resorption activity of bone cells, and that this is mediated through the beta-adrenergic system. Hence, propranolol can rapidly reverse that effect. . . . We do not see these patients very often, but it is a very nice effect if one is faced with such a patient.

—FREDERICK R. SINGER, MD, *Los Angeles*

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