

# Nurse practitioners in primary care

## IV. Impact of an interdisciplinary team on attitudes of a rural population

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**Summary:** Attitudes toward the expanded role of nurse practitioners in primary care (family practice nurses) have been determined for persons from a semirural area who chose as their principal source of care an interdisciplinary family medical centre (FMC) incorporating two nurse practitioners, and those for whom the FMC was not the usual source of care. Data were obtained using "before-and-after" structured interviews of a random sample of persons living in a southern Ontario township. Slowly evolving, nonsignificant trends of greater acceptance were observed among

patients who had dealt with family practice nurses. The greatest change observed was an increased acceptance of the nurse by FMC users as the person who would be contacted as a second choice if their first choice, usually a physician, could not be reached in specific worry-inducing situations. FMC users depended more on nurses to provide information. A conclusion of increased general acceptance of the family practice nurse by FMC users is supported by a 347% higher use of nurses by FMC patients compared to other persons of comparable characteristics living in the same community.

au CMF et des malades qui demandaient leurs soins ailleurs. De ces interviews bien préparés il s'est dégagé progressivement une tendance chez les usagers des CMF à accepter plus volontiers les conseils ou les soins de l'infirmière clinicienne, particulièrement après avoir vainement tenté de consulter directement le médecin pour des cas spécifiques qu'ils estimaient inquiétants. Cette acceptation de l'infirmière de pratique familiale par les usagers des CMF se reflète dans les statistiques: le recours à l'infirmière est 347% plus élevé par les usagers des CMF que par des personnes possédant des caractéristiques similaires et vivant dans la même région.

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This report is the fourth in a series of collaborative studies from McMaster University on Canadian experience with nurse practitioners. The three previous reports were published in *CMAJ* in the Apr. 21, 1973 issue.<sup>1-3</sup>

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**Résumé:** *Le rôle des infirmières cliniciennes dans les soins de première ligne. IV. L'impact d'une équipe interdisciplinaire sur le comportement d'une population rurale*

Nous avons tenté de comparer l'attitude de deux groupes de malades vis-à-vis des infirmières engagées dans la pratique familiale. Notre enquête a porté sur une région semirurale du sud Ontarien où existait un centre médical familial (CMF) interdisciplinaire comportant deux infirmières praticiennes. Nous avons interviewé "avant-et-après" un échantillonnage de personnes choisies au hasard: des malades qui s'adressaient de préférence

In response to community initiative in Smithville, a town approximately 50 km from Hamilton, in the centre of the Niagara Peninsula, and the surrounding Township of West Lincoln, the Smithville-McMaster Family Medical Centre (FMC) was established in early 1971. It was designed as a service, teaching and health care delivery demonstration model. The most distinctive feature of the arrangements for primary care service is an interdisciplinary approach, in which family phy-

sicians and nurse practitioners (family practice nurses) work as copractitioners. Before introduction of the FMC in 1971 the population under study had had no previous exposure to nurse practitioners in primary care. Another important characteristic of the FMC has been a deliberate and successful effort to coordinate and integrate the services of the FMC with those provided by the public health professionals, the visiting nurses association (Victorian Order of Nurses) and social workers in the township.

To evaluate the impact of such a unit in a small town and rural community otherwise devoid of locally accessible primary care, we conducted a household survey just as the FMC was being established (January to March 1971). A follow-up survey was done 2 years later (January to March 1973), after the FMC had concluded a period of rapid growth and the practice had stabilized.

Some results of the initial survey, which provided descriptive baseline data and showed "prior attitudes", have been reported.<sup>2</sup> The baseline measures demonstrated generally favourable views of the nurse in activities related to health maintenance and sickness surveillance. For example, more than half of the 1971 respondents stated that they believed a nurse could be as helpful as a physician in most kinds of common illnesses. Also, more than 80% said that it was worth while to see a nurse at a clinic if physicians could not see everyone promptly. However, in specific worry-inducing situations,<sup>2</sup> fewer than 5% of the sample stated that a nurse would be the first person they would contact. Less than a quarter of the respondents indicated they would contact a nurse as an alternative if the person from whom they would first seek help were unavailable.

The main purpose of this paper is to report the changes in attitudes toward the expanded role of family practice nurses for the population of West Lincoln between 1971 and 1973, and the differences in 1973 between persons who chose the FMC as their principal source of health care and those who sought other sources of health service. "Acceptance" was measured from answers to questions that explored perceived acceptable roles of nurses in health maintenance and in sickness surveillance, and questions that ascertained from whom the respondent would seek care in specific worry-inducing situations. A second purpose is to report the way in which the introduction of the interdisciplinary FMC affected attitudes towards acceptance, accessibility and convenience of health services in the community.

## Methods

### General plan, time and sequence of events, and comparison groups studied

A scheme that displays the general strategy of the study in relation to the establishment of the FMC is shown in Fig. 1.\* As indicated, by 1973 the target population (i.e. all persons in West Lincoln Township) had "self-selected" into two groups: patients of the FMC (the FMC group) and those who continued with or selected other arrangements to obtain most of their primary care (the township [TWP] group). Patients who only occasionally obtained care in the FMC were counted as TWP patients.

The general plan of the study was not experimental, in that the investigators did not assign patients to the comparison groups. It was a cohort-analytic project, in which the important feature was the decision to follow a large cohort for 2 years and to compare the two self-selected subgroups of the cohort in 1973. Before-and-after comparisons were also of interest.

To determine whether each respondent in the household survey was an FMC or a TWP patient, we prepared a series of questions from which an algorithm was developed to categorize patients in 1973 when the FMC had reached stability, with low growth and turnover rates. FMC respondents named the Smithville FMC as the place where they usually talked with, consulted or visited health professionals when they needed help or wanted advice about their health, and specified the time of their most recent visit to the FMC. Respondents were classified as part of the TWP group if (a) they named a clinic other than the Smithville FMC, or a physician practising outside the centre, as their usual source of help or advice about their health; (b) they named the Smithville FMC as the usual place, but when asked the most

recent time they were at the FMC they said "never", "don't know" or did not answer; or (c) they did not know or did not answer the questions on the particular place or doctor they visited or consulted.

### Data gathering and sampling

The information was gathered by questionnaires administered in respondents' homes by interviewers of the McMaster health sciences field survey unit (FSU), using identical procedures in 1971 and 1973. The first probability sample (sample A) of the Township of West Lincoln, drawn in 1970, included 1616 persons from 400 households. The FSU successfully completed 1501 interviews (response rate, 93%). In 1973 the 1501 persons interviewed in 1971 were assigned to be interviewed again; 1232 were still living in the area and 1132 (92%) were successfully re-interviewed. The attitudinal findings reported here are restricted to the 686 adults interviewed in both 1971 and 1973.

In 1973 interviews were also conducted for a second probability sample (sample B) of 600 respondents; 575 interviews were completed (response rate, 96%). The results from sample B are not presented in this paper, except to confirm the reproducibility of differences observed.

The sampling procedure for samples A and B involved stratification by town and rural place of residence. Correcting for the urban/rural sampling fraction does not significantly change any of the results reported in this paper. Standard errors for all percentages reported on attitude questions were calculated; none exceeded 3%. They have not been reported for each figure to simplify the tables and because the additional information does not affect the meaning of the results or the conclusions.

### Description of data

Many of the questions in the structured interviews were based on those used in the World Health Organization/International Collaborative Study of

\*Extensive details on methods and results of the evaluation are in preparation in a methodologic manual to be released in June 1975 through the McMaster University Bookstore.<sup>4</sup>

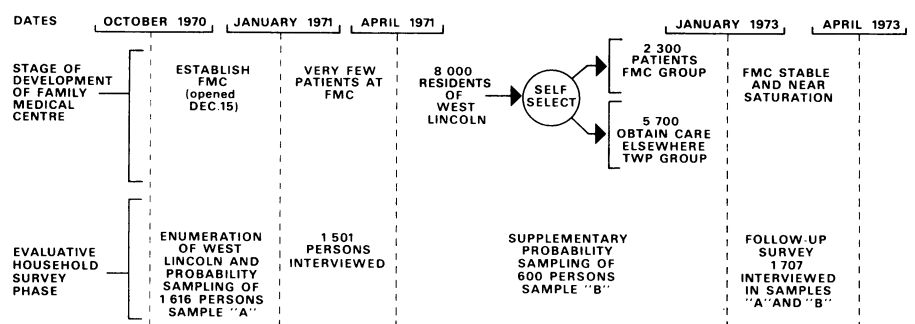


FIG. 1—Time and sequence of developmental and research activities of the medical centre at Smithville.

**Table I—Age and sex profile\* of FMC and TWP respondents in sample A in 1973**

Age range (yr)	FMC (n = 310)		TWP (n = 822)	
	Male (%)	Female (%)	Male (%)	Female (%)
0 — 9	8.7	7.4	9.7	10.7
10 — 19	14.5	12.6	13.4	12.4
20 — 29	4.5	5.8	5.6	3.7
30 — 39	4.8	4.8	5.0	6.6
40 — 49	6.5	7.1	5.1	6.6
50 — 59	3.9	4.8	5.1	4.1
60 — 69	3.2	4.5	3.4	2.7
70 +	3.5	3.2	3.3	2.6
Total	49.6 (n = 154)	50.2 (n = 156)	50.6 (n = 416)	49.4 (n = 406)

\*None of the differences were significant;  $\alpha = 0.05$ .

**Table II—Comparison of the education\* of adult FMC and TWP respondents**

Education (yr)	1971 (%)	1973	
		FMC (%)	TWP (%)
0 — 4	2.8	3.1	2.3
5 — 9	46.5	44.9	41.6
10 — 14	47.0	48.0	52.2
15 +	3.7 (n = 683)	4.0 (n = 196)	3.9 (n = 485)

\*None of the differences were significant;  $\alpha = 0.05$ .

**Table III—Comparison of annual family income\* of FMC and TWP respondents†**

Income (\$)	1971 (%)	1973	
		FMC (%)	TWP (%)
< 3000	14.1	15.2	18.7
3000 — 3999	6.6	9.6	7.8
4000 — 4999	8.4	8.0	4.8
5000 — 5999	11.3	8.0	8.8
6000 — 6999	9.3	8.0	10.5
7000 — 9999	22.6	21.6	21.4
≥ 10 000	15.9	25.6	20.7
No answer	11.8 (n = 441)	4.0 (n = 125)	7.1 (n = 294)

\*None of the differences were significant;  $\alpha = 0.05$ .

†Only one adult per family answered this question.

**Table IV—Ten most frequent complaints\* reported by 483 FMC and 1217 TWP respondents† in 1973**

Bain and Spaulding <sup>6</sup> complaint codes	Description	FMC			Bain and Spaulding <sup>6</sup> complaint codes	Description	TWP		
		Frequency	% of respondents	% of complaints			Frequency	% of respondents	% of complaints
610	Cold	32	6.6	12.3	610	Cold	49	4.0	10.9
130	Fatigue, tiredness	17	3.5	6.5	4010	Headache	28	2.3	6.2
4010	Headache	17	3.5	6.5	130	Fatigue, tiredness	26	2.1	5.8
620	Cough, croup	11	2.3	4.2	2009	Back, undefined	17	1.4	3.8
170	Malaise, run down	9	1.9	3.4	170	Malaise, run down	15	1.2	3.3
140	Fever, chills	8	1.7	3.1	220	Nervousness	15	1.2	3.3
220	Nervousness	7	1.4	2.7	4440	Sore throat	13	1.1	2.9
2009	Back, undefined	6	1.2	2.3	140	Fever, chills	10	0.8	2.2
4440	Sore throat	6	1.2	2.3	620	Cough, croup	10	0.8	2.2
4212	Ear infection	5	1.0	1.9	770	Nausea	8	0.7	1.8
	Other	143	—	54.8		Other	260	—	57.6
	Total	261	—	100.0		Total	451	—	100.0
		Average number of complaints per respondent = 0.54					Average number of complaints per respondent = 0.37		

\*None of the differences were significant;  $\alpha = 0.05$ .

†"Interview cohort" and "supplementary sample" combined.

Medical Care Utilization.<sup>5</sup> Complaint data were coded using an adapted Bain and Spaulding<sup>6</sup> symptom classification. Codes of the International Classification of Diseases<sup>7</sup> were used for diagnoses. A composite index of health care costs was developed to convert utilization rates into a formula that expresses results as costs per person per year for 11 types of health services. This method weights different categories of service, including physician, nurse, hospital, dentist, social worker, radiology and drugs, by the dollar value of each unit of service determined from empirical sources.†

## Results

### *Self-selection of the population in FMC and TWP groups*

As determined from the 1707 respondents successfully interviewed from both samples in 1973 (1132 from the original sample and 575 from the supplementary sample) 29% of the population had self-selected to obtain health services primarily through the FMC. Considering the parent population to be approximately 8000, we estimated the number of patients in the FMC group to be approximately 2300, leaving 5700 as the TWP group.

### *Sociodemographic and clinical characteristics of the two groups*

The FMC and TWP groups of the cohort were shown to be comparable according to variables that can affect attitudes on health matters. The age and sex distribution of the 310 FMC and 822 TWP persons (total, 1132)

†For detailed descriptions of sources and methods of calculating the index of health care costs (65 pages) order NAPS Document 02347 from Microfiche Publications, 305 East 46th St., New York, NY 10017, remitting \$1.50 for microfiche or \$10.25 for photocopies.

who were interviewed in 1971 and in 1973 is presented in Table I, and comparisons of education and income for the two groups are set forth in Tables II and III. As shown in Table IV, no differences were observed in the relative frequency and ranks of health-related complaints reported in 1973 by the two groups in relation to health services used or on direct questioning about health problems. The comparisons of frequencies of diagnoses reported also showed similar patterns in both groups.<sup>4</sup>

*Total use of health services and of nursing services*

From 1971 to 1973 the combined use of major categories of health services for sample A increased by 54%. The use of ambulatory nursing services increased by 142%. For the TWP group the increase in total use of services was 60% over the 2 years, with an increased use of nursing services of 19%. In contrast, total use of health care services by the FMC group increased by 37% after 2 years and use of nursing services increased by 522%. Cross-sectional comparisons in 1973 showed that the FMC group used all health services at a rate of 19% less than the TWP group, but use of nurses by FMC patients was 347% greater than for TWP patients ( $P < 0.01$ ).

*Attitudes about the nurse in primary care*

*Acceptance of the nurse in health maintenance and sickness surveillance:* For many of the questions answered in the report of the 1971 baseline findings,<sup>2</sup> attitudinal differences at least as large as those observed between the FMC and TWP groups could have arisen by chance alone more than 5 times in 100, even though no actual difference existed. Moreover, in very few categories were before-and-after differences appreciable or significant. Only response differences on attitudes towards nurses of some practical importance and with a probability of less than 0.05 will be considered.

More FMC respondents depended on the nurse to explain what the doctor did than was observed for the TWP group (36% v. 23%,  $P < 0.001$ ).

*Person from whom respondent would seek care in specific situations:* In 1971 the majority of respondents stated that they would contact a physician or that they would not seek the advice of a health professional at all when they were asked whom they would approach if they had specific common complaints (e.g. mild headache for a week, dizziness several times a day or constant problems getting along with people). The respondents' attitudes did not

change from 1971 to 1973 for either the FMC or TWP group.

In a series of similar questions respondents were asked to give their first and second choice of whom they would seek care from if they or a member of their family experienced worry-inducing health problems (e.g. "If your 6-year-old daughter had a convulsion" or "If your 14-year-old son had a poor appetite for 2 months and lost 11 pounds"). In 1971 the first choice was usually a doctor (percentage range, 71 to 91). The highest percentage for a nurse as the first choice was 2. In 1973 no differences in attitude were observed between FMC and TWP respondents concerning their first choice, nor were there any changes from 1971 to 1973 in either group. However, an appreciable difference was found in the health professional selected as the second choice by FMC respondents in 1973 in comparison with TWP respondents. In all but one of the health problems cited, significantly more FMC respondents chose a nurse than did TWP respondents (Table V).

*Acceptance of nurses with doctors in a health care team:* Attitudes about nurses who provide house calls with backup by associated physicians are compared in Table VI for 1971 and 1973 FMC and 1973 TWP respondents.

The favourable attitude towards such arrangements had been high in 1971. Even so, a significant increase was observed for the FMC group between 1971 and 1973 (87% v. 92%,  $P < 0.05$ ) but not for the TWP group.

*Acceptance and convenience of the interdisciplinary FMC*

Responding to a series of questions investigating their satisfaction with the health services available, the FMC group in 1973 expressed more favourable attitudes than their TWP counterparts. Specifically, fewer FMC than TWP respondents thought that health care in their community could be improved (39% v. 53%,  $P < 0.001$ ). In 1973 more persons in both the FMC and TWP groups thought that the establishment of a family health centre was a good thing, compared with 1971 (97 and 93% v. 89%) and very few people in either the FMC or TWP group thought that people were not happy having the FMC in Smithville (0.5% v. 2.3%,  $P < 0.05$ ).<sup>4</sup>

Introducing the FMC to West Lincoln Township made health services more convenient for the population and particularly for FMC users. The travelling time to get to the doctor's office was greatly reduced for FMC users

**Table V—The second\* person to whom respondents would turn for specific health problems**

Health problem	Sample	Nurse (%)	Physician† (%)	n
Persistent cough especially in the morning	1971	14.0	50.3	658
	1973 FMC	33.3	45.6	180
	1973 TWP	28.9	52.3	436
Advice about what to do after an operation‡	1971	25.7	53.9	673
	1973 FMC	43.3	44.3	194
	1973 TWP	32.3	57.4	477
Six-month-old baby had diarrhea, a little fever and was irritable‡	1971	23.8	54.9	667
	1973 FMC	37.7	50.3	189
	1973 TWP	30.2	56.4	454
Six-year-old daughter had a convulsion‡	1971	18.9	65.2	666
	1973 FMC	39.8	54.9	191
	1973 TWP	29.3	63.1	471
Fourteen-year-old son had a poor appetite for 2 months and lost 11 pounds‡	1971	16.0	66.9	673
	1973 FMC	31.9	60.7	191
	1973 TWP	24.2	66.9	468

\*"Physician" was named as first choice at least 70% of the time.

†In hospital outpatient or emergency department or office.

‡Differences between FMC and TWP respondents significant at  $P < 0.05$ .

**Table VI—Respondents' answer to whether doctors should make arrangements for specially trained nurses, working under their supervision, to make home visits, especially for problems of children and elderly people**

Answer	1971 (%)	1973	
		FMC (%)	TWP (%)
Yes	87.0	91.9	87.3
No	8.8	5.6	9.3
Don't know	4.2	2.5	3.3
	(n = 683)	(n = 197)	(n = 483)

compared with TWP users. In 1973 86.8% of FMC respondents stated that they could get to the doctor's office within 15 minutes, whereas this was possible for only 49.2% of the TWP group ( $P < 0.001$ ). More FMC than TWP respondents stated that the location was convenient (98.4% v. 91.2%,  $P < 0.001$ ). More TWP than FMC persons indicated that the hours when their doctor could see them were inconvenient (6.5% v. 2.3%,  $P < 0.05$ ).

## Discussion

As suggested by the data from the Smithville project reported here, attitudes towards health professionals, and particularly about nurses in primary care, shifted slowly. The gradual change seemed to be affected little by experience, even when patients in the "experimental FMC group" surveyed had had 2 years of interactions with the nurse in redelineated roles.

Some of the conclusions that can be drawn from this study are these:

- Patients of the FMC increased their dependence on nurses for teaching and explanation over time more than patients in traditional arrangements.

- Although the pronounced preference for physicians in worry-inducing, health-related situations in 1971 was unchanged in 1973, regardless of experience with the FMC, FMC patients were more likely to identify the nurse as the second choice in such circumstances.

- Two years' experience with the Smithville-McMaster FMC did not modify the highly favourable view of township residents about the appropriateness of nurses' role in home visits for provision of health services.

- Introduction of the FMC into the township made health services more accessible and convenient to the residents, particularly those who attended the FMC, and generally enhanced the satisfaction with the health services available.

Although opinions elicited by the surveys were influenced by the introduction of the Smithville interdisciplinary teaching unit, the manner in which the population "voted with its feet" is perhaps the most important measure of the acceptance of the family practice nurse as a nurse practitioner in primary care. The persons who chose the FMC as their central source of care were using 19% less total health services but received 347% more services from nurses than the other residents of the township. Of approximately 5700 instances of ambulatory care given in the FMC from January to June 1973, 3023 involved a nurse

practitioner. An FMC physician indicated that the nurse practitioner took complete responsibility for the care of 39% of the patients, and he agreed with the nurse practitioner's approach but gave her some assistance in an additional 37%. In only 10 instances did the patient object to such service. In the remaining 24%, physician interaction was judged to be required. While these activities were going on the physicians' time was freed, so that they could see approximately another 2700 patients.

We conclude that, in spite of concerns expressed about a nurse as the sole provider of first-contact care, the opinions on and use of the FMC of a semirural population in southern Ontario confirm prevailing research observations<sup>8-13</sup> that nurse practitioners in primary care, as copractitioners to family physicians in interdisciplinary practice, are readily accepted by most consumers of care.

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## References

1. SPITZER WO, KERGIN DJ: Nurse practitioners in primary care. I. McMaster University educational program. *Can Med Assoc J* 108: 991, 1973
2. CHENOY NC, SPITZER WO, ANDERSON GD: Nurse practitioners in primary care. II. Prior attitudes of a rural population. *Ibid*, p 998
3. SPITZER WO, KERGIN DJ, YOSHIDA MA, et al: Nurse practitioners in primary care. III. The southern Ontario randomized trial. *Ibid*, p 1005
4. BATCHELOR GM, SPITZER WO, COMLEY AE, et al: *Smithville-McMaster Family Medical Centre methodological manual and final report on demonstration project*. Hamilton, McMaster University, 1975
5. RABIN DL (ed): International comparisons of medical care. Preliminary report of the World Health Organization/International Collaborative Study of Medical Care Utilization. *Milbank Mem Fund Q* (special issue) 50 (2): 1972
6. BAIN ST, SPAULDING WB: The importance of coding presenting symptoms. *Can Med Assoc J* 97: 953, 1967
7. U.S. Department of Health, Education and Welfare: *International Classification of Diseases, Adapted for Indexing Hospital Records by Diseases and Operations* (revised ed). Public Health Service publication no 719, Dec 1962
8. LEWIS CE, RESNIK BA: Nurse clinics and progressive ambulatory patient care. *N Engl J Med* 277: 1236, 1967
9. SWEENEY GP, HAY WI: The Burlington experience: a study of nurse practitioners in family practice. *Can Fam Phys* 19 (9): 101, 1973
10. SPITZER WO, SACKETT DL, SIBLEY JC, et al: The Burlington randomized trial of the nurse practitioner. *N Engl J Med* 290: 251, 1974
11. PICKERING EA: *Report of the Special Study Regarding the Medical Profession in Ontario*. Prepared for the Ontario Medical Association. April 1973, p 15
12. LEES RE, ANDERSON RM: Patient attitudes to the expanded role of the nurse in family practice. *Can Med Assoc J* 105: 1164, 1971
13. VAYDA E, PAISLEY L, BASKIN M, et al: Health care attitudes in north-end Hamilton. *Ont Med Rev* 40: 544, 1974

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#### References:

1. Miller, J. (1971). *Curr. Ther. Res.*, 73:188.
2. Dubois, E. L. (March 1958). Symposium: Newer Hydrocortisone Analogs, p. 509.
3. Bain, L. S., et al. (1967). *Annals of Phys. Med.*, 9:49.
4. Lewin, R. A. (1968). *Brit. J. Clin. Pract.*, 22:203.

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