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Assessing the Quality of Care In Family Physicians' Practices

SUMMARY

This feasibility study by the Practice Assessment Committee of the College of Family Physicians of Canada was conducted to define and produce instruments that could be used to assess quality of care rendered in family physicians' offices. The favorable response to these evaluations and the acceptance of the results indicates that this method can be useful to family physicians. The instruments identify family physicians' strengths and deficiencies so that with appropriate changes in the quality and efficiency of care, they are able to achieve higher levels of professional satisfaction. These methods may ultimately be used to establish acceptable standards for care given by family physicians in their offices. (*Can Fam Physician* 1985; 31:853-862).

SOMMAIRE

Le but de cette étude de faisabilité menée par le Comité d'évaluation de la pratique du Collège des médecins de famille du Canada a été de définir et de produire des instruments utilisables pour évaluer la qualité des soins offerts aux bureaux des médecins de famille. La réponse favorable reçue suite à ces évaluations et l'acceptation des résultats indiquent que cette méthode peut être utile aux médecins de famille. Les instruments identifient les forces et déficiences des médecins de famille et visent à atteindre, par des changements appropriés au niveau de la qualité et de l'efficacité des soins, des niveaux de satisfaction professionnelle plus élevés. Ces méthodes pourront ultimement servir à établir des standards acceptables pour les soins dispensés en bureau par les médecins de famille.

Key words: quality of care, practice assessment, professional satisfaction

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IN NORTH AMERICA the setting of standards for the quality of care in hospital and office practice has traditionally been the responsibility of the medical profession. Quality assurance has been an explicit part of the rationale in establishing certification procedures initiating peer review systems, promoting continuing medical education, and discussing relicensure or maintenance of certification.¹

There has been a growing demand for accountability of the medical profession and hospitals, arising out of public concern about the quality of care provided in the United States and Canada.^{2,3} The Canadian Council on Hospital Accreditation now requires quality assurance programs among member hospitals for accreditation. Other professional associations, such as the Canadian Physiotherapy Association⁴ and the Canadian Nursing Association,⁵ are developing program standards and practice criteria.⁶ In Ontario, the College of Physicians and Surgeons has been involved in peer assessments of practices since 1978 using quality of care methods and criteria.⁷ Most of the more recent publi-

cations on quality assurance and quality of care programs are from the United States.^{1,8-10}

As a standard-setting, accrediting body in family medicine, the College of Family Physicians of Canada (CFPC) contributes to the education and performance of its members to ensure an optimum standard of patient care.¹¹ The CFPC has encouraged the establishment of undergraduate and residency training programs for family medicine in all medical schools in Canada. Graduates of residency programs and practice-eligible physicians take examinations comprising written questions, simulated patient interviews and orals, for certification in family medicine. Certificants have to com-

plete 50 hours of continuing medical education every year in order to maintain certification. In addition, the College has developed a maintenance of certification program.

Less progress has been made in assessing the performance of family physicians in their practices. *Quality assessment* refers to the procedures and strategies for assessing quality of medical care at a given point in time. *Quality assurance* is an ongoing program of activities designed to maintain and improve the quality of care over time. The initial challenge in organizing procedures and strategies for assessment and assurance programs is to define, qualify and specify the standards and criteria by which it can be judged.

In 1974, the CFPC's Committee on Patterns of Practice and Health Care Delivery decided to test the feasibility of practice assessment. In 1976, physicians in 12 practices were assessed on organizational features, charting, preventive procedures, and management of tracer conditions, using methods developed by Kessner,¹² Sibley¹³ and their associates. From this pilot study, the committee gained experience and established a methodology to improve patterns of practice which had not been challenged or changed for many years.¹⁴

The CFPC's Committee of Patterns of Practice provided funds for Borgiel and Williams to review the state of quality of care assessment and to consult with Sibley and associates at McMaster and Brook and associates at Rand/UCLA.

The authors of this article were approved as a "Committee on Practice Assessment" in 1980. Acting with the full endorsement of the CFPC's Executive Committee, we prepared a grant application for a feasibility study, which was accepted for funding in June 1982. This article is a summary of the findings of our feasibility study.

Objectives

The overall objectives of this project were:

1. To develop a set of quality of care assessment procedures for family practices which are practical, economically feasible and acceptable.
2. To use these procedures to identify strengths and deficiencies in individual family practices and variations across practices.

3. To develop strategies and tools to help physicians remedy identified deficiencies, thereby improving the quality and efficiency of medical care.

Research Design And Strategies

Research Design

We undertook to test assessment procedures in a limited number of practices of certificants in family medicine located in London, Ottawa, and Toronto. We used the College register to obtain a list of 80 certificated members in the three cities. After a series of letters and telephone calls in August 1982, 11 physicians agreed to participate and ten were included (three from London, three from Ottawa, and four from Toronto). Forty-three physicians were unavailable (holidays), 17 declined participation, eight were found to be no longer in active practice, and one physician had died. Of those reached and eligible, 39% of physicians volunteered to participate. The sample is therefore small and highly selected, and not one necessarily representative of all certifi-

cated College members, but it did provide the means to test our instruments in several settings.

Data Collection

Data were collected through physician interview, chart abstractions, and patient questionnaires.

Physician Interview. We developed an extensive interview questionnaire, adapted from those used in earlier studies by Borgiel,¹⁴ and Williams and Steel.¹⁵ We included the following areas:

1. Physician and practice characteristics
2. Patient profile
3. Office facilities
4. After-hours coverage
5. Community services available
6. Use of referrals and consultations
7. Hospital practice
8. Format of medical records
9. Participation in education and research.

The questionnaires were mailed to each doctor's office two weeks before the date of assessment. The questionnaire was then verified at the site visit

TABLE 1
Criteria for Outpatient Medical Care of Hypertension

Diagnosis/Problem: Hypertension, essential benign	ICDA Code 4 0 1 9
History 1. Family history (cardiovascular) 2. Drug enquiry 3. Symptoms??	2. Don't use barbiturates and tranquilizers for treatment of hypertension 3. Justify use of sympathomimetic, steroids and oral contraceptives
Physical Exam 1. Bilateral blood pressure once on chart 2. Two separate readings for diagnosis 3. Per visit: blood pressure; comment re status 4. Standing blood pressure with history of postural hypotension 5. Yearly: heart; lungs; fundi; weight (if overweight) 6. Initially: weight; cardiovascular system; chest; fundi; urinalysis; electrolytes; BUN or creatinine	Follow-up 1. Patients on diuretics: two visits per year Patients on hypotensives: three visits per year 2. Aim: 59 years of age and below $\overline{90}$, 60 and above $\overline{100}$ 3. Patients on diuretics need BUN (creatinine), potassium, uric acid one per year 4. Moderate (105 \uparrow) to severe (115 \uparrow) hypertensives below age 40 require monthly visits until controlled; if not below 105 diastolic after three months, need referral
Diagnostic Procedures 1. ECG and urinalysis once on chart 2. Fresh hypertensive (105 \uparrow) and below the age of 30 need further investigation (IVP rapid sequence; electrolytes; BUN) or referral	Education Need nutritional counselling
X-rays Chest X-ray (with heart disease)	Psychosocial Orientation
Rational Therapy 1. Any of: alpha-methyl dopa, hydralazine, thiazides, reserpine, beta blockers, catapres, clonidine	Prevention Counselling re stress and smoking
	Dangerous
	Essential Justify use of sympathomimetic, steroids and oral contraceptives

and necessary clarifications made.

Chart Abstractions. Ideally, quality of care should be determined by the outcome of medical care. Considerable time and cost are required to measure changes in health status which correspond to health care. Also, many of the problems seen in primary care are limited and resolve themselves with time, or the outcomes are determined primarily by factors outside primary medical care. For these reasons we elected to use process measures of performance.

We excluded observational studies such as those conducted by Peterson and colleagues¹⁶ and Clute¹⁷ because of the time required, the obtrusions into the doctor-patient relationship and the subjectivity of the final judgments. We considered the tracer

(Kessner)¹² or indicator condition (Sibley et al.)¹³ methods, which have explicit criteria for medical procedures known to affect outcome of well defined health problems. However, we deemed them unsuitable because the problems chosen as tracers or indicators are few and are a biased sample from the total content of family practice. Also, the method requires an extensive search of patient records to find sufficient numbers of observations for analysis, and the resulting time and cost are unacceptably high.

In order to make the assessments as comprehensive as possible, we decided to use criteria statements first developed for the evaluation of Health Maintenance Organizations¹⁸ and subsequently modified by Brook¹⁹ and his associates for studies in New Mexico and California. There are many presenting problems in family practice, and the relative importance of the various dimensions of medical care may vary by problem. The basic steps in the therapeutic process are history, physical examination, diagnosis, therapy and follow-up—but other dimensions are important, for example, patient education, awareness of psychosocial issues, and prevention. Some procedures are essential; others may be hazardous.

The criteria statements for hypertension (Table 1) were based on studies of efficiency and effectiveness. Criteria statements for problems where studies of efficiency and effectiveness are lacking were based on professional

consensus. For example, nasopharyngitis (Table 2) has few criteria which may apply.

Criteria for 180 diagnostic problems were developed through a three-stage review process. First, each practicing physician on the committee asked colleagues to review a series of available criteria statements; their comments resulted in revised sets of criteria. Secondly, three review committees of non-teaching family physicians were appointed in London, Ottawa and Toronto, and each independently reviewed one-third of the criteria statements. In addition, all three committees considered the criteria for the ten most common problems in family medicine. A two-thirds vote indicated agreement. Thirdly, the practicing physicians on the research committee examined the work of the review committees and resolved any outstanding issues.

The consensus criteria for these 180 problems were then listed. The statements and criteria developed for indicator conditions by Sibley¹³ were also incorporated into the criteria statements.

Each problem was defined in terms of statements under the following dimensions of the patient encounter:

1. History
2. Physical examination
3. Diagnostic procedures
4. Diagnostic X-ray
5. Rational therapy
6. Follow-up office visits
7. Education

TABLE 2
Criteria for Outpatient Medical Care of Nasopharyngitis

Diagnosis/Problem: Nasopharyngitis or URI	ICDA Code 4 6 0 0
History	
1. One of: nasal discharge sore throat malaise cold	
2. Duration	
Physical Exam	
1. If cough in history, chest exam or physical exam is required	
2. Comment re ears in children five years of age and under	
3. If sore throat in history only, some comment re throat should be on the physical exam (such as physical negative or ENT negative)	
Diagnostic Procedures	
X-rays	
Rational Therapy	
1. No prescription narcotic antitussives (unless cough recorded in history)	
2. No antibiotics unless history of secondary infection or high risk (cardiac or pulmonary)	
Follow-up	
Education	
Psychosocial Orientation	
Prevention	
Dangerous	
No prescription narcotic antitussives (unless cough recorded)	
Essential	
No antibiotics unless history of secondary infection or high risk (cardiac or pulmonary)	

TABLE 3
Basic Charting Procedures Rates

Basic Items	Prevention Items	Indicator Drugs
Registration data	BP within 5 yrs.	Chloramphenicol
Date of visit	Pap smear	Tetracycline
Patient problem	Breast exam	Amphetamine
Medications indicated	Behavioral history	Multivitamins
Completeness	General assessment	Hematinics
Legibility	Weight	Phenylbutazone
Allergies	BP	Oxyphenylbutazone
Single folder	Pap smear	Antidepressants
	Urine	Tranquilizers
	Hgb	Diuretics and
	Rectal	Cardiac glycosides
	Personal history	Antibiotics
	Family history	Anticoagulant therapy
	Functional inquiry	Hypnotics
	Negative findings	Steroids
	Immunization	

8. Psychosocial orientation
9. Prevention
10. Hazardous
11. Essential

We coded each problem according to the ICDA, so that once the diagnosis was determined the auditor could turn to the appropriate set of criteria statements. Since some of the criteria were conditional upon the age, sex or stage of care, the auditors had to decide if they applied. If so, they would then check on the abstraction form.

We also rated the quality of the physicians' records, using our criteria for charting procedures (Table 3). Chart format required the assessor to confirm the legibility of the chart, basic registration data, consistent allergy notations and ability to ascertain the type and amount of medication prescribed. Prevention criteria were assessed—blood pressure, Pap smears, breast exams, behavioral history and general assessment. All of these included the recommendations of the Canadian Task Force on the Periodic Health Assessment (CTFPHE) report.⁶ Finally, we included criteria for the rational use of 13 separate drug categories.

The assessments in each practice were completed by the principal investigator (AB) and one of three committee members. Each member of the assessment team was in active family practice, a certificant of the College, and most were teachers of family medicine. The assessments were completed in November and December 1982, taking 5½-9½ hours and being completed on the same day.

In each practice 40 random charts were selected and assigned identification numbers. Charts were divided into three groups: the first 15 were given to one rater for audit, and the second rater took the second 15 charts. Each rater assessed 15 charts alone; the remaining ten charts were audited independently by both raters at different times during the visit. In the last prac-

tice two independent samples of 40 charts were drawn, rated independently by the two assessors, and reported as practices 10 and 11 so that intrapractice variations in scores could be studied.

Patient Questionnaire. We reviewed the work by Douglas and Stevens;³ Aday, Andersen and Fleming;²⁰ Ware and Associates,²¹ and McWhinney, Bass and Williams,²² developing a patient questionnaire of 67 questions on:

1. Patient satisfaction with doctor-patient relationship, access to physicians, the art of care.
2. Unmet medical needs resulting from 20 major symptoms and complaints.
3. Health maintenance procedures received.
4. Psychosocial dimensions of medical care; that is, whether patients would discuss psychosocial problems with physicians.

We took the first 20 items in the questionnaire from studies on consumer satisfaction which have demonstrated high internal consistency.²¹ The health maintenance items were scored as a percentage of recommended procedures (age-sex specific). We summarized emotional and health problems using the proportions of patients with problems who obtained help. The questionnaire was also designed to discover and describe the extent to which there are symptom icebergs, in the form of untreated, painful and disabling symptoms.

Each office provided names of 17 men and 17 women for each of three age categories—20-44, 45-64, 65+. Letters explaining the study and requesting patients' cooperation were signed by the physicians and printed on their letterhead. The questionnaires with covering letters were sent to the patients from the research office of the College within one week of the practice assessment. A second mailing was

sent to all patients within two weeks if the response rate was low.

Results

The data from physicians' questionnaires, chart audits and patient questionnaires were processed and analyzed at the Health Care Research Unit of the University of Toronto. They determined the inter-rater reliability for the chart assessments, the psychometric properties of scores from the questionnaire data, and the scores for each physician. In other words, we tried to show that the measures worked and that the resulting data would be useful to the participating physicians. We did not test specific hypotheses or draw definitive conclusions about the quality of care provided by the physicians involved.

Physician Questionnaire

The profile of the physicians was derived from their questionnaire responses. The two female participants were in their 30s, as were six of the male physicians. The remaining two men were aged over 40 and over 50 respectively.

The majority of physicians received their undergraduate medical education in Ontario; one was trained outside Canada. Seven were graduates of family medicine residency programs.

Five were in solo practice, one was in partnership, two were in group practice, one was in a Health Service Organization, and one was in a university teaching practice. Three were in teaching practices outside the university.

All but one practice had shared after-hours coverage, with between four and ten physicians covering the various practices. Eight of the ten on-call systems involved physicians from other practices. The majority handled calls by phone and either attended patients in the emergency room (five physicians) or in their offices (three physicians).

TABLE 4
Percentages Of Items Appearing On Charts In Practices 1-11

	1	2	3	4	5	6	7	8	9	10	11	Total
1. Basic information %	83.4	93.0	36.2	100.0	90.6	85.7	90.0	79.1	96.4	92.6	83.1	84.9
Applicable items	200	199	199	197	192	196	190	191	199	312	314	2389
2. Prevention items%	64.5	55.1	41.4	68.0	65.2	66.7	53.7	43.4	58.2	72.9	63.9	60.4
Applicable items	293	314	314	338	305	291	294	304	328	539	509	3829
3. Drugs recorded to % standards	59.1	90.0	30.8	100.0	33.3	57.1	66.7	0.0	88.9	12.5	35.3	36.9
Applicable drugs	22	20	13	8	9	14	21	5	9	8	17	146

Applicable items: total possible responses in category

Beconase[®]

(beclomethasone dipropionate)

Prescribing information

Indications and clinical uses

Beconase is indicated for the treatment of perennial and seasonal allergic rhinitis unresponsive to conventional treatment.

Contraindications

Active or quiescent tuberculosis or untreated fungal, bacterial and viral infections. Children under six years of age.

Warnings

In patients previously on high doses of systemic steroids, transfer to Beconase may cause withdrawal symptoms such as tiredness, aches and pains, and depression. In severe cases, adrenal insufficiency may occur, necessitating the temporary resumption of systemic steroids. The safety of Beconase in pregnancy has not been established. If used, the expected benefits should be weighed against the potential hazard to the fetus, particularly during the first trimester of pregnancy.

Precautions

The replacement of a systemic steroid with Beconase has to be gradual and carefully supervised by the physician. The guidelines under Administration should be followed in all such cases. Unnecessary administration of drugs during pregnancy is undesirable. Corticosteroids may mask some signs of infection and new infections may appear. A decreased resistance to localized infection has been observed during corticosteroid therapy. During long term therapy, pulmonary, adrenal function and hematological status should be periodically assessed. Fluorocarbon propellants may be hazardous if they are deliberately abused. Inhalation of high concentrations of aerosol spray has brought about cardiovascular toxic effects, and even death, especially under conditions of hypoxia. However, evidence exists to the relative safety of aerosols when used inhalationally and with adequate ventilation.

There is an enhanced effect of corticosteroids on patients with hypothyroidism and in those with cirrhosis.

Azetylsalicylic acid should be used cautiously in conjunction with corticosteroids in hypoprothrombemia.

Patients should be advised to inform subsequent physicians of the prior use of corticosteroids.

During Beconase therapy, the possibility of atrophic rhinitis and/or pharyngeal candidiasis should be kept in mind.

Adverse reactions

No major side effects attributable to Beconase have been reported. Occasional stinging attacks have followed immediately after the use of the intranasal aerosol. A few patients have complained of burning sensation and irritation in the nose after Beconase Nasal Inhalation. When patients are transferred to Beconase from a systemic steroid, allergic conditions such as asthma or eczema may be unmasked.

Dosage and administration

The usual dose for patients of all ages who received no previous systemic steroid, some application 50 mcg of beclomethasone dipropionate into each nostril three to four times daily. Maximum daily dose should not exceed twenty applications in adults and ten applications in children. If Beclonase is used concurrently, the maximum dose of each aerosol is ten applications in adults and five applications in children. Beconase should not be used under six years of age.

Since the effect of Beconase depends on its regular use, patients must be instructed to take the nasal inhalations at regular intervals and not as with other nasal sprays, as they feel necessary. They should also be instructed in the correct method, which is to blow the nose, then insert the nozzle firmly into the nostril, compress the opposite nostril, and actuate the aerosol while inspiring through the nose with the mouth closed.

In the presence of excessive nasal mucus secretion or edema of the nasal mucosa, the drug may fail to reach the site of action. In such cases it is advisable to use a nasal vasoconstrictor for two to three days prior to Beconase.

Careful attention must be given to patients previously treated for prolonged periods with systemic corticosteroids when transferred to Beconase. Initially, Beconase and the systemic corticosteroid must be given concomitantly, while the dose of the latter is gradually decreased. The usual rate of withdrawal of the systemic steroid is the equivalent of 2.5 mg of prednisone every four days if the patient is under close supervision; if continuous supervision is not feasible, the withdrawal of the systemic steroid should be slower, approximately 2.5 mg of prednisone (or equivalent) every ten days. If withdrawal symptoms appear, the previous dose of the systemic steroid should be resumed for a week before further decrease is attempted.

Dosage form

Beconase is a metered-dose aerosol, delivering 50 micrograms of beclomethasone dipropionate with each depression of the valve. There are two hundred doses in a container.

Official product monograph on request.



A Allen & Hanburys
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TABLE 6
Summary of Dimension Scores For Practices 1-11 (N = Number of Criteria Statements Which Applied)

Dimensions	1(N)	2(N)	3(N)	4(N)	5(N)	6(N)	7(N)	8(N)	9(N)	10(N)	11(N)	Total x (N)
1. History	48(94)	81(109)	58(73)	92(108)	83(61)	75(92)	82(92)	80(86)	86(121)	86(102)	71(120)	77(105)
2. Physical exam	60(78)	81(102)	52(70)	87(100)	73(57)	82(82)	74(80)	64(76)	72(111)	84(100)	60(109)	72(965)
3. Diagnosis	63(41)	72(44)	18(21)	86(43)	61(26)	57(34)	65(28)	58(32)	77(29)	76(48)	73(42)	67(388)
4. X-ray	77(13)	79(12)	70(87)	65(17)	59(9)	69(16)	84(15)	75(14)	75(8)	83(22)	96(23)	77(159)
5. Rational therapy	78(73)	84(77)	75(58)	94(80)	84(44)	87(70)	86(75)	68(60)	74(101)	82(19)	65(90)	80(808)
6. Follow-up	92(60)	68(56)	53(42)	84(73)	65(28)	87(53)	83(56)	72(50)	84(80)	89(63)	74(79)	79(640)
7. Education	33(12)	75(12)	67(9)	75(12)	71(7)	88(8)	86(14)	53(17)	64(22)	89(19)	100(19)	74(151)
8. Psychosocial	60(15)	50(4)	33(12)	82(17)	69(13)	82(14)	75(20)	83(6)	100(20)	82(22)	75(16)	75(159)
9. Prevention	40(15)	55(20)	43(7)	87(23)	43(7)	100(9)	81(16)	56(18)	71(17)	87(23)	86(17)	71(172)
10. Hazardous	97(30)	96(27)	79(19)	96(24)	100(16)	96(28)	97(31)	77(26)	98(48)	86(28)	86(37)	92(314)
11. Essential	71(41)	80(45)	75(36)	93(43)	74(22)	87(38)	88(34)	82(34)	85(46)	85(46)	80(45)	82(431)
Weighted \bar{x}	67.2(472)	78.5(508)	60.9(434)	88.3(540)	75.1(290)	81.3(444)	81.7(461)	70.5(419)	80.7(603)	84.3(553)	72.7(597)	77.0(5245)

The practices were reasonably accessible for patients. Seven indicated that they were accepting new patients. Eight reported that patients had to wait only one or two days for an appointment. Seven fitted in urgent appointments and all but one took calls from patients during office hours. Seven reported that patients' waiting time in the office was less than 15 minutes.

Two of the physicians were opted out of the provincial health insurance plan.

The study physicians spent most of their time practicing adult medicine, with lesser amounts in gynecology, geriatrics, counselling, pediatrics, well-baby care, obstetrics and surgery. All had hospital affiliations; three reported staff membership in two or three hospitals. Types of hospital care provided were psychiatry (six), gynecology (five), obstetrics (four), internal medicine (three), surgery (three) and fractures (two).

The physicians were varied in their practice patterns and their orientations to family medicine, but all were relatively satisfied with their practices.

Chart Abstractions

Physicians were rated on their basic charting procedures, the charting of prevention procedures, and the recording of use for 13 indicator drugs (see Table 3). The assessors' ratings are summarized in Table 4, which also includes the number of applicable items for scoring and the percentage of those items which were properly charted.

For the most part, the two assessors agreed in their ratings of the charts. There was more difficulty with prevention items than with basic information, and it was agreed that the list of the indicator drugs would require revision, because some were infrequently used and recorded.

The age, sex and number of episodes per patients charted in the last two years were noted. Average ages of patients ranged from the low 30's to the 40's; women generally outnumbered men in each practice. The number of episodes over the study period ranged from 1.8 to 3.8, which was wider than expected (see Table 5).

In reviewing the patient records, the assessors had to identify the problem, check the diagnosis, apply the appropriate criteria statements and check which of the criteria had been met for the 11 dimensions of the encounter. The final score is the percentage of applicable criteria statements that were met. The summary scores for dimensions and the number of applicable criteria statements are shown in Table 6.

The scores varied by dimension and practice, ranging from 18% (diagnosis) to 100% (psychosocial). The assessors encountered several problems:

1. Some physicians did not record a diagnosis, so they had to be imputed before the criteria statements could be applied.
2. Variations in scores from the last practice (10 and 11) were greater than one would expect by chance.
3. Few items could be rated for the X-ray, education, psychosocial and prevention dimensions. Inter-rater agreement was accordingly lower.
4. 24 diagnoses were encountered for which there were no criteria statements. (eg. abdominal pain NYD, arrhythmia, and hemorrhoids).
5. Diagnostic categories could have been consolidated.

Table 7 shows the assessors' inter-rater reliability.

Ten charts in each of the first nine practices were rated by the principal assessor and the team assessor. The

TABLE 5
Average Age of Patients, Sex Ratio and Average Number of Eligible Episodes per Chart in Practices 1-11

	1	2	3	4	5	6	7	8	9	10	11	Total
Average age of patients in years	32	45	49	44	42	31	36	39	35	43	35	39
Sex ratio (males per 100 females)	74	58	131	50	70	150	124	68	46	48	48	73
Average episodes per chart	2.1	2.8	1.8	2.5	1.8	2.4	2.2	2.1	2.8	3.1	3.8	2.5

TYLENOL*

Acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL* Acetaminophen is indicated for the relief of pain and fever. Also as an analgesic-antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests.

N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine in its oral and parenteral dosage forms is available from the manufacturers (Mucormyst, Bristol-Meyers Products Canada trademark for its brand of oral N-acetylcysteine, Parvolex, Glaxo Canada Ltd. trademark for its brand of parenteral N-acetylcysteine), or contact your nearest Poison Control/Information Centre.

DOSAGE:

Adults:
650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

Children:

Based on Weight
10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

SUPPLIED:

TYLENOL* Drops: Each 0.8 mL contains 80 mg acetaminophen in an orange liquid vehicle with a slightly bitter, fruit flavoured taste. Available in bottles containing 15 mL† and 25 mL† and a calibrated dropper.

TYLENOL* Elixir: Each 5 mL contains 160 mg acetaminophen in a cherry-flavoured red liquid vehicle. Available in bottles containing 100 mL† and 500 mL.

TYLENOL* Chewable Tablets 80 mg: Each round, pink tablet, scored one side and engraved "TYLENOL" the other side, contains 80 mg acetaminophen. Available in bottles of 24† tablets.

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TYLENOL* Capsules 325 mg: Each grey and white capsule, printed "TYLENOL 325 mg" cap and body, contains 325 mg of acetaminophen. Available in bottles containing 24† and 50 capsules.

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TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side and "500" other side, contains 500 mg acetaminophen. Available in bottles of 30† and 100 tablets.

TYLENOL* Capsules 500 mg: Each red and white capsule, printed "TYLENOL 500 mg" cap and body, contains 500 mg acetaminophen. Available in bottles of 24† and 50 capsules.

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mean scores (\bar{x}_1) for the principal assessor are displayed in Table 7. Assessors varied on the number of criteria statements which applied; the percentage agreement between the principal and the other assessors ranged from 64.5-91.2%. As some agreement could be expected by chance alone, the statistics Kappa (\bar{k}) was used to determine the proportions of agreements which were beyond chance. In looking at the reliability coefficients, they are relatively low for follow-up, education, psychosocial and hazardous. The criteria statements for these dimensions are being thoroughly reviewed and revised so as to improve their application.

After extensive examination of differences in samples for the last practice (10 and 11) a basic reason for differences in scores has been postulated. This practice had the highest episode rate, and referrals to specialists were fairly common. The first assessor, whose results were listed as practice 10, was more likely to give credit for specialist reports than the second assessor, listed as practice 11. Clearly we must develop methods to rate the appropriateness of referrals and the subsequent use of the specialist's report.

On the whole, the methods were reliable and there is agreement among the physicians consulted on the content validity of rating dimensions of care. Revisions in the criteria statements and ratings are required to improve the systems. It should be possible to pull 40 charts and rate them in one half day at the office. A portable computer should make further efficiencies possible.

Patient Questionnaire

In two practices we used atypical sampling strategies. In the first practice 100 names were selected without stratification for age and sex. In the last practice, the 80 patients whose charts were abstracted received the questionnaires. A total of 980 questionnaires were mailed and 651 were returned, for a response rate of 66%.

Twenty items relating to satisfaction with the physician and the practice were factor analyzed and scaled into four scores—Technical Care, Art of Care, Access and Times. The scores by practice are presented in Table 8. Satisfaction is generally high. There was little variability in the first two sets of scores, but more perceived

variation in access and time to obtain care.

Patients were asked if certain health maintenance examinations and procedures had been performed within the time periods recommended in the TFPHE report.⁶ The score is the percentage of affirmative responses among categories applicable to the respondent's age/sex group. Table 8 shows that there were substantial variations in scores by practice.

In the last section the patients were asked about emotional and physical problems they had encountered, and whether or not they had sought help for them from their physician. They were also asked if they would visit their physician if they had emotional problems. Again, Table 8 shows the variation in scores.

In summary, the patient questionnaire was a satisfactory instrument. The number of items could be reduced, particularly in the satisfaction and the problem areas. The important finding was that patients can offer a valuable perspective on the quality of care their physician provides.

Follow-Up Visits With Physicians

An important component of any quality of care exercise is feedback to physicians on their performance so they may identify areas for improvement. Table 9 summarizes the ratings of the ten physicians.

The summary sheet and key tables

were mailed to the physicians, and the principal investigator (AB) visited each of them. The purpose of the visit was to

1. review the study procedures and summary sheet.
2. show them the scoring sheets for charting and chart abstractions, and relate them to actual charts if requested to do so.
3. summarize the strengths and weaknesses identified.
4. review in detail the results from the patient questionnaires and relate their responses to the audit findings.

The physicians were mostly able to understand how the charts were audited and the scores derived, and they accepted the findings. While there were differences in whether they perceived a need to change their practice patterns, some physicians with lower ratings had begun to make changes based on the mailed results even before the visit.

The physicians were impressed with patients' responses and gave credence to their findings. Particular attention was paid to items on access, timing patient encounters, opinion on health maintenance and seeking help, and preventive and psychosocial orientations of the physicians. The questionnaires and audit findings were viewed as corroborative evidence by the physicians.

Physicians were asked to comment on the study procedures and the impact they had on their practice. On the whole, they agreed that the method

TABLE 7
Summary Of Inter-rater Reliability Data For Practice Dimension Scores When Raters Agree On Diagnosis

Dimension	n	\bar{X}_1	% Agree	K	P
History	126	74.1	73.0	.521	***
Physical Exam	115	68.3	78.2	.651	***
Diagnosis	40	51.9	77.5	.647	***
Therapy	95	78.7	68.4	.397	***
Follow-up	82	81.6	73.2	.336	***
X-ray	14	60.0	85.7	.696	**
Education	17	58.8	64.5	.172	
Psychosocial	17	80.0	64.7	.271	**
Prevention	21	60.0	85.7	.704	***
Hazardous	34	94.9	91.2	.354	*
Essential	39	82.0	87.2	.588	***

n = Number of criteria statements which applied.

\bar{X}_1 = Mean score for Rater 1.

% Agree: Level of agreement between Rater 1 and other rater.

K = Kappa (correlation of other rater with first).

P = Statistical Significance * P < .05

** P < .01

*** P < .001

was acceptable. They also agreed to obtain OHIP profiles for use in the study. Office staff were aware of the study, and in some cases the physicians had discussed the study with their staff. There were indications of their support.

Most of the physicians viewed the process as a valuable learning experience which would lead to changes in their practice.

The Future

For the foreseeable future, practice assessments will be voluntary, requested and paid for by the participating physicians. The methods must be acceptable and the benefits derived commensurate with the costs involved.

The assessment is not only to yield information for the physicians on their patterns of practice, but also to give an indication of their performance compared to their peers in a similar practice. The CFPC's Executive Committee perceived these assessments as useful for:

1. in-practice assessment of practice eligible candidates for the certification exam.
2. a stimulus to continuing medical education and professional satisfaction.
3. a method of practice accreditation by the College of Family Physicians of Canada.
4. a stimulus to participation in the maintenance of the certification exam.

In summary, quality of care assessment is to become a means to contrib-

ute to the education and performance of family physicians and bring about improvements in their standards of medical care.

Conclusion

The physicians perceived the quality of care assessments to be reliable, valid, and a useful method for learning about the strengths and limitations of their practices. They found the study procedures, measures taken to assure confidentiality and the questionnaire results to be acceptable and helpful. Some physicians reported that they had made changes to improve quality of care in accordance with the findings.

The methods were found useful in assessing several components of qual-

TABLE 8
Scores From Patient Questionnaire, Practices 1-10

	1	2	3	4	5	6	7	8	9	10	Total
1. Quality of Care Scores (Average) (1 = low, 7 = high)											
Technical care	6.3	6.6	6.5	6.5	6.6	6.5	6.5	6.4	6.2	6.3	6.5
Art of care	6.5	6.5	6.2	6.4	6.4	6.4	6.3	6.1	6.3	6.4	6.4
Access	5.5	5.5	5.9	5.5	5.1	5.6	5.8	5.5	5.6	5.2	5.5
Time	4.8	5.3	5.9	5.5	4.7	5.5	4.5	5.1	4.8	5.5	5.2
2. Health maintenance checks %											
Adults	69.6	76.0	82.9	81.1	75.2	73.2	72.2	70.1	79.9	79.7	75.7
Women	62.7	69.6	64.1	62.8	53.8	63.7	59.5	57.6	63.6	63.2	62.2
Children	78.9	73.1	79.3	84.7	68.1	82.7	77.3	80.6	73.8	76.2	78.2
3. Seeking help for problems %											
Emotional	58.1	63.5	51.8	61.4	41.0	55.7	64.3	59.3	32.7	71.8	56.9
Would do so if had emotional problems	68	73	59	66	79	66	63	55	62	75	66
Physical	83.6	74.2	73.2	71.0	54.2	74.2	73.7	68.1	60.8	75.4	72.7

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ity of care in family practice. We intend to refine the methods, add criteria statements for the 24 common conditions not presently categorized, eliminate those items which proved to be of questionable value, and develop a method of recording those visits that do not have a diagnosis.

This method of practice assessment is a feasible and acceptable method of peer review. It is essential that the College of Family Physicians of Canada establish clear guidelines, standards and criteria for family physicians, which they may use as a benchmark in making their own assessments. The physicians participating in the feasibility study agreed with this conclusion. ●

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References

1. Williamson JW, Hudson JL, Nevins MN. *Principles of quality assurance and cost containment in health care: a guide for medical students, residents and other health professionals*. San Francisco: Jossey-Bass Publishers, 1982.
2. Donabedian A. *Exploration in quality assessment and monitoring. Vol 2: The criteria and standards of quality*. Ann Arbor: Health Administration Press, 1982.
3. Douglas RM, Stevens ID. *The use of "kits" for self-evaluation in general practice*. University of Adelaide, Department of Community Medicine, 1982.
4. Helewa A. *Evaluation of quality of patient care in physiotherapy*. *Physiotherapy Can* 1979; 31:5-9.
5. Smeltzer C, Feltman B, Rajki K. *Nursing quality assurance: a process, not a tool*. *J Nurs Admin* 1983; 13:5-9.
6. *Canadian Task Force on the Periodic*

7. McAuley R, Henderson H. *Results of the peer assessment program of the College of Physicians and Surgeons of Ontario*. *Can Med Assoc J* 1984; 131:557-61.
8. Williamson JW, et al. *Teaching quality assurance and cost containment in health care: a faculty guide*. San Francisco: Jossey-Bass Publishers, 1982.
9. Donabedian A. *Medical care appraisal: quality and utilization, vol 2*. New York: American Public Health Association, 1969.
10. Palmer RH, Nesson HR. *A review of methods for ambulatory medical care evaluations*. *Med Care* 1982; 20:758-81.
11. *College of General Practice of Canada. Second annual report*. Toronto: College of General Practice of Canada 1975:2-4.
12. Kessner DM, Kalk CE, Singer J. *Assessing health quality: the case for tracers*. *N Engl J Med* 1973; 288:189-93.
13. Sibley JC, Spitzer WO, Rudnick KV, et al. *Quality-of-care appraisal in primary care: a quantitative method*. *Ann Intern Med* 1975; 83:46-52.
14. Borgiel A. *Quality care: assessment of family practice*. *Can Fam Physician* 1977; 23:823-5.
15. Williams JI, Steel KO. *Constructing an index of accessibility for primary care services*. Toronto: University of Toronto, Health Care Research Unit.
16. Peterson OL, Andrews LP, Spain RS, et al. *An analytical study of North Carolina general practice: 1953-54 (Part I)*. *J Med Educ* 1956; 1:165.
17. Clute KF. *The general practitioner: a study of medical practice in Ontario and Nova Scotia*. Toronto: University of Toronto Press, 1963.
18. Leighton RE. *Criteria for evaluating quality in health maintenance organizations: prepaid health research evaluation and demonstration project*. U.S. Department of Health Education and Welfare, Health Care Financing Administration, 1979.
19. Brook RH, Williams KN. *Evaluation of the New Mexico peer review system: 1971-1973*. Santa Monica: Rand Corporation, 1976.
20. Aday LA, Anderson R, Fleming GV. *Health care in the United States*. Beverly Hills: Sage Publications, 1980.
21. Ware JE, Davies-Avery A, Stewart AL, et al. *The measurement and meaning of patient satisfaction*. *Health Med Care Serv Rev* 1978; 1:1-15.
22. McWhinney IR, Bass MJ, Williams JI. *The evaluation of the Southwest Middlesex Health Centre*. London, ON., University of Western Ontario, Department of Family Medicine, 1979.

TABLE 9
Summary Of Record, Chart And Questionnaire Ratings, Practices 1-11

Records		1	2	3	4	5	6	7	8	9	10	11
Charting		●	□	★	□	●	●	●	★	□	□	★
Prevention		●	●	★	□	□	□	★	★	●	□	●
Drugs		●	□	★	□	●	●	●	★	□	★	●
Chart Abstraction												
History		★	●	★	□	□	●	●	●	□	□	★
Physical Exam		★	□	★	□	●	□	●	●	●	□	★
Diagnosis		●	●	★	□	●	★	●	★	□	□	□
X-ray		●	□	●	★	★	★	□	●	●	□	□
Rational Therapy		●	□	★	□	●	□	●	●	★	●	★
Follow-up		□	●	★	●	★	□	●	★	●	□	●
Education		★	●	●	●	●	□	●	★	★	□	□
Psychosocial		●	★	★	□	★	□	●	□	□	□	●
Prevention		★	★	●	□	★	□	●	●	●	□	□
Hazardous		□	□	★	□	□	□	□	★	□	●	●
Essential		★	●	★	□	★	□	□	●	□	□	●
Questionnaire												
Access		●	●	□	●	★	□	□	●	□	★	★
Time		★	●	□	□	★	●	●	●	★	□	□
Prevention—Adult		★	●	□	□	●	●	★	★	□	□	□
Women		●	□	□	●	★	□	★	★	□	●	●
Child		●	★	●	□	★	□	●	□	★	●	●
Emotional		●	□	★	□	★	●	●	●	★	□	□
Physical		□	□	●	●	★	●	●	★	★	□	□
Totals	□	3	9	4	15	3	12	4	2	10	14	8
	●	11	9	5	5	7	7	14	9	5	5	8
	★	7	3	12	1	11	2	3	3	6	2	5
Score %		60	76	54	89	54	83	68	54	73	86	71

□ — Upper Third ● — Middle Third ★ — Lower Third