

Patients with New Headache in Primary Care:

A Report from ASPN

Lorne Becker, MD, Donald C. Iverson, PhD, Frank M. Reed, MD, Ned Calonge, MD, MPH, Rebecca S. Miller, MS, and William L. Freeman, MD, and The Ambulatory Sentinel Practice Network
Denver, Colorado

From a consecutive series of 3,847 headache patients, 1,331 patients who made first visits for new headache to 120 primary care physicians were studied for usual care over a 14-month period. Either tension or vascular headache was the initial diagnosis in 23.8 percent and 12.8 percent of patients, respectively. Nearly one half (47.8 percent) were classified as having headaches other than tension or vascular. A total of 15.3 percent of headaches were undiagnosed or were regarded as a mixture of traditional diagnostic designations. At first visit, most patients (76.6 percent) were managed without diagnostic tests. Drugs were prescribed for 73.6 percent, and advice was given for 58.6 percent. Only 2.0 percent of patients had computerized tomographic scanning ordered at first visit, although at least 46 percent met National Institutes of Health criteria, a finding with potential economic consequences of at least \$2 billion. These findings suggest the need for reevaluation of diagnostic categories for headache, reevaluation of strategies for headache management, and further investigations of headache in primary care patients.

Headache is a symptom frequently encountered in ambulatory care. Although 70 to 80 percent of adults report experiencing headaches sometimes,^{1,2} more than 50 percent do not consult a clinician.^{3,4} Headache is the principal reason for more than 18 million office visits annually in the United States.⁵ Fifty-two percent of these visits are to general practitioners or family physicians.⁵ Estimated annual expenditures directly related to medical management of this symptom exceeded \$2 billion in fiscal year 1983-84,⁵⁻⁹ and the recent widespread availability of expensive new diagnostic technologies, such as computerized tomographic (CT) scanning and magnetic resonance imaging (MRI), suggests this figure might easily triple.

Patients presenting with new onset of headaches account for approximately one half of all headache visits⁵ and provide their physicians with difficult diagnostic and therapeutic challenges. A small minority of these patients will have headaches that are the result of serious or po-

tentially life-threatening processes such as intracranial tumor or hemorrhage. This group of patients clearly needs urgent investigation and prompt treatment. The majority, however, will be suffering from the first of what may become a series of migraine or muscle contraction headaches. For this group, the physician's task is to allay patient concerns about the presence of serious disease, to explore with the patient the possibility of social and psychological factors that have precipitated the headache, and to find a safe and effective program of symptomatic, abortive, or prophylactic therapy. Excessive use of investigative procedures for this group will be costly and may be counterproductive. While the scientific literature concerning headaches is voluminous and contains many studies of headache mechanisms and trials of headache therapy,^{10,11} surprisingly little has been written that is helpful to the primary care physician in this initial assessment of the patient with a new headache. On the contrary, most headache research has used patients with chronic, recurrent headaches seeking treatment from tertiary care centers or specialized headache clinics. The goal of the study reported here was to examine the clinical characteristics of new headaches in primary care and to document the diagnostic and management strategies employed by primary care clinicians.

Submitted, revised, April 26, 1988.

From the Ambulatory Sentinel Practice Network, Denver, Colorado. Requests for reprints should be addressed to ASPN, Denver Place South Tower, 999 18th St, Suite 1170, Denver, CO 80202.

METHODS

The Ambulatory Sentinel Practice Network (ASPN) and its participating practices, patient population, and methods have been described elsewhere.¹² One hundred twenty primary care physicians in 38 practices in the United States and Canada participated in this study. From November 1, 1982, to December 31, 1983, ASPN clinicians recorded data about each office visit made by an active patient¹³ at which headache was presented, investigated, or treated. Headaches were defined as new if the patient had never before suffered from headaches, had experienced a significant change in the character of the headache, or had a recurrence of headache after an asymptomatic period of two years or longer. Of the 3,847 patients with headache seen during the study period, 2,142 patients with new headache were selected for study. Eight hundred eleven were excluded because their follow-up data were incomplete. This process yielded a final study group of 1,331 patients who made an initial visit for a new headache during the study period (Figure 1).

ASPN clinicians reported visits of headache patients weekly, using pocket-sized cards designed for rapid completion. Selected demographic data, headache characteristics, headache diagnosis, diagnostic tests for headache and management strategies, including referrals and hospitalizations, were recorded at each visit. Diagnostic classification was based on criteria proposed by the Ad Hoc Committee on Classification of Headache.¹⁴ Thus, vascular headaches included classical and common migraine and cluster headaches, and tension headaches included tension or muscle contraction headaches. If the clinician made a specific headache diagnosis other than vascular or tension, it was defined as "other." The undiagnosed-mixed category was used when no diagnosis was made or when more than one headache diagnosis was indicated on the reporting form. Headaches were classified as disabling if the patient reported being unable to perform work or usual activities, severe if able to perform such activities with difficulty, and mild if other than the above. Headaches with concomitant fever ($>38^{\circ}\text{C}$) were classified as febrile. All headache visits made by each patient were aggregated in chronological order to create a patient-based data set. Statistical comparisons were made using chi-square tests.

RESULTS

A total of 332,818 office visits were recorded on ASPN patients for any reason during the study period. During this time, 3,847 active patients made 4,940 visits to ASPN clinicians for headache, yielding a rate of 14.8 per 1,000 office visits, or 1.5 percent of all encounters. The 1,331 patients who presented with new headaches made 1,621

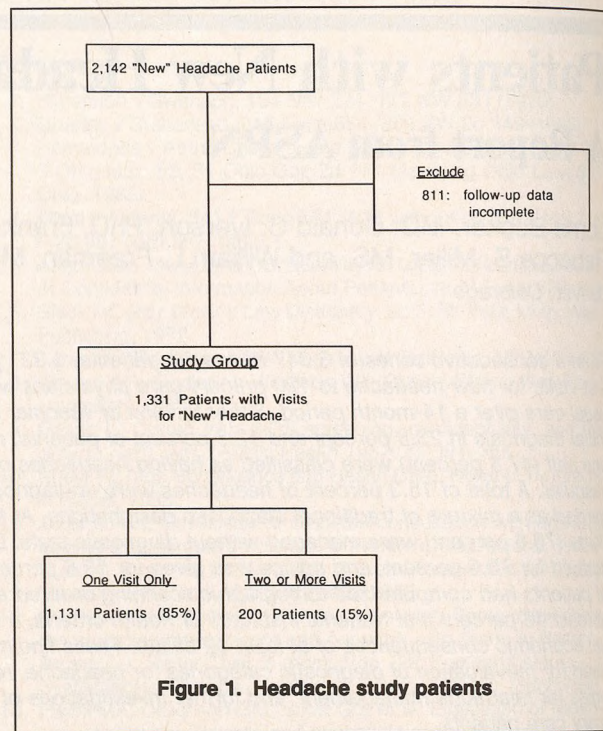


Figure 1. Headache study patients

headache visits to ASPN clinicians during the study period. Sixty-two percent of these 1,331 patients were between the ages of 15 and 44 years. Approximately 15.0 percent (200) of patients made a second visit for headache during the study period; 6.8 percent (90) made three or more visits. Patients with disabling headaches at first visit were 1.6 times more likely to make a second visit than the combined total of patients with severe and mild headaches ($P < .05$).

Clinical Characteristics of New Headache at First Visit

A majority (50.5 percent) of the new headaches were classified as mild (Table 1). Few headaches were classified as disabling (7.0 percent), although 38.8 percent were severe and interfered with patients' usual activities. Concomitant febrile illness was noted in 23.1 percent of persons with headache (Table 1).

New Headache Diagnosis at First Visit

Of persons with a new headache presenting at first visit, 23.8 percent were diagnosed as having tension and 12.8 percent as having vascular headaches (Table 1). Approximately one half (47.8 percent) were classified as "other." Patients with vascular headaches were more likely than

TABLE 1. CLINICAL FINDINGS IN PATIENTS WITH NEW HEADACHE AT FIRST VISIT (N = 1,331 patients)*

Findings	Number	Percent
Headache diagnosis		
Tension only	317	23.8
Vascular only	170	12.8
Other**	636	47.8
Undiagnosed or mixed	204	15.3
Headache intensity		
Mild	672	50.5
Severe	517	38.8
Disabling	93	7.0
Not determined	44	3.3
Febrile illness		
Present	307	23.1
Absent	996	74.8
Not determined	28	2.1

* Data were missing on five patients regarding intensity and on four patients regarding diagnosis

** Other denotes headaches not vascular or tension, eg, those associated with influenza, sinusitis, trauma, or intracranial mass lesions

patients diagnosed as having tension headaches to report occurrence of aura (24.7 percent vs 1.3 percent), nausea or vomiting (46.5 percent vs 18.9 percent), and unilateral focus (50.0 percent vs 13.2 percent). All of these differences were significant ($P < .001$).

Diagnostic Tests

At first visit most patients (76.6 percent) had no tests ordered. With respect to tests, blood tests (11.0 percent), x-ray examination (4.6 percent), computerized tomographic (CT) scan (2.0 percent), and other (9.2 percent) were most frequently ordered (Table 2). Electroencephalograms (EEGs) were ordered for 0.4 percent of patients. For patients making a second visit for a new headache, blood tests (8.5 percent), CT scan (5.0 percent), and other (5.5 percent) were the most frequently ordered tests. Patients making a second or subsequent visit for headache were 2.15 times more likely to have a CT scan than patients making a first visit ($P < .05$). Headache severity was positively related to the ordering of CT scan ($P < .001$) and x-ray examinations ($P < .007$) at first visit. X-ray examinations were ordered most frequently for patients with other or undiagnosed-mixed headaches ($P < .006$); CT scan and blood tests were ordered most frequently ($P < .001$) for patients with undiagnosed-mixed headaches.

Management Strategies

Prescription or nonprescription drugs were recommended for 73.6 percent of patients at first visit (Table 3). Other

strategies employed were advice about nonpharmacological therapy (58.6 percent) and psychotherapy (2.7 percent). Approximately one third (30.7 percent) of patients were scheduled for return visits; however, only 15 percent made a second visit. On return visits, drugs and advice remained the most common management strategies. Few patients were managed by referral (3.5 percent) or hospitalization (1.4 percent) at the first visit.

Patients making a second or subsequent visit were 2.05 times as likely to be referred as patients making a first visit ($P < .05$). The percentage of patients hospitalized increased at the second visit (2.0 percent), but there were no hospitalizations on subsequent visits. Patients with disabling headaches at first visit were more likely to be hospitalized ($P < .001$); referral was not related to headache intensity.

DISCUSSION

During the study period, 1.5 percent of all visits to ASPN clinicians were for headaches; this figure is consistent with the 1 to 4 percent reported in other studies.^{5,15-18} Of the 1,331 patients who presented with new episodes of headache, only 15 percent made two or more visits for headache.

This finding suggests that many headaches are self-limiting, that satisfactory clinical plans are formulated on initial contact, or that patients devise strategies for headache management that do not enlist the subsequent services of a clinician. The low frequency of follow-up visits to the clinician initially consulted among headache patients is surprising.

Clinical Characteristics of New Headaches

Most persons with headache do not seek care^{3,4}; despite this fact, more than one half of the patients in this study had headaches classified as only mild. This finding suggests that people may have different thresholds and reasons for seeking care. Nevertheless, 45 percent of headaches were severe or disabling; consequently, the burden of diagnostic and management decisions is great.

Diagnostic Tests

Test ordering among ASPN clinicians was compared with that of other clinicians reported in the literature. ASPN clinicians were only two thirds as likely to order an x-ray examination as were physicians participating in the National Ambulatory Medical Care Survey (NAMCS).⁵

Neurologists caring for patients who were referred because of headache¹⁹ ordered more x-ray examinations

TABLE 2. PERCENTAGE OF PATIENTS WITH NEW HEADACHE WITH DIAGNOSTIC TESTS ORDERED BY VISIT

Diagnostic Tests	Visits			Total (n = 1,621)
	1st (N = 1,331)	2nd (n = 200)	3rd or More (n = 90)	
Blood tests	11.0	8.5	3.3	10.3
X-ray examination	4.6	3.0	1.1	4.2
Electroencephalogram	0.4	0.5	0.0	0.4
Computerized tomographic scan	2.0	5.0	4.4	2.5
Other	9.2	5.5	7.8	8.7

TABLE 3. PERCENTAGE OF STRATEGIES USED TO MANAGE PATIENTS WITH NEW HEADACHE, BY VISIT

Management Action	Visits			Total (n = 1,621)
	1st (N = 1,331)	2nd (n = 200)	3rd or More (n = 90)	
Treatments				
Drugs	73.6	64.0	71.1	72.2
Advice	58.6	62.5	61.1	59.2
Psychotherapy	2.7	4.5	4.4	3.0
Disposition				
Return visit	30.7	37.5	54.4	32.9
Referral	3.5	6.0	8.9	4.1
Hospital	1.4	2.0	0.0	1.4

(27.5 percent vs 4.6 percent) and EEGs (12 percent vs 0.4 percent), but fewer blood tests (9.2 percent vs 11.0 percent) than ASPN clinicians. Emergency room physicians were more likely to order x-ray examinations (>9.0 percent vs 4.6 percent) and blood tests (≥ 19 percent vs 11 percent) for headache patients than ASPN clinicians.²⁰

Two interesting practice patterns emerged from ASPN clinicians' use of diagnostic tests for investigation of new headache. First, expensive tests were seldom ordered at first or subsequent visits, even when headaches were classified as severe or disabling. At the time the study was conducted, the CT scan was considered the most useful test to detect serious intracranial pathology.²¹ ASPN clinicians refrained from using this test at first visit, ordering a CT scan for only 2.0 percent of patients. Second, while many patients (20.2 percent) received blood and other tests, the value of these tests in the diagnosis and management of headache in primary care settings is unknown.

Management Strategies

ASPN clinicians hospitalized and referred headache patients at a rate similar to that reported by NAMCS.⁵ Drugs were recommended for almost three quarters of patients, and advice was given to more than one half of the patients

in ASPN. The specific nature of this advice and its effectiveness were not investigated in this study. The extensive use of advice suggests that the nature of nonpharmacologic intervention needs further delineation and assessment for efficacy.

Patients visiting ASPN clinicians, with varying levels of headache intensity and different diagnoses, generally received conservative management. It is unknown whether this approach is optimal. Underutilization of diagnostic tests, particularly CT scan, referral, and hospitalization, can lead to unnecessary morbidity (eg, underdiagnosis of intracranial lesions). Significant underutilization is not a major concern, as the occurrence rate of serious underlying disease among patients presenting to primary care clinicians with new headache has been estimated to be less than 4.1 per 1,000.²²

Other studies have also reported low occurrence rates for serious intracranial pathology,^{23,24} including subarachnoid hemorrhage.²⁵ The report of the National Institutes of Health (NIH) Consensus Development Panel noted this concern: "CT should not be employed as a routine screening procedure when a low diagnostic yield is anticipated."²¹ Conversely, overutilization of these modalities (eg, ordering CT scans for all patients with new headaches) can lead to increased economic costs and rarely

to iatrogenic morbidity and mortality. It is possible to illustrate the magnitude of the economic risk by comparing the ASPN clinicians' use of diagnostic tests against diagnostic recommendations by authorities. For example, the 1982 NIH Consensus Development Conference on CT scanning recommended that most patients with headache be considered for CT scanning if the symptom is "severe, constant, unusual, or associated with neurological signs."²¹ If this recommendation had been followed with respect to severity of new headache, at least 46 percent of ASPN patients would have received CT scan at first visit. Assuming an average cost of computerized tomography with contrast and interpretation of \$531* and assuming 9 million annual first visits for new headache nationally⁵ with 46 percent receiving scans, the total annual charges for CT would be \$2.20 billion.

The rate of ordering CT scans observed in ASPN was 2 percent at first visit. Projecting this rate to national data on first visits for headache results in total annual charges of only \$95 million for CT scanning. The difference between total estimated charges if the NIH Consensus Development Conference recommendations for CT scanning were followed as compared with charges projected from the CT ordering rate observed in this study is \$2.11 billion. This difference represents an enormous potential economic risk to the health care system if the NIH recommendations are followed in primary care for all patients with severe or disabling headache.

Before primary care clinicians widely adopt the NIH Consensus Development Conference recommendations, it is prudent to assess their appropriateness for primary care medicine, especially given the low occurrence rate of serious intracranial pathology in primary care medicine, and their economic implications for the health care system.

CONCLUSIONS

Three key findings emerge from this large series of headache patients attended by primary care clinicians. First, office-based clinicians have only a limited opportunity to establish diagnostic and management strategies, as only a small percentage of persons with a new headache return for a second visit. Second, while CT scan was used sparingly, blood and other tests were used with considerable frequency. Primary care clinicians could benefit from studies on the efficacy of various diagnostic tests, and ul-

timately from the establishment of guidelines to aid optimal diagnosis and management of persons with headache. Third, it is important that primary care clinicians be trained in the appropriate diagnostic and management strategies for treating headache because advice is often used as a management strategy and patients are rarely referred. The consequences of undiagnosed, treatable intracranial pathology are ominous. It is worrisome that the estimated economic impact of use of new technology in the evaluation of headache exceeds \$2 billion per year. Additional studies to examine further the clinical characteristics, diagnostic criteria, and management strategies associated with optimal outcome of patients with new headache in primary care medicine are urgently needed, especially in light of the rapidly emerging, expensive technologies that are currently and soon to become available.

Participating ASPN Practices

Canada

British Columbia: Valley Medical Group, Maple Ridge. *Quebec:* Centre de Médecine Familiale de Wakefield, Wakefield.

United States

Colorado: Crow Hill Medical Center, Bailey; Marny Eulberg, MD, Mountain/Plains Family Practice, Denver; Mary Jo Jacobs, MD, Paul Salmen, MD, Glenwood Springs. *Florida:* James Andersen, MD, Fort Lauderdale; Domingo Gomez, MD, Hialeah; Family Medicine Associates, Miami; Roman Hendrickson, MD, Ormond Beach. *Georgia:* Hames Clinic, Claxton; Tri-County Family Medicine Center, Warrenton. *Massachusetts:* Fitchburg Family Practice Residency, Fitchburg. *Minnesota:* Milton Seifert, MD, Excelsior; Nokomis Clinic, Riverside Family Physicians, Minneapolis; Group Health, Plymouth. *New Hampshire:* David Beaufait, MD, Mark Parker, MD, Enfield; Richard Douglass, MD, Hillsboro; Manchester Family Health Center, Manchester; Monroe Clinic, Monroe; New London Medical Center, New London; David Frechette, MD, Woodsville. *New York:* Afton Family Health Center, Afton; Kazimieras Snieska, MD, Maine. *Oregon:* Dunes Family Health Care, Reedsport. *Pennsylvania:* Dennis Allen, MD, Hallstead; Highland Physicians, Honesdale; Yardley Family Practice Associates, Yardley. *Utah:* Family Practice Group of Tooele, Tooele. *Vermont:* Community Health Center, Enosburg Falls; The Health Center, Plainfield. *Virginia:* Gus Lewis, MD, King William Community Health Services, Aylett; Duane Lawrence, MD, Virginia Beach; Associated Physicians, Waynesboro. *Washington:* Family & Internal Medicine Associates, Anacortes. *West Virginia:* New River Family Health Center, Scarbro.

Acknowledgments

This study was supported by grants from the W. K. Kellogg Foundation and the Rockefeller Foundation.

References

1. Waters WE: The Pontyprid headache survey. *Headache* 1974; 14:81-90

* To estimate the charges associated with the CT scan, ten hospitals nationwide were contacted to determine the charges associated with CT scan with contrast, including interpretation. The average cost calculated from these reported charges was \$531 (range: \$292 to \$660).

2. Newland CA, Illis LS, Robinson BG, et al: A survey of headache in an English city. *Res Clin Stud Headache* 1978; 5:1-20
3. Taylor H, Curran N: *The Nuprin Pain Report*. New York, Louis Harris & Associates, 1985, p 5
4. Mills CH, Waters WE: Headache and migraine on the Isles of Scilly. In Waters WE (ed): *The Epidemiology of Migraine*. Alkmaar, The Netherlands, Boehringer Ingelheim, 1974, pp 23-34
5. Cypress B: Headache as the reason for office visits. *National Ambulatory Medical Care Survey, United States, 1977-78*. NCHS Advance Data 1981; 67:1-6
6. Contacts with physicians in ambulatory settings: Rates of use, expenditures, and sources of payment. *National Ambulatory Medical Care Survey, United States, 1983*. NCHSR National Health Care Expenditures Study, 1983. National Center for Health Services Research (Rockville, Md). DHHS publication No. (PHS) 83-3361. Government Printing Office, 1983
7. Noren J, Frazier T, Altman I, Delozier J: Ambulatory medical care: A comparison of internists and family-general practitioners. *N Engl J Med* 1980; 302:11-16
8. Detailed diagnoses and procedures for patients discharged from short-stay hospitals. *National Ambulatory Medical Care Survey, United States, 1984*. *Vital Health Stat (13)* 1984; 86:19, 42, 87
9. Detailed diagnoses and surgical procedures for patients discharged from short-stay hospitals. *National Ambulatory Medical Care Survey, United States, 1983*. *Vital Health Stat (13)* 1983; 82:44, 63, 86, 111, 240
10. Drummond PD, Lance JW. Neurovascular disturbances in headache patients. *Clin Exp Neurol* 1984; 20:93-99
11. Diamond S, Dalessio DJ: *The practicing physician's approach to headache*. Baltimore, Williams & Wilkins, 1982
12. Green LA, Wood M, Becker L, et al. The ambulatory sentinel practice network: Purpose, methods and policies. *J Fam Pract* 1984; 18:275-280
13. Fromm J, Westbury R, Aloysius D: An international glossary for primary care: Report of the Classification Committee of the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA). *J Fam Pract* 1981; 13:671-681
14. Ad Hoc Committee on Classification of Headache: Classification of headache. *JAMA* 1962; 179:717-718
15. Phizacklea S, Wilkins RH: The prevalence and diagnosis of headache in an urban practice. *J R Coll Gen Pract* 1978; 28:594-596
16. Royal College of General Practitioners: *Morbidity Statistics from General Practice, 1971-72, Second National Study*. Studies on Medical and Population Subjects. London, Her Majesty's Stationery Office, 1979, p 36
17. Marsland DW, Wood M, Mayo F: Content of family practice: Part I. Rank order of diagnoses by frequency. Part 2. Diagnoses by disease category and age/sex distribution. *J Fam Pract* 1976; 3: 37-68
18. Rosenblatt RA, Cherkin DC, Schneeweiss R, et al. The structure and content of family practice: Current status and future trends. *J Fam Pract* 1982; 15:681-722
19. Fitzpatrick R, Hopkins A: Referrals to neurologists for headaches not due to structural disease. *J Neurol Neurosurg Psychiatry* 1981; 44:1061-1067
20. Dickman RL, Masten BS: The management of non-traumatic headache in a university hospital emergency room. *Headache* 1979; 19:391-396
21. NIH Consensus Development Panel: Computed tomographic scanning of the brain. In *Proceedings from NIH Consensus Development Conference*. National Institutes of Health (Bethesda, Md). Government Printing Office, 1982, vol 4, p 2
22. Diehr P, Wood RW, Barr V, et al. Acute headaches: Presenting symptoms and diagnostic rules to identify patients with tension and migraine headache. *J Chronic Dis* 1981; 34:147-158
23. Milne JS: Headaches in general practice. *Scott Med J* 1965; 10: 251-253
24. Jerrett WA: Headache in general practice. *Practitioner* 1979; 222: 549-555
25. Knaus WA, Wagner DP, Davis DO. CT for headache: Cost/benefit for subarachnoid hemorrhage. *Am J Roentgenol* 1981; 136:537-542

Commentary

Martin J. Bass, MD, MSc, FCFP, and Ian R. McWhinney, MD, FRCP, FCFP, FRCGP
London, Ontario

If it has been quoted correctly, the National Institutes of Health Consensus Development Conference on computed tomographic (CT) scanning is a good example of the folly of making ex cathedra statements with inadequate supporting data. The ASPN report has called one of these statements into question: that all patients with severe headache should have a CT scan. About one half of the ASPN patients had severe headache, a figure very similar to the proportion with severe headache in our own study (55 percent of patients presenting with new headaches to family physicians).¹

To refute the Consensus Development Conference recommendation, it is essential to have information about outcome, which is not given in the ASPN report. In our

study, in which all patients were followed for one year, only one of the patients had a space-occupying lesion.¹ This patient was diagnosed at the first visit because he had neurological symptoms and signs. Thus CT scans would have offered little benefit in our population.

Recommendations about the use of tests should be backed up by data on the predictive value of specific tests. It should be stressed over and over again that the predictive value of a symptom, sign, or test varies directly with the prevalence of the disease in question. The same test, therefore, may have entirely different predictive value in different populations. That a CT scan may have a high predictive value when used in patients with severe headache in a neurological clinic does not mean that its use

can be extrapolated to the entirely different population of a family practice.

Why is predictive value important? The lower the positive predictive value of a test, the more false-positive results there will be for every true-positive result. The price for every case correctly diagnosed is the number of healthy people exposed to the risk of the test or the risk of further tests to rule out the diagnosis. At each level of predictive value, one must decide whether the benefit is worth the risk.

To establish the predictive value of CT scans for severe headache in a family practice population, it would be necessary to order one for every patient with severe headache. Even without these data, there is good reason for thinking that physicians exercise good judgment by using other clinical criteria for the selection of patients for CT scans. In doing so, they select a subpopulation with a higher likelihood of space-occupying lesions, thus increasing the predictive value of the scan.

In our study, we examined the predictive value of two tests: skull x-ray examination in patients for persistent and worsening headache; and an erythrocyte sedimentation rate (ESR) of over 50 mm in one hour for patients over the age of 50 years. The skull x-ray examination had a zero predictive value for space-occupying lesions—there were no true-positive cases. The ESR had a positive predictive value of 50 percent for cranial arteritis. Since there was only one case of cranial arteritis, this rate remains tentative. It is possible, therefore, as the ASPN report recommends, to work out strategies that are appropriate for primary care.

There are several interesting points in the methods of the ASPN study that deserve comment. The decision to study patients newly presenting with headache was excellent. This use of an inception cohort overcomes the biases and confusion that arise when all patients (new and old) visiting with headache are studied. Unfortunately the limitations of funding and organization did not allow patients to be systematically followed, so there are no data on outcome. The follow-up data that are available reflect return visits only. We have no idea why patients did not return. It may have been because they were improved, or went to another physician, or (heaven forbid!) succumbed to their headache.

There is a confusing statement that 811 of the 2,142 eligible patients (38 percent) were excluded because "their follow-up data were incomplete." Was there follow-up we are not told about? Why was the percentage so large, and how did these patients differ from those included in the analysis? The concern is that excluded patients differed significantly, and their inclusion would have changed the results and conclusions of the study. The high percentage of lost subjects may well reflect the early problems of the network.

Long-term follow-up and good outcome data are important in the development of management strategies. In our study, regression analysis showed that the strongest predictor of a good outcome at one year (no headache in previous month) was the patient's statement shortly after the first visit that he or she had been able to discuss the headache and the problems surrounding it fully with the physician.¹ The next strongest predictor was an organic diagnosis. Severe headache was the strongest predictor of a poor outcome (persisting, troubling headaches), but not of organic pathology. Thus, the strongest predictor of a good outcome was a reflection of the physician's readiness to listen to the patient. This result is not specific to primary care, but has been found in neurological clinics as well.²

Sixty-seven percent of all patients gave concern about the cause of the headache as a reason for consulting the physician.¹ Relief of anxiety at the first visit may be one reason for patients not returning for follow-up.

We agree about the need for reevaluation of diagnostic categories. We found no predictive value in the distinction between common migraine and tension headache: the outcome at one year was similar in both. Nor was there any difference between common migraine and tension headache in the frequency of psychological or social problems. There is no etiological basis for distinguishing between these two large categories, and neither of them is known to indicate a specific therapy. We therefore questioned the usefulness of trying to distinguish between categories of nonorganic headache, other than those that clearly demonstrate the features of cluster headache or classical migraine. With these exceptions, we recommended that recurrent nonorganic headache should be called recurrent, nonspecific headache. The criteria for the diagnosis are chiefly those of exclusion: recurrent headaches, usually bilateral, with no visual prodrome or autonomic symptoms and without features of cluster headache. According to our study the diagnosis has predictive value, in that one half the patients will be having infrequent or no headaches after 12 months.

References

1. Headache Study Group of The University of Western Ontario: Predictors of outcome in headache patients presenting to family physicians—A one-year prospective study. *Headache* 1986; 26:285-294.
2. Fitzpatrick RM, Hopkins AP, Harvard-Watts O: Social dimensions of healing: A longitudinal study of outcomes of medical management of headaches. *Soc Sci Med* 1983; 17:501-510.

Dr. Bass is Professor, Department of Family Medicine, and Director of the Centre for Studies in Family Medicine, and Dr. McWhinney is Professor, Department of Family Medicine, The University of Western Ontario, London, Canada.

INFORMATION FOR AUTHORS

THE JOURNAL OF FAMILY PRACTICE is a peer-reviewed scientific journal specifically intended to meet the needs of the developing specialty of family practice. Manuscripts are considered in relation to their significance in the advancement and definition of the discipline of family medicine, the extent to which they represent original work, and their interest to the practicing family physician. High priority is given to clinical studies that have practical implications for improved patient care. Some papers that are accepted for publication will be selected for concurrent commentary by other invited authors addressing issues raised by the papers. Manuscripts are considered individually on the basis of content, originality, and relevance to the goal of this journal.

Contributions in the form of original articles, feature articles, and position papers are invited. All articles should include a careful compilation of bibliography. Letters to the Editor are also encouraged, including observations, opinion, corrections, and comment on topics under discussion in the journal. THE JOURNAL OF FAMILY PRACTICE publishes the following features:

Original Articles. Clinical aspects of family practice, representing the family physician's perspective on health, illness, and the family: family practice and health care delivery, addressing the relation of family practice to other clinical disciplines, allied health fields, and community resources; medicolegal matters, audit methods, or practice management; or changing patterns of health care; education in family practice; or research in family practice relating to any of the above broad areas.

Clinical Review. In-depth survey papers of specific disease entities or treatment modalities.

Controversies in Family Practice. A feature involving pro and con position papers on controversial issues in family practice.

Problems in Family Practice. Based on common problems, such articles describe the family physician's approach to diagnosis, management, counseling, and prevention.

Procedures in Family Practice. The role, indications, contraindications, technique, and related aspects of diagnostic or therapeutic procedures of value in everyday practice.

Education for Family Practice. Articles dealing with curriculum, teaching methods, and evaluation at undergraduate, graduate, or postgraduate levels.

Family Practice Grand Rounds. Normally based on a formal teaching conference involving a case presentation and multidisciplinary discussion of a clinical subject.

Family Practice and the Health Care System. Addressing subjects related to the changing health care system, with particular focus on the influence of these changes in family practice.

Brief Reports. Providing for rapid publication of new ideas in clinical, education, or research areas, brief case reports, and preliminary results of clinical or educational research projects. Limited to four double-spaced manuscript pages with no abstracts required.

Computers in Family Practice. Applications of computer technology in family practice, particularly those by practicing family physicians.

Family Practice Forum. Exchange of opinion on issues relating to the developing specialty of family practice. Limited to four double-spaced manuscript pages with supporting references.

MANUSCRIPT SUBMISSION. Contributions will be considered for publication with the understanding that they are contributed solely to THE JOURNAL OF FAMILY PRACTICE and have not been previously published elsewhere. The original and two copies of the complete manuscript should be submitted. The two copies should be without author identification to allow for a blinded peer review. The transmittal letter should designate one author as correspondent. Authors are responsible for all statements made in their work. Accepted manuscripts become the permanent property of the journal. In the event that a manuscript is not accepted, the original and one copy will be returned to the author; one copy will be retained in the journal's files. Manuscripts should be submitted to: John P. Geyman, MD, Editor, *The Journal of Family Practice*, Department of Family Medicine, RF 30, School of Medicine, University of Washington, Seattle, WA 98195.

Review and Action. The corresponding author will be notified within six to eight weeks concerning the acceptability of a manuscript, but at times longer delays may be unavoidable. All accepted manuscripts are subject

to copy editing. The corresponding author will receive page proofs for review. The author must return the page proof, with his approval or corrections, within 48 hours of receipt; after this time, no further changes may be made by the author. All correspondence regarding a manuscript should include the numerical designation assigned to it, eg, MS 218-85. **Reprints.** Authors will receive 50 free reprints of their articles. A reprint list will be sent to the corresponding author should additional reprints be desired. Instructions for ordering reprints will accompany the price list.

Permissions. Permission must be obtained from the author and the publisher for use of illustrations and tables from previously published works. Permission must be obtained before an article is submitted, and the letters of permission should accompany the manuscript. The source of material should be mentioned in an illustration legend or table footnote.

MANUSCRIPT PREPARATION. All copy must be typewritten, double-spaced, on 8½ × 11 inch, heavy-duty white bond paper, with generous margins on each page—at least 1½ inches at top, bottom, and left, and 1 inch at right. If a manuscript is typed by word processor, a letter-quality printer must be used; obvious dot matrix printout is not acceptable. The first page of the original manuscript should give the title of the article, name(s) and affiliation(s) of author(s), any acknowledgments, and the address to which requests for reprints should be sent. Titles should be short, specific, and clear, and subtitles may be used as desired. The second page should supply an abstract of not more than 200 words. The abstract replaces a summary and should be a factual (not descriptive) summary of the paper, including the principal conclusions of the article. All pages but the title page of the original manuscript should include a running head typed in the upper left-hand corner, consisting of a shortened form of the title and the surname of the senior author. The text should avoid extensive outline formats and be limited to an absolute maximum of 18 manuscript pages, including tables and figures. Only generic drug names should be used. If a particular brand name has been used in a study, it should be cited in the Methods section, listing generic name, brand name, and manufacturer. Clinical laboratory data should be expressed in Systeme International (SI) units followed in parentheses by conventional units, eg, hemoglobin 2.09 mmol/L (13.5 g/dL). A conversion table is available from the Editor upon request.

References. References will be critically examined at the time of editorial review. Personal communications should not be included. The journal abbreviation style of *Index Medicus* should be followed in preparing references. References should be numbered consecutively as they appear in the text and arranged in the order of citation, not alphabetically. References to a journal and a book are illustrated.

1. Fishbane M, Starfield B: Child health care in the United States: A comparison of pediatricians and general practitioners. *N Engl J Med* 1981; 305:552-556
2. Dubovsky SL, Weissberg MP: Clinical Psychiatry in Primary Care. Baltimore, Williams & Wilkins, 1978, p 46

Tables. Tables should be self-explanatory, clearly organized, and supplemental to the text of the manuscript. Each table should include a title, be typed on a separate sheet, and be numbered in order of its appearance in the text. Tables should be used to compare or classify information for easier understanding and should not duplicate data included in the text or figures.

Figures. Figures should be used only if they clearly increase understanding of the text. Figures include all material that cannot be set in type, such as graphs, charts, line drawings, and tracings. All figures must be professionally prepared (usually 5 × 7) and submitted in duplicate. Only black-on-white glossy prints and black ink drawings will be accepted. Photocopies of original figures will not substitute. All figures should be unmounted. Each should have a gummed label on the back listing the figure number, title of manuscript, and author(s), with an arrow indicating the top. Figures should be numbered and cited in the text, and each should have a legend.

Book Reviews. Each issue will include a section featuring reviews of books of interest. Books for review should be sent to: Claire Griebing, Assistant Editor, *The Journal of Family Practice*, Department of Family Medicine, RF 30, School of Medicine, University of Washington, Seattle, WA 98195.