In Physician assistants: their contribution to patient care. Human Sciences Press, New York, 1982.
2. Heinrich, J. J., et al.: The physician's assistant as resident on surgical services. Arch Surg 115: 310 (1980).
3. Laws, H. L., et al.: Training and use of surgeon's assistants. Surgery 83: 445 (1978).
4. Miller, J. J., and Hatcher, C. R.: Physicians' assistants on a university cardiothoracic surgical service: a five-year update. J Thorac Cardiovasc Surg 76: 639 (1978).
5. American College of Surgeons and American Surgical Association: Surgery in the United States: a summary report of the study on surgical services for the United States. Chicago, 1976.
6. Graduate Medical Education National Advisory Committee: GMENAC summary report, Vol. 1. Health Resources Administration, U.S. Department of Health and Human Services, Washington, D.C., 1980.
7. Perry, H. B., Detmer, D. E., and Redmond, E. L.: A policy proposal for correcting the imbalance in general surgical manpower. Surgery. In press.
8. American Medical Association: '79/'80 directory of residency training programs. Chicago, 1980, p. 15.
9. Perry, H. B., Detmer, D. E., and Redmond, E. L.: The current and future role of surgical physician assistants. Ann Surg 193: 132 (1981).
10. American Hospital Association: The American Hospital Association Guide to the Health Field. Chicago, 1978.
11. American Medical Association: Directory of residency training programs, 1978–1979. Chicago, 1978.
12. Zuidema, G. D.: The study of surgical services for the United States (SOSSUS) and its impact on American surgery. Surg Clin North Am 62: 603–612 (1982).
13. Moore, F. D.: Surgical manpower: past and present reality estimates for 2000. Surg Clin North Am 62: 579–602 (1982).
14. Detmer, D. E., and Perry, H. B.: The utilization of surgical physicians assistants: policy implications for the future. Surg Clin North Am 62: 669–676 (1982).

Dental Malpractice: Baseline Data from Insurance Claims Closed in 1970, with Analysis

NORMAN CLARK, DDS, MPH, JD
NANCY PAQUIN, MA
JOSEPH NEVIN, MS

At the time of the study, all authors were with the Division of Dentistry, Health Resources Administration, Public Health Service. Dr. Clark is currently Chief Dental Officer, National Health Service Corps, Bureau of Health Care Delivery and Assistance, Health Resources and Services Administration (HRSA). Nancy Paquin is Director, Office of Data Management, Bureau of Health Care Delivery and Assistance, HRSA. Joseph Nevin is Chief, Systems Development Section, Systems Programming and Implementation Branch, Office of Data Management, Bureau of Health Care Delivery and Assistance, HRSA.

SYNOPSIS

A study of dental malpractice claims closed during the 1970s was conducted using closed claim data available as a byproduct of a survey conducted by the Secretary's Commission on Medical Malpractice, U.S. Department of Health, Education, and Welfare. The intent of the authors of this study is to establish a baseline that can be used for future comparisons of dental malpractice.

Far fewer cases of dental malpractice were found than expected, and specialists such as oral surgeons were at higher risk than general practitioners. One-half of the claims resulted in no payment to the plaintiff. Trial verdicts were reached in just over 7 percent of the cases, and 93 percent of the verdicts were in favor of the defendant.

The amount of damages paid to claimants for dental cases was approximately one-third that paid on claims involving physicians or medical specialists. The median award to the plaintiff for dental malpractice was $750. Ninety-five percent of the awards made were under $5,000.

FROM 1960 TO 1970, MEDICAL MALPRACTICE premiums increased from approximately $65 million to more than $330 million, an increase that is more than five-fold (*1*). Premium payments doubled among dentists, increased six-fold among physicians, and increased three-fold among hospitals. These increases reflect the increase in both frequency and severity of alleged incidents leading to malpractice claims as well as the increased willingness to file claims.

In September 1971, the Secretary of the Department of Health, Education, and Welfare created the Commission on Medical Malpractice. Its charge was to publish findings on current claims of medical

malpractice and recommend areas for further study. The commission, however, did not analyze dental data, and the magnitude of dental malpractice claims has not been documented previously. We analyzed the dental data in the commission's survey to establish the frequency and dollar cost of incidents leading to claim actions and to describe the claims, patients, and health care providers involved in malpractice claims as reflected in insurance records. The authors' intent is to establish a baseline that can be used for future comparisons of dental malpractice.

Background

The law relating to dental malpractice is basic and well settled. When a dentist agrees to treat and care for a patient, the dentist is held in law to have implicitly contracted that he or she possesses reasonable and ordinary qualifications of the dental profession and that he or she will exercise due care, reasonable skill, and diligence in providing the required dental treatment (*2–5*).

Judicial decisions give general guidelines for what constitutes "due care" as a matter of law. These guidelines generally state that a dentist may be liable for failure to know what he or she is doing if a reasonably prudent dentist would have known or may be liable if he or she knows what to do, but for some reason does not do it carefully or omits doing it. Failure to exercise due care may constitute "negligence" for which the patient may recover monetary damages.

Even if a patient can prove that a dentist failed to exercise due care in diagnosis and treatment, damages cannot be recovered unless the patient can prove, through expert testimony, that the breach of the dentist's professional duty was the "proximate cause" of his or her injury (*6,7*). Courts have defined proximate cause as "that cause of an injury which, in natural continuous sequence, unbroken by any efficient intervening cause, produces the injury, without which the injury would not have occurred" (*8*). Although proof beyond a reasonable doubt is not required in a negligence action before a patient can recover damages, the patient does bear the difficult burden of proving all the facts that allegedly indicate negligence.

In most jurisdictions today the local standard of practice or the "locality rule" is considered as only one factor for the jury to consider in a malpractice action. The locality rule states that "the degree of due care exercised by a dentist is to be the same for similar communities" (*9,10*). Although some States still apply the locality rule to general practitioners, courts in many States have abrogated it completely for specialists and assume that a specialist will adhere to national standards (*11*). Even for general practitioners, however, the general trend is away from geographic considerations.

During the past decade, many plaintiff attorneys have successfully obtained sizable awards on behalf of their clients by more frequently using the legal doctrine known as *res ipsa loquitur*. This doctrine permits damages to be awarded on the grounds that "the thing speaks for itself." The doctrine shifts the burden of proof to the defendant when circumstantial evidence has been introduced of injury to the patient that ordinarily does not happen in the absence of negligence (*12*). The doctrine also relieves the plaintiff of the troublesome duty of providing expert witnesses to prove negligence. The apparent reason for the increased number of malpractice claims between 1959 and 1970 was the success that plaintiffs' attorneys have had in obtaining large awards by using the *res ipsa loquitur* doctrine and the collateral source rule (*13*).

According to that rule, the fact that the plaintiff is insured and collecting for many costs of the damages sustained is inadmissible as court evidence. Thus, the plaintiff may be paid double by receiving income from a third party and also being awarded damages covering the same costs. This possibility tends to drive up the cost of malpractice insurance premiums. Some jurisdictions no longer allow use of the collateral source rule.

Methods

The HEW Secretary's commission gathered data from sources that included public hearings, advisory panels, a special interdepartmental committee, and research consisting of a number of data collection and analysis projects (*14*). The largest study by the commission was an examination of insurance company files of claims closed in 1970. A claim was considered to be closed when the insurance carrier was satisfied that no further action was needed to settle the claim. To enlist cooperation, the commission contacted 68 firms that underwrote medical malpractice insurance. Six firms accounted for a majority of all dental malpractice insurance, and all but one firm agreed to participate fully in the project. A total of 26 firms, estimated to be carrying approximately 90 percent of the dental malpractice coverage then in force, agreed to provide data.

A sampling method, developed by a consultant, was used by the commission's staff and resulted in

selection of approximately 20 percent of the claim files that had been closed in 1970 (*15*). This weighting scheme was more complex than those used in most studies because each defendant could have multiple carriers involved in his or her coverage, and each claim could involve multiple defendants. Thus, there was a possibility of multiple selection of each claim in the file.

Standardized questionnaires were sent to the insurance carriers, which completed and forwarded them to the commission. Questionnaires were coded by using "International Classification of Diseases" (*16*). A total of 3,113 claim files were coded, representing an estimated 11,700 claims closed in 1970. The data had not been completely analyzed when the commission issued its report, which presented only preliminary findings and conclusions (*14*). To complete the analysis, the Public Health Service awarded contracts to two private research companies. The data were weighted according to the original survey's protocol, edited for inconsistencies, and corrected as needed before tabulation. A public use data tape was constructed, and the data elements and their use were clearly documented to make this unique data source available for further research.

The public use tape was obtained in 1977 by the authors, in the Division of Dentistry of the Health Resources Administration, who wished to determine if sufficient data on dental malpractice existed to permit meaningful conclusions. Dental personnel were involved in 229 of the 3,113 claims. After the data were weighted, it was estimated that 990 claims involving dental personnel were closed during the study period. They represented approximately 8 percent of the total claims closed in 1970. Because of multiple defendants in several claims, the total number of insured dental personnel in the claims was estimated to be 1,054. The data for these dental claims were extracted from the file, and frequency distributions were produced for each data element.

On the basis of these distributions, it soon became apparent that the "International Classification of Disease" (*16*), used to code the files, was inadequate for dental incident data because no detailed procedure data were available. The dental incident data were recoded using the codes of the American Dental Association for dental procedures (*17*).

Findings and Analysis

Data on the malpractice claims closed in 1970 represent the only known body of statistics concerning distributions, types of claims, amounts of settlement, and length of dental malpractice proceedings that have been analyzed. The results of the analysis will be presented by examining the claims, the practitioners, and patients.

Claims. All claims closed in 1970 resulted from incidents that had occurred during the period 1959–70. From claim registration to final closure, the distribution ranged from almost 8 percent of the claims closed within 1 month to about 5 percent taking more than 4 years to settle. Sixty-eight percent of the claims were closed within the first year and another 17 percent during the second year; more than 95 percent were settled by the end of the fourth year.

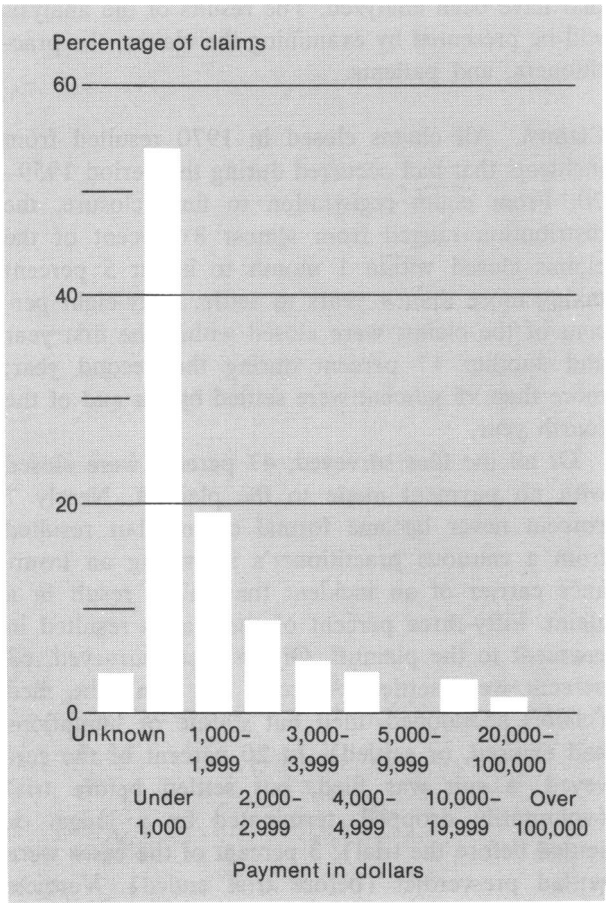
Of all the files surveyed, 47 percent were closed with no payment made to the plaintiff. Nearly 7 percent never became formal claims, but resulted from a cautious practitioner's informing an insurance carrier of an incident that might result in a claim. Fifty-three percent of the claims resulted in payment to the plaintiff. Of the cases surveyed, 63 percent were settled before a suit could be filed (claims abandoned, filed but statute of limitations had expired, or settled). In 20 percent of the surveyed, a suit was filed, but settled before trial (voluntarily dropped, terminated by a judge, or settled before the trial); 3 percent of the cases were settled pre-verdict (before trial ended). Verdicts were reached in just over 7 percent of the cases; 93 percent of the verdicts resulted in judgments in favor of the defendant.

Awards for claims settled in 1970 ranged from $10 to $220,050; the median award was $750. As shown in fig. 1, 54 percent of the awards to the claimant were less than $1,000, an additional 19 percent were in the $1,000–$1,999 range, and about 9 percent were in the $2,000–$2,999 range. More than 81 percent of the awards were less than $3,000, and 95 percent were less than $5,000.

Although legal fees paid by the insurance carrier to settle a claim ranged from $38 to $53,975, the amount of the fee varied with the size of the award only if the award exceeded $10,000. In these cases, the legal fees generally exceeded $1,000; however, only 1 percent of all claims surveyed incurred legal fees exceeding $3,000.

Geographic distribution of the claims that went to settlement is shown in table 1. Thirteen States had no cases settled during 1970. Seven States—California, Illinois, New York, Ohio, Massachusetts, Pennsylvania, and Texas—accounted for half of all cases

Figure 1. Percentage of claims resulting in payment, by size of payment



closed in 1970. Regional differences come to light when comparing the relationship of population to malpractice claims in Census Bureau regions (table 2). The Mountain region, for example, had only 1.6 percent of the claims but 4.1 percent of the population of the United States. A different disparity existed in the South Atlantic region, which accounted for 15.6 percent of the dental malpractice claims but only 6.3 percent of the U.S. population in 1970. The Pacific region, including Alaska, California, Hawaii, Oregon, and Washington, had 11 percent of the claims, 13 percent of the U.S. population, and almost 16 percent of the nation's dentists.

Forty-one specified procedures were involved in the claims studied. Approximately 37 percent of the claims involved surgical procedures (table 3). Restorative procedures accounted for more than 17 percent of the cases, and procedures for prosthetic

Table 2. Regional percentages of dental malpractice claims, population, and dentists

Region	*Population*	*Claims*	*Dentists*
New England	5.8	12.3	6.4
Mid-Atlantic	18.4	19.0	23.7
East North Central	20.0	23.2	20.0
West North Central	8.1	8.1	8.0
South Atlantic	6.3	15.6	11.3
East South Central	6.3	2.6	4.3
West South Central	9.5	6.1	7.2
Mountain	4.1	1.6	3.8
Pacific	12.9	11.3	15.8

Table 1. Geographic distribution of incidents leading to malpractice claims

State	*Percent*	*State*	*Percent*
Alabama	0.5	Missouri	2.5
Arizona	1.0	Nebraska	0.5
California	8.6	New Jersey	3.6
Colorado	0.7	New Mexico	0.1
Connecticut	3.5	New York	10.1
District of Columbia	0.5	North Carolina	1.1
Florida	4.4	North Dakota	1.0
Georgia	1.7	Ohio	7.1
Illinois	9.0	Oklahoma	2.0
Indiana	1.6	Oregon	1.2
Iowa	0.5	Pennsylvania	5.3
Kentucky	1.0	South Carolina	0.5
Louisiana	1.0	South Dakota	0.5
Maine	0.5	Tennessee	0.6
Maryland	4.2	Texas	5.0
Massachusetts	5.7	Vermont	0.5
Michigan	4.0	Virginia	3.0
Minnesota	3.0	Washington	1.5
Mississippi	0.5	Wisconsin	1.5

devices (fixed and removable) accounted for another 18 percent.

As expected, the incidents resulting in most claims involving dental procedures took place in private practice offices. Of the 12 percent occurring elsewhere, two-thirds took place in hospitals, with the rest in other settings.

Dental practitioner types. Oral surgeons were involved in 11.3 percent of the claims closed in 1970 but represented only 2.5 percent of practicing dentists; general practitioners had fewer claims than their proportion of all dentists, as the following percentages indicate:

Dental specialty	*Dentists*	*Claims*
General practitioners	89.3	80.1
Oral surgeons	2.5	11.3
Orthodontists	4.5	5.1
Other	3.7	3.5

Specialists are considered to be at greater risk than general practitioners and carried higher liability coverage. Of all the dentists surveyed, 54 percent carried $100,000–$300,000 of liability insurance. Only 14 percent of the general practitioners carried insurance with higher limits, but almost 31 percent of the oral surgeons, 67 percent of the endodontists, and 20 percent of the orthodontists carried limits ranging from $600,000 to $3 million.

Further analysis of the data shows that 58 percent of the claims involving oral surgeons and 25 percent of the claims involving general practitioners occurred as a result of tooth extraction. Eighty-five percent of all dentists involved in the claims had solo practices, 10 percent were involved in partnerships or group practices, and the remainder worked in hospital practices or worked in corporate clinics. Women dentists constituted only 1.5 percent of the practitioners involved in the claims, and 2.3 percent of the active dentists practicing in 1970, according to U.S. census data (*18*).

The dentists' age is another factor in involvement in malpractice claims (fig. 2). That likelihood drops after age 35 and remains low until rising at age 45. It is statistically significant that a claim is more likely to result in payment to the plaintiff as the dentist becomes older.

Patients involved in claims. Established patients of a dental practice are far less likely to initiate a malpractice claim than are new patients. More than three-quarters of the claims filed were filed by patients who had been seeing the practitioner for less than 1 year; 84 percent who filed claims had been the practitioner's patient less than 2 years. Patients who had been seeing the same dentist for 5 years or longer were involved in less than 10 percent of the claims. Eighty-nine percent of the patients filing claims were responsible for their own dental bills

Table 3. Percentage distribution of dental procedures in claims of malpractice, settled in 1970

Procedure	*Percent*	*Procedure*	*Percent*
Oral surgery	36.5	Reline denture	0.5
Oral surgery	0.5	Fixed prosthodontic	8.0
Extraction	1.0	Crown	2.5
Single extraction	15.3	Other services	28.1
Additional extraction	12.1	Oral exam	0.5
Surgical extraction	0.5	Prophylaxis	1.0
Extraction (erupted)	1.5	Periodontic service	0.5
Impaction incision and removal	1.5	Surgical periodontic	0.5
Impaction bone removal	1.5	Gingivectomy	1.0
Root recovery	0.1	Gingival flap procedure	0.5
Odontogenic cyst removal	1.0	Special periodontal appliance	0.5
Condylectomy	0.5	Root canal therapy	7.8
Other oral surgery	0.5	Tooth guidance	0.5
Skin graft	0.5	Treat transitional dentition	0.5
Restorative	17.8	Treat permanent dentition	4.2
Restoration	1.0	Emergency pain treatment	2.7
Amalgam restoration	11.4	Local anesthesia	1.5
Crown: single restoration	4.9	Regional block	1.5
Porcelain crown	0.5	General anesthesia	1.5
Prosthetic	17.6	Analgesia	0.5
Complete denture	4.4	Drug therapy	0.6
Partial denture	2.2	Miscellaneous service	0.5
		Postsurgical complication	1.5

(they had no third party coverage); 65 percent of the claimants were represented by an attorney. When each of these characteristics was compared with the outcome of the claims, no statistically significant differences were noted in the likelihood of payment, amount of payment, or type of procedure that led to the claim.

Analysis of data on patients' age and sex indicated that these variables were not usable as predictors of the incidence or outcomes of malpractice claims (fig. 3). Other data show that the plaintiff patient returned to the dentist for further treatment in 30 percent of the cases in which there was no payment for a claim, but in only 9 percent of the cases in which there was payment.

Conclusions

Dentists were involved in fewer malpractice claims than had generally been supposed, and the average amount of damages paid in dental claims, $750, was lower than the average amount for medical claims, $2,000 (*17*). The patterns of dental practice in the decade preceding 1970 were reflected in the distribution of claims. As expected, oral surgeons were at greater risk of malpractice claims than most other dentists, but no other specialty had a disproportionate number of claims. Although the age of the practitioner was a factor, no other characteristics of either the dentist or the patient could contribute to meaningful profiles of typical high risk practitioner or patient.

Although a followup survey was conducted in 1976 by the Office of the Surgeon General, U.S. Public Health Service, it asked few questions on claims resulting from dental procedures or the practitioners involved in them. It is recommended that a similar study of claims closed in 1980 be done for dental malpractice claims and a comparative analysis be performed. The practice of dentistry is experiencing considerable change, with growth in the use of auxiliaries, partnerships, and group practice; credit card and third party insurance payments; and advertising and retail store clinics being among the most profound. The data from 1970 will provide a baseline for analysis of possible effects of these and other changes on any increase or decrease in the liability of dentists to malpractice claims.

Figure 3. Percentage of claims by age and sex of patients

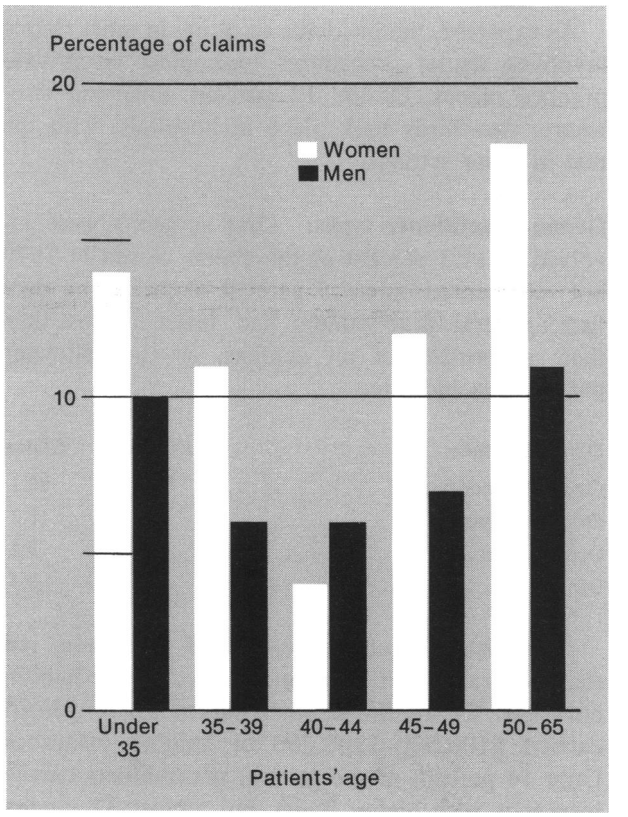
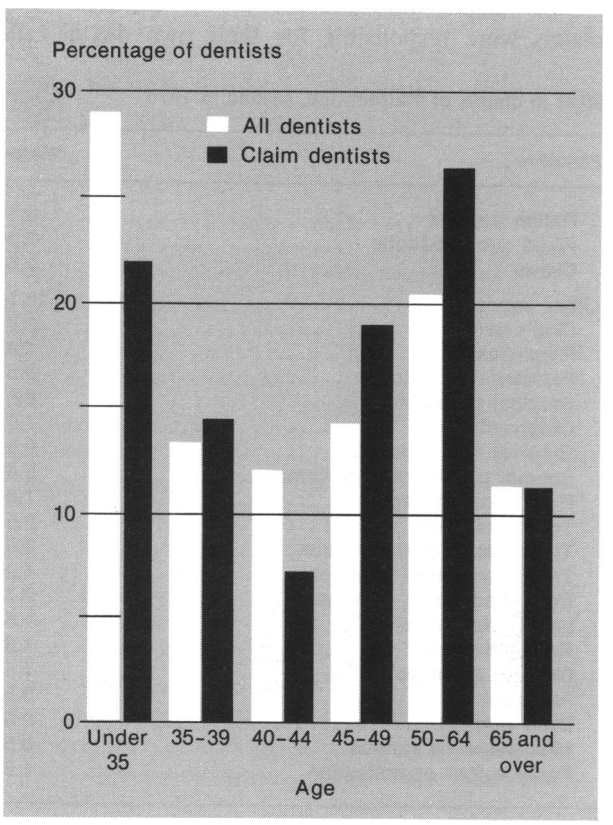


Figure 2. Age distribution of U.S. dentists and dentists with claims



References

1. Kendall, M., and Hadl, J.: The medical malpractice insurance market. *In* Report of the Secretary's Commission on Medical Malpractice. DHEW Publication No. 73–80, U.S. Government Printing Office, Washington, D.C., 1973, pp. 494–561.
2. *Rike* v. *Honsinger,* 49 NE 760 (1898).
3. *Tanner* v. *Sanders,* 247 Ky. 90, 92, 56 SW 2d 718, 719, (1933).
4. *Harris* v. *Exon,* 161 Kans. 582, 583, 170 Pac 827, 829 (1946).
5. *Adkinu* v. *Ropp,* 14 NE 2d 727 (1938).
6. *Morse* v. *Moretti,* 403 F. (2d) 564 (App. D.C. 1968).
7. Holder, A. R.: Medical malpractice law. John Wiley & Sons, Inc., New York, 1975, ch. 2, p. 57.
8. Gifis, S. H.: Law dictionary. Barrons Educational Series Inc., Woodbury, N.Y., 1975, p. 30.
9. *Marchiewski* v. *Cosella,* 106 A 2d 466 (Conn. 1954).
10. *Moore* v. *Woff* (1961, Mo. App.), 345 SW 2d 239.
11. *Pederson* v. *Dumorchel,* 431 Pac 978, Wash (1967).
12. Howard, W. W., and Parks, A. L.: The dentist and the law. Ed 3. C. V. Mosby Co., St. Louis, 1973, p. 202.
13. Schwartz, D. H.: Societal responsibility for malpractice. Milbank Mem Fund Q 54: 469–487, fall, 1976.
14. U.S. Department of Health, Education, and Welfare: Report of the Secretary's Commission on Medical Malpractice. DHEW Publication No. (OS) 73–80, U.S. Government Printing Office, Washington, D.C., 1973.
15. Westat, Inc.: Study of medical malpractice claims closed in 1970. DHEW Publication No. (OS) 73–149. U.S. Government Printing Office, Washington, D.C., 1973, app. D, p. D–1.
16. U.S. Department of Health, Education, and Welfare: Eighth revision, international classification of diseases, adapted. Publication No. PHS 1693. U.S. Government Printing Office, Washington, D.C., 1968, p. 254.
17. Council on Dental Care programs: Code on dental procedures and nomenclature. J Am Dent Assoc 92: 647–652, March 1976.
18. U.S. Bureau of the Census: The supply of health manpower, 1970—profiles and projections. DHEW Publication No. (HRA) 75–38. U.S. Government Printing Office, Washington, D.C., 1974, p. 78.

Nigerians' Use of Native and Western Medicine for the Same Illness

EUCHARIA E. NNADI, PhD
HUGH F. KABAT, PhD

Dr. Nnadi is assistant professor, College of Pharmacy, Florida Agricultural and Mechanical University, Tallahassee, Fla. 32307. Dr. Kabat is associate dean for academic affairs and professor, College of Pharmacy, University of Minnesota, Minneapolis. Tearsheet requests to Dr. Nnadi.

SYNOPSIS

The impact of dual systems of health care on those who use them is not well understood. A study was undertaken in Nigeria to study this impact. A questionnaire about use of dual health care systems was prepared and tested and then administered to a study sample. This sample included representatives of the Hausa, Ibo, and Yoruba tribes, urban and rural residents, and Christians, Muslims, and traditional worshippers.

Among 680 respondents, more of the Muslims than the other religious groups had used both Western and native medical care systems for the same illness, and the relationship between such dual use and religious preference was found to be significant. Also, almost three-fourths of the respondents who had used both native and Western medicine for the same illness had done so more than once. Among respondents who had used both for the same illness many times, there were almost twice as many males as females. Among the Ibos, 81.9 percent had used both systems more than once, compared with 77.2 percent of the Yorubas and 62.2 percent of the Hausas.

The existence of pluralistic medicine is fairly common in both developing and developed countries. However, switching back and forth from native to Western medicine makes determinations of the relative efficacy of cures difficult. Also, simultaneous use of drugs from both native and Western health care providers has the potential of harming or even killing the patient.

NATIVE MEDICINE CAN BE DEFINED as a system of medicine that is traditional, nonconventional, or non-Western. Dunn, for example, has emphasized that Malaysian Chinese medicine today, although firmly rooted in tradition, is a modern, innovative, changing system (*1*). Each health care system, as