

# Medical Literature Filing Systems in Family Practice Residency Programs

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Nearly 18 years ago, Jeghers<sup>1</sup> articulated the need for life-long learning and self-education for physicians. He suggested that training in the techniques of self-education should begin in medical school and continue through residency training. Jeghers envisioned a medical literature filing system for journals as a basic tool in the self-educating process.

There is ample evidence of the value of journals to physicians. Using personal interviews, Stinson and Mueller<sup>2</sup> found journals the most used resource for continuing medical education. However, the accessibility of the information in journals determines their usefulness. Binding journals and accessing through the cumulative indexes is inconvenient, requires a great deal of space, and is expensive. Medical literature filing systems overcome these disadvantages and provide a convenient method to retrieve needed information.

Medical filing systems may be divided into three categories based upon the organization of the index: numerical, alphabetical, and reference card. Numerical systems use the table of contents of textbooks, library classifications, or billing codes to assign numbers to topics listed in order on an index. This index serves as a key to the file folders, which are similarly arranged. The National Library of Medicine Classification System<sup>3</sup> and *Excerpta Medica*<sup>4</sup> are representative of library

classification systems. In family practice the use of billing codes, such as the International Classification of Diseases, 9th revision (ICD-9) or the shorter, adapted version, the updated International Classification of Health Problems in Primary Care (ICHPPC, Pri-Care) have been promoted for use by family physicians.<sup>5,6</sup>

Alphabetical systems have been proposed for clinical pharmacy,<sup>7</sup> child psychiatry,<sup>8</sup> and physical therapy.<sup>9</sup> Any numerical system may be readily converted to an alphabetical system by arranging the major categories and subcategories alphabetically.

Aside from the traditional systems used in libraries, there are a number of other ingenious reference card systems.<sup>10</sup> Although these permit extensive cross-referencing, they are difficult to organize and maintain.

The purpose of this study was to survey family practice programs to determine the prevalence, type, patterns of use, and instruction in medical literature filing systems.

## Methods

A preliminary survey questionnaire was mailed to three family practice residency programs in Phoenix and returned with critical comments of the instrument, leading to two minor revisions. The final questionnaire was mailed to all 381 directors of family practice programs listed in *The 1981 Directory of Family Practice Residency Programs*.

The programs were divided into five different groups and assigned a number according to their administrative program structure (community hospital, unaffiliated—1; community hospital, univer-

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Table 1. Types of Files Reported

	Number	Percent of Total
Alphabetical	68	47
Numerical	75	51
Table of contents	9	6
Pri-Care	54	37
National Library of Medicine	4	3
Other	8	5
Reference card	3	2

sity affiliated—2; community hospital, university administered—3; university hospital—4; and military hospital—5). Completed questionnaires were returned by 304 of 381 (80 percent) programs. When divided into the five different program structures, the proportions of respondents were similar when analyzed by chi-square.

The directors were asked on the questionnaire whether their centers possessed a literature filing system or instructed in its use. These data were analyzed by chi-square and required a P value greater than .05 to accept the null hypothesis. The directors were also asked what type of file was used and who was responsible for its organization and maintenance. Finally, the directors were asked how often the residents and attending physicians used the file. These data were analyzed by Student's *t* test.

**Results**

Forty-eight percent of the responding programs have medical literature filing systems for resident use in family practice centers. Forty-one percent of the programs instruct in the organization and use of filing systems. When analyzed with respect to program structure category, there were significant statistical differences in both possession of a file and instruction in its use. Type 1 (unaffiliated hospital) and type 4 (university hospital) programs tended to possess and instruct in files more than the other programs.

Table 1 describes the types of files reported by the programs.

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**BRIEF SUMMARY  
PROCARDIA® CAPSULES**

For Oral Use

(nifedipine)  
**INDICATIONS AND USAGE: I. Vasospastic Angina:** PROCARDIA (nifedipine) is indicated for the management of vasospastic angina confirmed by any of the following criteria: 1) classical pattern of angina at rest accompanied by ST segment elevation, 2) angina or coronary artery spasm provoked by ergonovine, or 3) angiographically demonstrated coronary artery spasm. In those patients who have had angiography, the presence of significant fixed obstructive disease is not incompatible with the diagnosis of vasospastic angina, provided that the above criteria are satisfied. PROCARDIA may also be used where the clinical presentation suggests a possible vasospastic component but where vasospasm has not been confirmed, e.g., where pain has a variable threshold on exertion or in unstable angina where electrocardiographic findings are compatible with intermittent vasospasm, or when angina is refractory to nitrates and/or adequate doses of beta blockers.

**II. Chronic Stable Angina (Classical Effort-Associated Angina):** PROCARDIA is indicated for the management of chronic stable angina (effort-associated angina) without evidence of vasospasm in patients who remain symptomatic despite adequate doses of beta blockers and/or organic nitrates or who cannot tolerate those agents.

In chronic stable angina (effort-associated angina) PROCARDIA has been effective in controlled trials of up to eight weeks duration in reducing angina frequency and increasing exercise tolerance, but confirmation of sustained effectiveness and evaluation of long-term safety in those patients are incomplete.

Controlled studies in small numbers of patients suggest concomitant use of PROCARDIA and beta blocking agents may be beneficial in patients with chronic stable angina, but available information is not sufficient to predict with confidence the effects of concurrent treatment, especially in patients with compromised left ventricular function or cardiac conduction abnormalities. When introducing such concomitant therapy, care must be taken to monitor blood pressure closely since severe hypotension can occur from the combined effects of the drugs. (See Warnings.)

**CONTRAINDICATIONS:** Known hypersensitivity reaction to PROCARDIA.

**WARNINGS: Excessive Hypotension:** Although in most patients, the hypotensive effect of PROCARDIA is modest and well tolerated, occasional patients have had excessive and poorly tolerated hypotension. These responses have usually occurred during initial titration or at the time of subsequent upward dosage adjustment, and may be more likely in patients on concomitant beta blockers.

Severe hypotension and/or increased fluid volume requirements have been reported in patients receiving PROCARDIA together with a beta blocking agent who underwent coronary artery bypass surgery using high dose fentanyl anesthesia. The interaction with high dose fentanyl appears to be due to the combination of PROCARDIA and a beta blocker, but the possibility that it may occur with PROCARDIA alone, with low doses of fentanyl, in other surgical procedures, or with other narcotic analgesics cannot be ruled out.

**Increased Angina:** Occasional patients have developed well documented increased frequency, duration or severity of angina on starting PROCARDIA or at the time of dosage increases. The mechanism of this response is not established but could result from decreased coronary perfusion associated with decreased diastolic pressure with increased heart rate, or from increased demand resulting from increased heart rate alone.

**Beta Blocker Withdrawal:** Patients recently withdrawn from beta blockers may develop a withdrawal syndrome with increased angina, probably related to increased sensitivity to catecholamines. Initiation of PROCARDIA treatment will not prevent this occurrence and might be expected to exacerbate it by provoking reflex catecholamine release. There have been occasional reports of increased angina in a setting of beta blocker withdrawal and PROCARDIA initiation. It is important to taper beta blockers if possible, rather than stopping them abruptly before beginning PROCARDIA.

**Congestive Heart Failure:** Rarely, patients, usually receiving a beta blocker, have developed heart failure after beginning PROCARDIA. Patients with tight aortic stenosis may be at greater risk for such an event.

**PRECAUTIONS: General: Hypotension:** Because PROCARDIA decreases peripheral vascular resistance, careful monitoring of blood pressure during the initial administration and titration of PROCARDIA is suggested. Close observation is especially recommended for patients already taking medications that are known to lower blood pressure. (See Warnings.)

**Peripheral edema:** Mild to moderate peripheral edema, typically associated with arterial vasodilation and not due to left ventricular dysfunction, occurs in about one in ten patients treated with PROCARDIA. This edema occurs primarily in the lower extremities and usually responds to diuretic therapy. With patients whose angina is complicated by congestive heart failure, care should be taken to differentiate this peripheral edema from the effects of increasing left ventricular dysfunction.

**Drug interactions:** Beta-adrenergic blocking agents: (See Indications and Warnings.) Experience in over 1400 patients in a non-comparative clinical trial has shown that concomitant administration of PROCARDIA and beta-blocking agents is usually well tolerated, but there have been occasional literature reports suggesting that the combination may increase the likelihood of congestive heart failure, severe hypotension or exacerbation of angina.

Long-acting nitrates: PROCARDIA may be safely co-administered with nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.

**Digitalis:** Administration of PROCARDIA with digoxin increased digoxin levels in nine of twelve normal volunteers. The average increase was 45%. Another investigator found no increase in digoxin levels in thirteen patients with coronary artery disease. In an uncontrolled study of over two hundred patients with congestive heart failure during which digoxin blood levels were not measured, digitalis toxicity was not observed. Since there have been isolated reports of patients with elevated digoxin levels, it is recommended that digoxin levels be monitored when initiating, adjusting, and discontinuing PROCARDIA to avoid possible over- or under-digitalization.

**Carcinogenesis, mutagenesis, impairment of fertility:** When given to rats prior to mating, nifedipine caused reduced fertility at a dose approximately 30 times the maximum recommended human dose.

**Pregnancy:** Category C. Please see full prescribing information with reference to teratogenicity in rats, embryotoxicity in rats, mice and rabbits, and abnormalities in monkeys.

**ADVERSE REACTIONS:** The most common adverse events include dizziness or light-headedness, peripheral edema, nausea, weakness, headache and flushing each occurring in about 10% of patients, transient hypotension in about 5%, palpitation in about 2% and syncope in about 0.5%. Syncopal episodes did not recur with reduction in the dose of PROCARDIA or concomitant antianginal medication. Additionally, the following have been reported: muscle cramps, nervousness, dyspnea, nasal and chest congestion, diarrhea, constipation, inflammation, joint stiffness, shakiness, sleep disturbances, blurred vision, difficulties in balance, dermatitis, pruritus, urticaria, fever, sweating, chills, and sexual difficulties. Very rarely, introduction of PROCARDIA therapy was associated with an increase in anginal pain, possibly due to associated hypotension.

In addition, more serious adverse events were observed, not readily distinguishable from the natural history of the disease in these patients. It remains possible, however, that some or many of these events were drug related. Myocardial infarction occurred in about 4% of patients and congestive heart failure or pulmonary edema in about 2%. Ventricular arrhythmias or conduction disturbances each occurred in fewer than 0.5% of patients.

**Laboratory Tests:** Rare, mild to moderate, transient elevations of enzymes such as alkaline phosphatase, CPK, LDH, SGOT, and SGPT have been noted, and a single incident of significantly elevated transaminases and alkaline phosphatase was seen in a patient with a history of gall bladder disease after about eleven months of nifedipine therapy. The relationship to PROCARDIA therapy is uncertain. These laboratory abnormalities have rarely been associated with clinical symptoms. Cholestasis, possibly due to PROCARDIA therapy, has been reported twice in the extensive world literature.

**HOW SUPPLIED:** Each orange, soft gelatin PROCARDIA CAPSULE contains 10 mg of nifedipine. PROCARDIA CAPSULES are supplied in bottles of 100 (NDC 0069-2600-66), 300 (NDC 0069-2600-72), and unit dose (10x10) (NDC 0069-2600-41). The capsules should be protected from light and moisture and stored at controlled room temperature 59° to 77°F (15° to 25°C) in the manufacturer's original container.

More detailed professional information available on request.

Table 2. Use of the File		
Program Structure Category	Average Weighted Use	
	Residents*	Attending Physicians*
1. Community hospital, unaffiliated	2.00	2.12
2. Community hospital, university-affiliated	1.89	1.84
3. Community hospital, university-administered	1.86	2.14
4. University hospital	2.21	2.29
5. Military hospital	1.50	1.50
Total	1.96	1.99
*Average value on a 1 to 4 scale; Differences not significant		

The estimated use of the file by residents and attending physicians per half-day in the center was related to program structure and is shown in Table 2. The responses, "rarely," "less than once," "once," and "more than once" were assigned a weighted score of 1, 2, 3, or 4, respectively. There were no statistically significant differences among the program structures or between the residents and attending physicians. The average overall use by both residents and attending physicians approximated less than once per half-day when assigned in the center. In addition, the use of the file by residents and attending physicians did not seem to be affected by the file organization.

**Comment**

The reasons why unaffiliated community hospital and university hospital programs led in the possession of and instruction in files are not immediately obvious, but may reflect differing attitudes or resources on the part of the respective faculty. Those programs with files also tended to provide instruction in their use.

The lack of a difference between the alphabetical and numerical systems in the use of the file suggests that the organization of a file may not affect its use. Alternatively, differences in use of alphabetical and numerical systems may become apparent only at a higher volume. The ease of establishing and maintaining a file should be a leading consideration for a program planning to adopt

a literature file. Reference card systems require a great deal of time to establish and maintain. These limitations may be the reason for the limited use of reference card systems in this survey. Numerical systems are readily adopted by programs by using published classification schemes such as Pri-Care or the National Library of Medicine Classification System. However, these numerical systems depend heavily on an index and the memorization of numbers. Alphabetical systems are more difficult to establish, but maintenance is facilitated by the logical use of the alphabet for filing.

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