

Disciplines, Specialties, and Paradigms

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Since designation of the specialty in the 1960s, those in academic family practice have struggled to define a unique academic-research agenda. A unique or characteristic *paradigm* has been considered important for that task—a theoretical basis for research, teaching, and practice.¹⁻³ There is reason to believe, however, that the search for a specialty-specific paradigm is neither necessary nor fruitful. Thomas Kuhn,⁴ who articulated the notion of paradigm in his book *The Structure of Scientific Revolutions*, says:

In the sciences (though not in fields like medicine, technology, and law, of which the principal *raison d'être* is an external social need), the formation of specialized journals, the foundation of specialists' societies, and the claim for a special place in the curriculum have usually been associated with a group's first reception of a single paradigm.

Kuhn's analysis excluded medicine and other professions. His concept of paradigm was limited to basic scientific disciplines. Family practice is clearly a specialty within the medical profession whose "principal *raison d'être*" is found in a social need. The term *family medicine* has been used to identify an academic discipline as distinct from the specialty family practice.⁵ A paradigm has been sought for the discipline, yet Kuhn would seem to see that use of his concept as inappropriate. It seems more useful to think of family practice as a medical *specialty* that meets social needs through application of many basic disciplines, each with its own paradigm.

PARADIGMS

What did Kuhn mean by paradigm? In the postscript to the second edition of his book, he clarifies by discussing "Paradigm as the Constellation of Group Commitments" and substitutes another term, *disciplinary matrix*, encompassing the following four components:

1. "Symbolic generalizations" accepted and used by the discipline
2. "Shared commitments to beliefs"
3. "Shared values"
4. "Exemplars," consisting of "concrete problem-solutions that students encounter from the start of their scientific education"

He says the first three of these components constitute the sociological sense of the term. Those seeking a paradigm for family medicine use the word in this sense, trying to identify the shared values, beliefs, and symbolic generalizations within the community of family physicians.

If we accept Kuhn's limitation on use of his term, we must also acknowledge that lay and professional members of society always hold beliefs, values, and symbolic generalizations about health, illness, and disease. These may be considered as something akin to a paradigm for medicine in that society. Engel⁶ and McWhinney⁷ represent those who question whether we are now on the verge of a major shift in these assumptions in our culture. That changes in such assumptions do occur can be illustrated by two examples. One is ancient and the other current.

Ancient Debates: The Coan vs the Cnidian Views of Medicine

In a 1926 lecture delivered before the Royal College of Physicians of London, F. G. Crookshank quotes Galen in his *Commentary upon the Prognostics of Hippocrates*.⁸ Galen defines the word *dia-gnosis* "as the clear cognition, or gnosis, of things present." Contrast this definition with the use of the word diagnosis in a different era (the 18th century). Crookshank says it was then applied to the classification of diseases "as if they were indeed objects or groups of objects in nature, in Sydenham's words, 'to be reduced to certain and determinate kinds, with the same exactness as we see it done by botanic writers in their treatises of plants' and possessing 'certain distinguishing signs which Nature has particularly affixed to every species.'" Galen was making use of hippocratic assumptions about the nature of health, illness, and disease.

The school or cult of Hippocrates was based on the island of Cos and therefore is referred to as Coan. The

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assumption of this school was that disease had a natural rather than supernatural basis, that it was the result of an imbalance within the person. A rival tradition or cult of medicine existed in ancient Greece a short distance from Cos at Cnidus, referred to as the Cnidian school. In this tradition diseases were considered to be real entities with an existence distinct from the person.⁹ These two assumptions have competed to enlighten physicians throughout the ages.

Contemporary Debates: Medicine Coming to Terms With Modern Physics

Natural science, with physics as perhaps its purest form, has provided medicine with a means to bring unprecedented benefit to those served by the profession. Newtonian physics and Cartesian dualism have allowed study and understanding of human biology by reducing the objects of study to ever smaller and more discrete components. Foss and Rothenberg,¹⁰ in their most interesting 1987 book (*The Second Medical Revolution; From Biomedicine to Infomedicine*), refer to this application of natural science approximately three centuries ago as the first medical revolution, and propose that we are now undergoing another. Natural science in general and physics in particular have experienced changes in this century characterized by the work of Einstein, Heisenberg, Bohr, and others. Ideas of linear causality have given way to notions of complex interaction and relationships or, as Fritjof Capra¹¹ says:

Modern physics is showing us that the classical, mechanistic, reductionist view of the world has to be replaced by a holistic, organic, and dynamic view; a view similar to that held by mystics of all ages and traditions.

It is beyond the scope of this paper to discuss currently held principles of information theory, quantum mechanics, and irreversible thermodynamics. Foss and Rothenberg appropriate from thermodynamics the self-organizing system as the irreducible unit of study rather than the mechanistic atomic units of Newton and the ancient Greek atomists. They, as philosophers of science, relate these developments and their meaning to medicine. Capra, from the point of view of a physicist, does likewise. Baughan,¹² an academic family physician, discusses their particular relevance to family practice. All call to mind the ancient tension between the Coans and Cnidians. All bring new meaning to concepts such as diagnosis, disease, health, and illness.

DISCIPLINES AND SPECIALTIES

I have suggested that the search for a paradigmatically defined discipline of family medicine is neither necessary

nor fruitful. What may be more productive is to draw a distinction between what we know as disciplines and what we know as specialties. Webster's *New Universal Unabridged Dictionary*¹³ offers these definitions, not clearly distinguishing the two:

1. Discipline—anything taught; branch of knowledge or learning
2. Specialty—A thing specialized in; special interest; field of study or professional work

It seems personally useful to emphasize the words knowledge or learning in the definition of discipline, and professional work in that of specialty. Then one can think, with Kuhn, of all *specialties* in medicine as functionally defined by the social needs they meet, while reserving the concept and word *discipline* for more basic branches of learning, which, in turn, can be applied to professional work. (Perhaps McWhinney¹⁴ accomplishes a similar distinction by referring to scholarly and professional disciplines.)

In this construct Kuhn's concept of the importance of a paradigm in defining a discipline makes sense, but the physician in family practice or any other specialty can choose among basic disciplines for application to patient care. Doing so, he or she must know the assumptions (paradigms) on which the disciplines are based. Internal medicine, as an example, illustrates the point. Emerging from historical antecedents (the physician of England and Europe) as a specialty with this name in the mid-19th century, internal medicine served to fulfill the societal role demanded by a taxonomic, nosologic, Cnidian, or organicist definition of the word *diagnosis*. Advances in natural science had led to a point where physiology and pathology (morbid anatomy) could be applied to classify diseases and allow elucidation of their mechanisms according to the assumptions of these disciplines. As application of microbiology, biochemistry, and other basic disciplines became available, subspecialization within the parent specialty made use of them. It became, then, the obligation of the infectious disease specialist, for example, to be rigorous in applying the microbiologic, organismal, infective agent paradigm to practice, teaching, and research. In doing so he or she fulfilled the societal need defining the specialty.

OBLIGATIONS OF THE FAMILY PHYSICIAN AS GENERALIST

An examination of the social and functional origins of family practice may lead to understanding similarly the obligation of family physicians and their specialty in patient care, teaching, and research. Family practice has its roots in *general practice*, a term first appearing in England

about 1815.¹⁵ General practice was applied to doctors of medicine emerging from the apothecary tradition of England and Europe. They served, as do today's family physicians, as community-based providers of medical care to the general public—a societally determined role. Rosemary Stevens¹⁵ refers to these doctors as *generalizers* as well as *generalists* in that they translate or interpret knowledge from specialized areas for the benefit of patients in the general population.

Family physicians are generalists in that they accept responsibility for assisting patients with all problems presented regardless of which specialized field of practice is involved or how the patient formulates the problem. They are generalizers in that they seek to relate specialized knowledge to the patient. Perhaps even more important, as generalists, they must be prepared to understand the various assumptions about health and illness that their patients bring. They must understand the paradigms of the basic disciplines they apply in patient care and in research. When investigating a topic their research must be grounded in theory, but they are obliged to select appropriate and differing paradigmatically defined disciplines in constructing theories. In their practice and teaching they must be true to the inductive diagnostic method of the hippocratic assumptions; but, they must also bring to their patients and students the benefits of the Cnidian assumptions and deductive diagnosis, labeling diseases so as to apply the therapeutic benefits of the mechanistic, reductionist methods Foss and Rothenberg ascribe to the first medical revolution.

A family physician generalist in medicine fits the appropriate paradigmatically determined discipline to the task at hand in exactly the same way a practicing engineer may choose to use Newtonian physics or quantum mechanics depending upon the task. That family physicians do, in fact, choose as generalists among several paradigms is suggested by the writings of Houts and Leaman,¹⁶ Huygen,¹⁷ and Carmichael.¹⁸ The case studies of Houts and Leaman, and Huygen's careful epidemiologic observations of illness within families, mix disease classification in Sydenham's terms with hippocratic diagnosis. Carmichael's "different way of doctoring" tends strongly toward use of behavioral disciplines and relational models of thinking but sees a role for a more mechanistic and reductionist

clinical model in at least 15 percent of the patients he sees.

Physicians seeking to fill the societal need for a general practitioner of the profession must understand and apply many disciplines and their paradigms. This endeavor may be the true meaning of generalist. Our specialty need not apologize for being derivative in this sense. All specialties are. It should exploit the opportunities inherent in diversity rather than pursue the limiting focus of a unique paradigm.

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DOCUMENTATION OF RESIDENT EXPERIENCE

To the Editor:

It is unfortunately the case that most articles on documentation of residents' activities are written by enthusiasts for the practice. Such an orientation leads to an obvious bias in a perspective presented. In the paper by Schneeweiss et al (*Schneeweiss R, Ellsbury K, Montano D, et al: Hospital privileges for family physicians: Documentation of family practice residents' experiences in training. J Fam Pract 1988; 26:178-184*), the bias is evident in their question, "Was documentation helpful for privilege application?"

Such enthusiasm would be benign if it had no adverse consequences. There are, however, several problems involved. Any systematic documentation procedure requires significant effort by residents—already overstressed—and by residency programs. Inevitable noncompliance of residents may result in unwarranted resident anxiety. Furthermore, if documentation becomes a requirement and takes a form of quantification of procedures, the process may backfire. The numbers themselves may be used by accrediting bodies to deny privileges. Typically family physicians will have documented fewer procedures than specialists in other disciplines. It is not implausible that a hostile accrediting body would define the minimum required number of procedures to be higher than that typically documented by the family physician.

Documentation of procedures also gives a false sense of security to educators and hospitals. Because documentation is usually based on a self-report system, it still relies on the integrity of the individual resident to report honestly. Furthermore, even if documentation provided assurance of competence at the time of documentation, it gives no assurance that that competence is maintained. The focus on reporting misses an underlying educational issue, namely, the need to acknowledge one's own limits. By

endorsing a system of lists and numbers, we continue to avoid that crucial issue.

Partly because of the enthusiasm of those who promote documentation, residency accreditation requirements are moving toward mandatory documentation. We see this as unwarranted. Our program does not require documentation, and in our most recent survey of graduates, we found no evidence of privileges being denied because of inadequate documentation.

We do think it is appropriate for careful scholarly investigations of documentation to be conducted. Questions urgently needing an answer include (1) is there evidence that programs that do not require documentation place their graduates at higher risk for denial of privileges, and is the absence of documentation the reason; (2) is documentation cost effective—is the extra effort involved in documentation balanced by a decrease in effort in obtaining privileges; and (3) are there demonstrable educational benefits to documentation?

Until these and other critical questions are answered, documentation should remain an investigative tool, and residencies should disclose to applicants their policy on documentation. We hope this issue will be the subject of more careful discussion before we proceed further down a potentially fruitless bureaucratic path.

Peter Franks, MD
Betsy Naumburg, MD
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Rochester, New York

The preceding letter was referred to Drs. Schneeweiss, et al, who respond as follows:

We were hopeful that our article on the University of Washington Affiliated Residency Network documentation system would contribute to the debate regarding this important subject.¹ Franks and Naumburg have raised some important issues concerning the practicality of documentation for busy residents, the absence

of evidence that it is indeed necessary for privileges, and the possibility that documentation numbers may be used to deny privileges.

The log-card approach that emphasizes the documentation of only a limited number of items is well accepted by the residents in our network. Over the past several years more than 75 percent of the residents graduating from the seven affiliated civilian residency programs have participated in the voluntary log-card system (82 percent for the 1987 graduates). Perhaps the most compelling reason for this acceptance is the strong faculty support for this method of documentation to support future hospital privilege application.² We are not aware of any undue anxiety engendered by our recommendation to log experiences in training.

What should be documented, and how helpful is this type of documentation to obtain privileges?

The residents in this study focused on recording their obstetrics, critical care, and surgical experiences. Indeed, these are the areas most likely to be a source of contention in applying for hospital privileges. In our experience the availability of the log data has been helpful to graduates seeking privileges in these areas, not a handicap. Contrary to the University of Rochester experience, graduates of the Pacific Northwest programs strongly endorse the need for documentation to support applications for hospital privileges. As noted in the article, 50 percent of the graduate respondents used their documentation to apply for privileges, and 47 percent indicated that their hospitals now require documentation. It is possible that graduates from the Rochester program reflect the trend for family physicians in the northeastern United States not to seek contentious obstetric, critical care, or surgical privileges. Parenthetically, several graduates from the University of Washington program who did not keep log cards later returned to review the University Hospital Labor and Delivery or the Coronary Care Unit logs to collect retroactively the information neces-

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Brief Summary.

Consult the package literature for prescribing information.

Indications and Usage: Nalfon[®] (fenoprofen calcium, Dista) is indicated for relief of signs and symptoms of rheumatoid arthritis and osteoarthritis during acute flares and in long-term management.

Nalfon 200 is indicated for relief of mild to moderate pain.

Controlled trials are currently in progress to establish the safety and efficacy of Nalfon in children.

Contraindications: Patients who have shown hypersensitivity to Nalfon, those with a history of significantly impaired renal function, or those in whom aspirin and other nonsteroidal anti-inflammatory drugs induce the symptoms of asthma, rhinitis, or urticaria.

Warnings: Use cautiously in patients with upper gastrointestinal tract disease (see Adverse Reactions). Gastrointestinal bleeding, sometimes severe (with fatalities having been reported), may occur as with other nonsteroidal anti-inflammatory drugs.

Patients with an active peptic ulcer should be on vigorous antilulcer treatment and be closely supervised for signs of ulcer perforation or severe gastrointestinal bleeding.

Genitourinary tract problems most frequently reported in patients taking Nalfon have been dysuria, cystitis, hematuria, interstitial nephritis, and the nephrotic syndrome. This syndrome may be preceded by fever, rash, arthralgia, oliguria, and azotemia and may progress to anuria. There may also be substantial proteinuria, and, on renal biopsy, electron microscopy has shown foot process fusion and T-lymphocyte infiltration in the renal interstitium. Early recognition of the syndrome and withdrawal of the drug have been followed by rapid recovery. Administration of steroids and the use of dialysis have also been included in the treatment. Because this syndrome with some of these characteristics has also been reported with other nonsteroidal anti-inflammatory drugs, it is recommended that patients who have had these reactions with other such drugs not be treated with Nalfon. In patients with possibly compromised renal function, periodic renal function examinations should be done.

Precautions: Since Nalfon is eliminated primarily by the kidneys, patients with possibly compromised renal function (such as the elderly) should be closely monitored; a lower daily dosage should be anticipated to avoid excessive drug accumulation. Nalfon should be discontinued if any significant liver abnormalities occur.

As with other nonsteroidal anti-inflammatory drugs, borderline elevations of one or more liver tests may occur in up to 15% of patients. These abnormalities may progress, may remain essentially unchanged, or may be transient with continued therapy. The SGPT (ALT) test is probably the most sensitive indicator of liver dysfunction. Meaningful (three times the upper limit of normal) elevations of SGPT or SGOT (AST) occurred in controlled clinical trials in less than 1% of patients. A patient with symptoms and/or signs suggesting liver dysfunction, or in whom an abnormal liver test has occurred, should be evaluated for evidence of the development of more severe hepatic reaction while on therapy with Nalfon. Severe hepatic reactions, including jaundice and cases of fatal hepatitis, have been reported with Nalfon as with other nonsteroidal anti-inflammatory drugs. Although such reactions are rare, if abnormal liver tests persist or worsen, if clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (eg, eosinophilia, rash, etc), Nalfon should be discontinued.

Administration to pregnant patients and nursing mothers is not recommended.

In patients receiving Nalfon and a steroid concomitantly, any reduction in steroid dosage should be gradual to avoid the possible complications of sudden steroid withdrawal.

Patients with initial low hemoglobin values who are receiving long-term therapy should have a hemoglobin determination at reasonable intervals.

Peripheral edema has been observed in some patients. Use with caution in patients with compromised cardiac function or hypertension. The possibility of renal involvement should be considered.

Eye examinations are recommended if visual disturbances occur.

Patients with impaired hearing should have periodic tests of auditory function during chronic therapy.

Nalfon decreases platelet aggregation and may prolong bleeding time.

Laboratory Test Interactions—Amerlex-M kit assay values of total and free triiodothyronine in patients receiving Nalfon have been reported as falsely elevated on the basis of a chemical cross-reaction that directly interferes with the assay. Thyroid-stimulating hormone, total thyroxine, and thyrotropin-releasing hormone response are not affected.

Adverse Reactions: The adverse reactions reported below were compiled during clinical trials of 3,391 arthritic patients, including 188 observed for at least 52 weeks of continuous therapy. During short-term studies for analgesia, the incidence of adverse reactions was markedly lower than in longer-term studies.

Incidence Greater Than 1%

Probable Causal Relationship—Digestive System: The most common adverse reactions were gastrointestinal and involved 14% of patients; in descending order of frequency, they included dyspepsia,* constipation,* nausea,* vomiting,* abdominal pain, anorexia, occult blood in the stool, diarrhea, flatulence, dry mouth. **Nervous System:** headache* and somnolence* occurred in 15% of patients; dizziness,* tremor, confusion, and insomnia were noted less frequently. **Skin and Appendages:** pruritus,* rash, increased sweating, urticaria. **Special Senses:** tinnitus, blurred vision, decreased hearing. **Cardiovascular:** palpitations,* tachycardia. **Miscellaneous:** nervousness,* asthenia,* dyspnea, fatigue, malaise.

Incidence Less Than 1%

Probable Causal Relationship—Digestive System: gastritis, peptic ulcer without perforation and/or gastroduodenal hemorrhage. **Genitourinary Tract:** dysuria, cystitis, hematuria, oliguria, azotemia, anuria, interstitial nephritis, nephrosis, papillary necrosis. **Hematologic:** purpura, bruising, hemorrhage, thrombocytopenia, hemolytic anemia, aplastic anemia, agranulocytosis, pancytopenia. **Miscellaneous:** peripheral edema, anaphylaxis.

Incidence Less Than 1%

Causal Relationship Unknown—Skin and Appendages: Stevens-Johnson syndrome, angioedematous edema, exfoliative dermatitis, alopecia. **Digestive System:** aphthous ulcerations of buccal mucosa, metallic taste, pancreatitis. **Cardiovascular:** atrial fibrillation, pulmonary edema, electrocardiographic changes, supraventricular tachycardia. **Nervous System:** depression, disorientation, seizures, trigeminal neuralgia. **Special Senses:** burning tongue, diplopia, optic neuritis. **Miscellaneous:** personality change, lymphadenopathy, mastodynia, fever.

Dosage and Administration: Rheumatoid Arthritis and Osteoarthritis—suggested dosage: 300 to 600 mg t.i.d. or q.i.d.

Mild to Moderate Pain—Nalfon 200 q. 4-5 h, as needed.

Do not exceed 3,200 mg per day.

*Incidence 3% to 9%.

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Additional information available to the profession on request.

sary to support their application for those privileges.

Admittedly, this study does not answer the question, whether privileges were ever denied because of the absence of documentation, nor does it provide the final word on what should be documented. In our opinion, however, it is reasonable to encourage residents to keep a record of their experiences in selected critical areas and for faculty to facilitate that process. Maybe the list of items recommended for documentation could be even more circumscribed than the one adopted by our network; local and regional needs should provide some guidance in this regard.

Certainly the log cards rely on a self-report system. In our network, the cards submitted for entry must carry the patient's name or number. It is therefore always possible to conduct a record audit, which is a deterrent to cheating. However, we do not consider cheating to be a problem. The consistency of the frequencies with which the items are recorded by different residents within our programs provides face validity to the data and the method. Interim reports, monitored by faculty and residents, help identify potential in-training needs. The numbers recorded are helpful in providing both faculty and residents with realistic expectations as to the experiences, and by extension, the limits, generally available in the program. We fully agree with the need to acknowledge one's own limits and believe that documentation of experiences can only support this.

The log-card method is only one way to achieve the goal of a practical, cost-effective documentation system. The direct and indirect costs of our log system are estimated to be \$50 per resident per year.² We hope that our experience will assist those programs seeking a more streamlined and practical approach to this issue.

Ronald Schneeweiss, MD

Kathleen Ellsbury, MD

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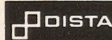
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SCREENING SIGMOIDOSCOPY

To the Editor:

Dr. Frame's nihilism on screening sigmoidoscopy as on yearly checkups (*Frame PS: Screening flexible sigmoidoscopy: Is it worthwhile? An opposing view. J Fam Pract* 1987; 25: 604-607) is unjustifiable to an epidemiologist and practicing family physician like myself, primarily because of the assumption that the sum of the measurable parts equals the total value. Not true, as any provider of comprehensive and continuing care should know. Managers of cartels (health maintenance organizations) find Frame's views financially to their interest in the short run even if not in many patients' best interest in the long run. Individuals can choose for themselves in a system such as "health pay," a system preferred by free-market economist Milton Friedman.¹

The potential sensitivity of screening sigmoidoscopy is understated by Dr. Rodney (*Rodney Wm M: Screening flexible sigmoidoscopy: Is it worthwhile? An affirmative view. J Fam Pract* 1987; 25:601-604). Of my own 65-cm sigmoidoscopic examinations, over 80 percent reach into the ascending colon when there is no prior laparotomy. These depths were confirmed by audiovideotape, metal detector, and especially by 360-degree rotation after more than 50-cm insertion (usually the full 70 cm of the WA Videosigmoidoscope). At \$200 per examination every five years after



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the age of 40 years, screening colonoscopy is more cost effective than current breast or uterus cancer screening. More important, when integrated with the personal physician's care of the whole patient, such as eating and emotional adjustments important to care of irritable bowel syndrome, diverticulitis, colitis, hypercholesterolemia, and so on, screening sigmoidoscopy gives a total value incomparably better than isolated testing, in much the same way as a whole car is worth more than its unassembled parts.

Howard F. Long, MD
Pleasanton, California

Reference

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The preceding letter was referred to Dr. Frame, who responds as follows:

Dr. Howard Long, in his letter, states that he is able to reach the ascending colon in over 80 percent of his flexible sigmoidoscopies done with a 65-cm sigmoidoscope. This is a revolutionary and useful technique if indeed his assertion is true. One of the characteristics of a valid or true technique is that it should be reproducible by other persons. To my knowledge, no other physician, be he endoscopist or family physician, has claimed results like those described by Dr. Long. Dr. Long's challenge is to demonstrate that other physicians can achieve the same sigmoidoscopic results that he claims to be achieving.

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The preceding letter was referred to Dr. Rodney, who responds as follows:

There is a great deal of controversy over the issue of insertion depth (ie, centimeters of endoscope inserted into the body) vs anatomical depth (ie, the amount of intestine actually examined). Lehman et al¹ attached

metallic clips at the point of maximal insertion depth. These clips were then located radiographically and an anatomic depth was determined. All readers of these data can agree that any one insertion depth produces an extremely variable anatomical depth. Some have used these data to suggest that the most likely anatomical depth

reached by 35 to 55 cm is somewhere in the sigmoid. Generally autopsy studies suggest that the sigmoid describes the distal 32 cm of the human intestine. Therefore, insertion depths beyond 32 cm should usually enter the descending colon. Data from Lehman et al indicated that such was not the case.

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*FDA Tentative Final Monograph On Wart Remover Drug Products For Over-The-Counter Human Use, The Federal Register, (Vol. 47, No. 172), pgs. 39102-39105, Sept. 3, 1982.



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Nevertheless, the Lehman et al data represented examinations performed by physicians in training at a tertiary care center. It has been my observation that family physicians continue to improve their endoscopic skills in practice.² Therefore, at somewhere between 20 and 100 procedures, I expect that family physicians are routinely reaching the descending colon. A substantial number of procedures probably do reach into the transverse colon as well. I have personally experienced reaching the cecum within 55 cm of insertion depth. Although this case was a surgically shortened colon, I have had other experiences in reaching the ascending colon at 65 to 70 cm. These experiences represent a small number of cases, which partially verify Dr. Long's observation. Family physicians must do the research to prove that their endoscopic skills indeed provide examinations to the extent that Dr. Long suggests. As described by Dervin, most family physicians in practice will probably use longer colonoscopes (105 cm to 180 cm).³

Dr. Long is correct in stating that flexible sigmoidoscopy provides benefits in addition to screening for cancer. In our practice it has been extremely valuable in the diagnosis and management of many gastrointestinal complaints, including, but not limited to, diverticulosis, infectious colitis, inflammatory bowel disease, hemorrhoids, irritable bowel syndrome, and others. Furthermore, there are patient education and physician self-advancement benefits, which I have described in other articles.⁴⁻⁶

*Wm. MacMillan Rodney, MD
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STUDY OF SMOKING CESSATION THERAPY

To the Editor:

Regarding the article by Allen F. Shaughnessy, Robert E. Davis, and C. Eugene Reeder, "Nicotine Chewing Gum: Effectiveness and the Influence of Patient Education in a Family Practice" (*J Fam Pract* 1987; 25:266-269), I particularly like that the study was set up to simulate the manner in which patients might come into a family practice setting. I feel, however, that to better evaluate the hypothesis on the effectiveness of family practice setting put forth by the authors, the control group should be further broken down as follows: (1) patients receiving counseling but no gum, and (2) patients receiving no counseling and no gum. With this type of setup in addition to the first two groups used by the experimenters, the effects of the interaction of counseling and nicotine gum on smoking cessation can be assessed more accurately.

In analyzing the difference in means of the cessation rates, the authors of the study used analysis of variance. I believe this statistical model is not appropriate for the type of data used in this study. Analysis of variance assumes an experimental model with a normal distribution of the effect variable, which was not true for this study. I feel a more appropriate statistical tool would have been the chi-square, which, incidentally, was used to analyze the significance of the side effects.

The results of the treatment part of this study are consistent with previous studies of this subject. To draw any definite conclusions on the effectiveness of family practice counseling, however, I feel that the study should be repeated in a similar setting with

the additions suggested.

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The preceding letter was referred to Drs. Shaughnessy, Davis, and Reeder, who respond as follows:

We appreciate the comments of Ms. Blaise concerning the research design of our project. Her suggestion to further subdivide the control group is interesting, though the criterion for our control group (group C) was smokers who expressed no desire to stop smoking at the onset of the study. Thus they would not be likely candidates for smoking cessation counseling. Since counseling alone (ie, smoking cessation classes) is not usually provided in family practice offices, our goal was to measure the effectiveness of a treatment modality readily available to family medicine patients, nicotine chewing gum.

As to the question of the appropriateness of the statistical analysis, we respond by further explanation. The hypothesis of equal proportions was tested on the mean differences in smoking cessation before and after the interventions for the three groups simultaneously. An assumption that the mean differences in proportions would tend to be normally distributed was made, and analysis of variance was used to evaluate the hypothesis of equal mean differences. This was not clearly stated in the manuscript and we apologize. As no significant differences were detected using the analysis of variance approach, one is not likely to find an effect when non-parametric statistics are used. An analysis of the data in Table 2 using the chi square statistic also supports our findings ($\chi^2 = 1.49$ for all subjects and $\chi^2 = 0.40$ for subjects completing the study).

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