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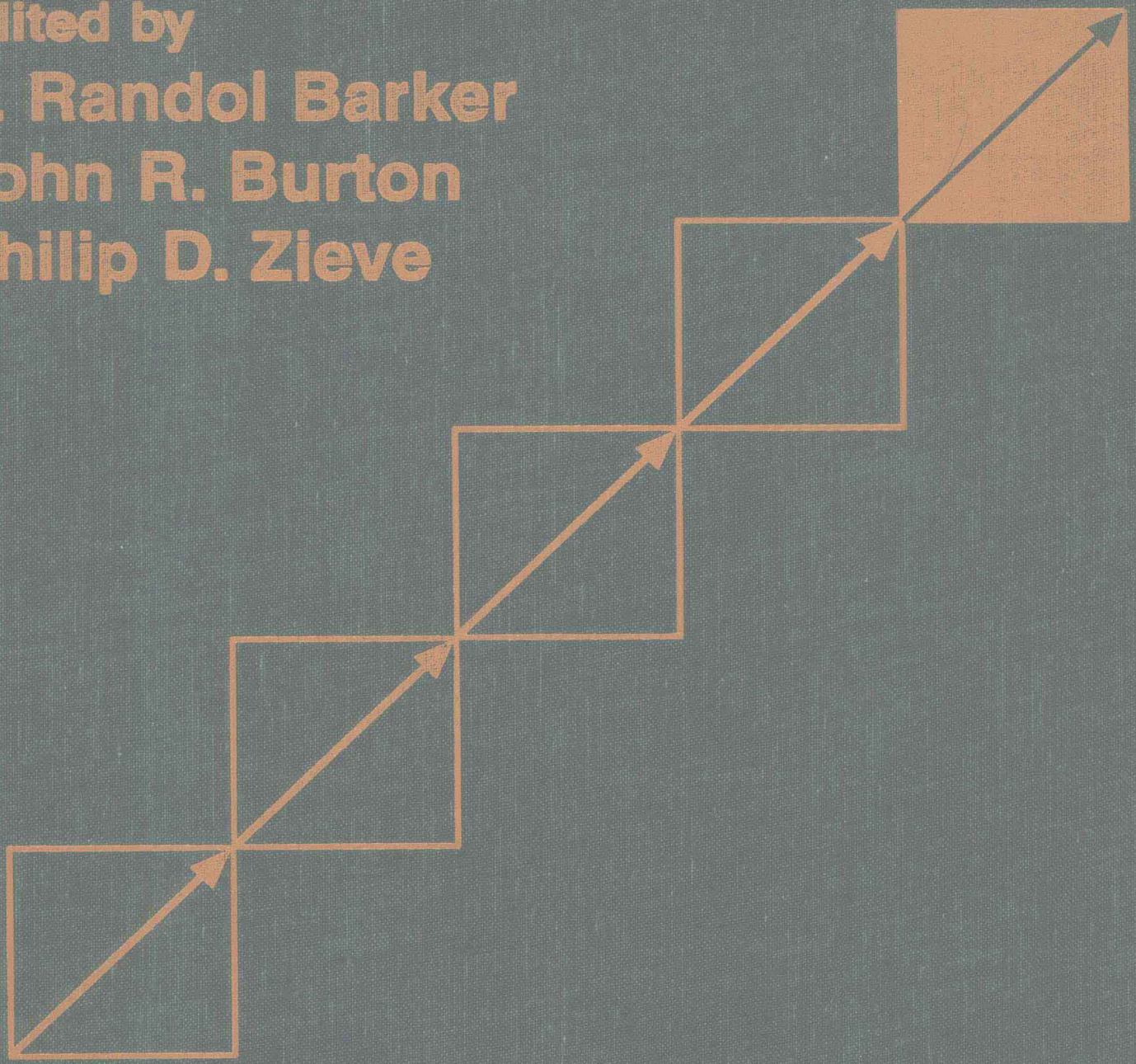

PRINCIPLES OF AMBULATORY MEDICINE

FIFTH EDITION

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PREFACE TO THE FIFTH EDITION

This book is directed to physicians who care for ambulatory adult patients. The purposes of the book are *(a)* to provide an in-depth account of the evaluation, management, and long-term course of those common clinical problems that are addressed in the ambulatory setting, and *(b)* to provide guidance for recognizing those problems that require either referral for specialized care or hospitalization and for appreciating the expected course of those problems.

Three principles have guided the preparation of each edition of *Principles of Ambulatory Medicine.*

1. Physicians working in a busy practice need to know about *probabilities* related to the occurrence, course, evaluation, and treatment of their patients' problems.
2. The patient makes most decisions in ambulatory care, and the quality of those decisions depends on *the doctor–patient relationship and patient education.*
3. The physician and the patient should incorporate *a preventative point of view* into all actions taken to address the patient's health.

The first four chapters describe the following general approaches for applying these principles in patient care: making decisions on the basis of evidence, developing a therapeutic doctor–patient relationship, using patient-centered patient education, and integrating prevention into practice.

In planning the scope of the book, the editors have selected those conditions that most office-based internists and family practitioners encounter in caring for adult patients from the general population. Updating and revising this edition has been based on evidence from recent clinical trials, on current consensus-based recommendations for many conditions, and on the comments of those who have used the book. Bold print (general references) and bold numerals (specific references) denote at the end of each chapter the published clinical trial reports, meta-analyses, and consensus-based recommendations that have guided the writing of the chapter.

Principles of Ambulatory Medicine is extensively cross-referenced to both avoid redundancy and facilitate access to useful information contained elsewhere in the book. In addition, for easy reference, the key topics in each chapter are presented in outline form at the beginning of the chapter.

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SECTION

1

Issues of General Concern in Ambulatory Medicine

C H A P T E R 1

Ambulatory Care, Evidence-Based Medicine, and Other Core Proficiencies for Ambulatory Practice

L. RANDOL BARKER, MD
JOHN C. ROBERTS, MD

The fundamental tenet of this book is that ambulatory care has distinctive characteristics that should shape physicians' approaches to patients. This chapter describes the domain of ambulatory care in the United States. It also addresses in detail the evidence-based practice of medicine, and it describes briefly other proficiencies that are central to ambulatory medicine.

DOMAIN OF AMBULATORY CARE

Who are the physicians providing ambulatory care? What patients visit physicians in their offices? What problems do these patients present to their physicians? What ambulatory care is provided for these problems? To answer these questions, the United States National Ambulatory Medical Care Survey (NAMCS), started in 1973, has collected information periodically from a representative sample of physicians' offices.

Office-Based Generalist Physicians

Table 1.1 shows the distribution by physician specialty of the nearly 670 million office visits to physicians in the United States during 1991. Of these visits, approximately 15% were to internists and 25% were to general/family practitioners, the groups of generalists to whom this book is directed primarily.

Ambulatory Patients

The NAMCS *definition of an ambulatory patient* is "an individual presenting for personal health services who is neither bedridden nor currently admitted to any health care institution." A critical expansion of this definition is that ambulatory or homebound patients (or members of their households) have most of the responsibility for carrying out their own care: They must administer most or all treatments, must monitor symptoms and functional status, must adapt activity to the constraints imposed by illness, and must decide how to deal with new problems when they arise. These characteristics have important implications for the care of ambulatory patients, as discussed below.

The age and sex distribution of the patients who visit internists and general/family practitioners is shown in Table 1.2. Approximately 60% of visits to all generalists are made by female patients. The principal differences shown in Table 1.2 are that adolescents and young adults account for a larger proportion of visits to general/family practitioners than to internists, and that visits by older patients make up a larger proportion of the practice of internists.

Problems of Ambulatory Patients

What types of problems are seen in ambulatory practice? Physicians participating in NAMCS were asked to name the principal reasons (using the International Classification of Diseases) for the visits by patients. Table 1.3 lists the most common responses given by internists and general/family practitioners, respectively.

Ambulatory Care

The NAMCS *defines ambulatory care* as "health services rendered to individuals under their own cognizance, any time when they are not in a hospital or other health care institution." In 1989, the annual number of office visits by adults to all types of physicians ranged from 1.9 for people 19 to 24 years old to 5.9 for people aged 75 and over.

Table 1.4, from the 1989 NAMCS report, shows the frequency of the therapeutic services that are most commonly provided or ordered at ambulatory visits by internists and general/family practitioners: medications and counseling. The table also shows the frequency distributions of visit duration, visit status of

Table 1.1. Number, Percentage Distribution, and Annual Rate of Office Visits by Physician Specialty and Professional Identity: United States, 1991

Physician Specialty	Number of Visits (Thousands)	Percent Distribution	Number of Visits per 100 Persons per Year[a]
All Visits	669,689	100.0	269.3
General and family practice	164,857	24.6	66.3
Internal medicine	102,923	15.4	41.4
Pediatrics	74,646	11.1	30.0
Obstetrics and gynecology	56,834	8.5	22.9
Ophthalmology	41,207	6.2	16.6
Orthopedic surgery	35,932	5.4	14.4
Dermatology	29,659	4.4	11.9
General surgery	21,285	3.2	8.6
Otolaryngology	19,101	2.9	7.7
Psychiatry	15,720	2.3	6.3
Urological surgery	12,758	1.9	5.1
Cardiovascular diseases	11,629	1.7	4.7
Neurology	6,798	1.0	2.7
All other specialties	76,341	11.4	30.7
Professional Identity			
Doctor of osteopathy	46,727	7.0	18.8
Doctor of medicine	622,962	93.0	250.5

From National Ambulatory Medical Care Survey. Hyattsville, MD: National Center for Health Statistics, 1991.

[a] Based on US Bureau of the Census estimates of the civilian noninstitutionalized population of the United States as of July 1, 1991.

Table 1.2. Distribution of Visits to General and Family Physicians and to Internists by Age and Sex of Patient: United States, 1989

Age and Sex of Patient	Percentage Distribution (Rounded)	
	Internal Medicine	General and Family Practice
All ages	100	100
Under 15 years	2	16
15–24 years	6	11
25–44 years	24	29
45–64 years	29	23
65–74	20	12
75 years and over	19	9
Female	58	61
Male	42	39

From National Ambulatory Medical Care Survey. Hyattsville, MD: National Center for Health Statistics, 1989.

Table 1.3. Reasons for Ambulatory Visits to Generalists: United States, January to December 1985

Rank	25 Most Common Reasons (by ICD-9-CM Categories)	
	Internists: Reason for Visit	General and Family Practitioners: Reason for Visit
1	Essential hypertension	Essential hypertension
2	Diabetes mellitus	General medical examination
3	Other forms of chronic ischemic heart disease	Acute upper respiratory infections
4	Acute upper respiratory infections	Diabetes mellitus
5	General medical examination	Normal pregnancy
6	Osteoarthrosis and allied disorders	Suppurative and unspecified otitis media
7	General symptoms	Acute pharyngitis
8	Chronic airway obstruction	Bronchitis
9	Asthma	Chronic sinusitis
10	Bronchitis	Certain adverse effects not elsewhere classif.
11	Neurotic disorders	Health supervision of infant or child
12	Angina pectoris	Sprains and strains
13	Chronic sinusitis	Others disorders of urethra and urinary tract
14	Acute pharyngitis	Obesity and other hyperalimentation
15	Cardiac dysrhythmias	General symptoms
16	Other disorders of soft tissue	Contact dermatitis and other eczema
17	Symptoms involving respiratory system	Neurotic disorders
18	Heart failure	Osteoarthrosis and allied disorders
19	Peripheral enthesopathies	Other and unspecified arthropathies
20	Other and unspecified arthropathies	Other disorders of soft tissues
21	Diseases of esophagus	Other noninfectious gastroenteritis
22	Other noninfectious gastroenteritis	Asthma
23	Other disorders of urethra and urinary tract	Sprains and strains of sacroiliac region
24	Allergic rhinitis	Acute tonsillitis
25	Hypertensive heart disease	Disorders of external ear

From National Ambulatory Medical Care Survey. Hyattsville, MD: National Center for Health Statistics, 1985.

patients, and disposition. The majority of visits (70%) included prescribing or providing medication. A significant part of the visit was devoted to counseling for approximately 40% of visits. At about 60% of visits to internists and 55% of visits to general/family practitioners, the patient had been seen before for the same problem. At all other visits the patient was new to the physician (approximately 15% of visits) or was an old patient with a new problem (25 to 30% of visits).

In addition to office visits, *telephone encounters and house calls* are important in the care of ambulatory patients. Telephone encounters enable physicians and patients to handle many problems efficiently; they constitute approximately 25% of all patient contacts for internists and 19% for family physicians (4). Home visits are helpful for providing care to patients who are too frail to make office visits or for learning facts about patients' home conditions that may facilitate management of their problems at future office visits.

Self-Care and Alternative Care

Before making visits to physicians, patients usually attempt to diagnose and treat their own symptoms. Approximately one third of Americans also seek help each year from practitioners outside the mainstream of medicine (6).

Studies of self-care show that at any one time, approximately 30% of persons are taking nonprescribed medications or are engaged in self-care for a problem for which they have not consulted a physician (10). The frequency distribution of conditions managed by self-care was estimated by Fry (9) on the basis of many years of general practice in a community well

known to him: 25% upper respiratory infections, 20% musculoskeletal symptoms, 20% emotional problems, 10% acute gastrointestinal symptoms, 5% skin rashes, and 20% miscellaneous other symptoms.

The time interval between the onset of a new problem and the decision to go to a physician (i.e., the duration of self-care) is shown for a number of common conditions in Table 1.5, adapted from NAMCS data. Not surprisingly, patients with lacerations, symptoms of acute infections, and new chest pain presented within 1 to 6 days, whereas those with subacute problems (headache or back pain) tended to present after at least 1 week of self-care.

Self-care before professional care is an important way in which the patient, not the physician, makes the decisions in the domain of ambulatory medicine. The patient's primary role in carrying out the plan of care after visiting a physician has already been emphasized in the expanded definition of the ambulatory patient given previously. These two features confirm the primacy of the patient's actions in influencing the course of events in ambulatory medicine.

Table 1.4. Distribution of Visits to Office-Based Generalists by Selected Therapeutic Services Ordered or Provided, Duration of Visits, Visit Status, and Disposition, United States 1989

	Percentage of Visits	
	To Internists	To General and Family Practitioners
Selected Therapeutic Services[a]		
≥1 Medications ordered or provided	75.4	70.7
Counseling advice		
Diet, weight reduction	21.1	14.3
Smoking cessation	3.2	3.7
HIV transmission	0.3	0.1
Breast self-examination	2.1	1.7
Psychotherapy	1.9	1.4
Other counseling	21.1	23.9
No counseling	61.2	63.0
Duration of Visit		
0 min (no face-to-face encounter with physicians)	1.7	1.9
1–5 min	5.0	8.7
6–10 min	20.2	30.4
11–15 min	39.1	32.4
16–30 min	27.1	24.0
More than 30 min	6.8	2.7
Visit Status of Patient		
New patient	15.7	14.5
Old patient, new problem	25.0	30.1
Old patient, old problem	59.4	55.4
Disposition of Visit		
No follow-up planned	6.8	11.5
Return at specified time	65.3	54.1
Return if needed	19.7	30.3
Telephone follow-up planned	8.0	3.3
Referral to other physician	4.6	3.6
Admit to hospital	1.0	0.5

From National Ambulatory Medical Care Survey. Washington, DC: Department of Health and Human Services, 1989.

[a] Total exceeds 100% because more than one service reported for many visits.

The Temporal Dimension of Ambulatory Medicine

The information from NAMCS contained in Tables 1.1 to 1.5 does not illuminate the longitudinal nature of ambulatory care. Table 1.6 shows the 5-year profile of care for an elderly woman. This patient's story illustrates each of the following important questions, for which only the passage of time provided the answers:

- *What is the significance of a recent symptom* (e.g., the temporal headache for 1 year reported in 1975, subsequently not a serious problem)?
- *What is the advisability of initiating a referral for a problem* (e.g., cataract problem identified but asymptomatic in 1975, evaluated when more symptomatic in 1978 and classified as not mature)?
- *How well will the patient adhere to recommended treatment* (e.g., the digoxin prescribed in 1975 for heart failure, taken reliably for 5 years)?
- *What is the impact of a new treatment on the patient's health* (e.g., adding a diuretic in 1978; heart failure gradually improved during the month after diuretic)?
- *What is the impact of intercurrent medical problems on the patient's usual activities?* (The answer to this question varied over time depending on intercurrent problems: During the 5 years the patient's ambulation deteriorated greatly; however, other valued activities, such as crocheting and canning, did not.)

Table 1.5. Percentage Distribution of New Problem Office Visits by Time Since Onset of Complaint or Symptom, According to Selected Principal Reasons for Visit: United States, January to December 1977

		Time Since Onset of Complaint or Symptom					
Principle Reason for Visit	Total	1 Day	1–6 Days	1–3 wk	1–3 mo	>3 mo	Not Applicable
All new problem visits	100.0	8.2	37.3	15.6	10.3	13.9	14.8
Symptoms of throat	100.0	6.9	77.9	10.6	2.3	1.9	0.4
Cough	100.0	3.3	73.0	18.6	2.9	2.1	0.2
Head cold, upper respiratory tract infection	100.0	6.2	72.5	16.5	3.0	1.1	0.7
Fever	100.0	17.6	76.4	4.7	0.2	1.0	
Headache	100.0	5.1	35.6	19.0	16.5	19.7	3.2
Back symptoms	100.0	6.5	37.6	26.4	11.8	16.2	1.5
Chest pain	100.0	7.6	45.8	22.6	9.3	13.6	1.2
Laceration, upper extremity	100.0	70.4	15.4	7.8	3.0	2.1	1.3

From National Ambulatory Medical Care Survey, 1977, Summary. Hyattsville, MD: National Center for Health Statistics.

Table 1.6. Profile of 5 Years in the Care of an Elderly Patient (each problem *italicized*)

Feature	1975	1976	1977	1978	1979
Encounters	Initial visit, 4 office visits, many phone calls	3 office visits, many phone calls	5 office visits, 2 hospital admissions, 1 home visit, many phone calls	4 office visits, many phone calls	4 office visits, many phone calls
Principal medical problems	*Acute myocardial infarction* (mild congestive heart failure; digitalized; home management by patient's choice)	Stable (digoxin)	Stable (digoxin)	Congestive heart failure (diuretic added)	Stable (digoxin, diuretic)
	Degenerative joint disease (knees for years; cervical spine for years)	Waxes and wanes (aspirin, Motrin)	Same (coated aspirin)	Same (coated aspirin)	Same (coated aspirin)
	Temporal headaches for 1 year (erythrocyte sedimentation rate 30)	Rarely	Rarely	Rarely	Rarely
	Hearing loss (ear, nose, and throat examination: senile high frequency deficit, no prescription)	Stable	Stable	Stable	Stable
	Bilateral cataracts	Stable	Stable	Referred (not mature)	Stable
	Leukoplakia, mouth (biopsy: not malignant)	Stable	Stable	Stable	Referred for change in appearance (biopsy: not malignant)
	Hematocrit 35 (guaiac-negative)	Stable	Stable	Stable	Stable
	Constipation (for years)	Waxes and wanes (OTC laxative as needed)	Stable Same (OTC laxative as needed)	Same (OTC laxative as needed and stool softener)	Same (OTC laxative as needed and stool softener)
		Leg cramps (quinine at bedtime)	Minimal (quinine at bedtime)	Same (quinine at bedtime)	Same (quinine at bedtime)
		Left cerebral *transient ischemic attack*	*Left CVA* (hospital, physical therapy)	Stable (right hemiparesis)	Recurrent left CVA (home management)
			Dog bite (cellulitis)	No recurrence	No recurrence
			Rectal bleeding (hospital, negative workup)	No recurrence	No recurrence
			Dysuria (culture negative)	*Family* (temporarily "exhausted" (Visiting Nurses Association)	Family doing well
				Painful toe	Persists (codeine)
				Appetite lost temporarily	No recurrence
Overall profile	87-year-old widow living with daughter's family, ambulatory and independent in the home, mentally intact, crochets and cans food; weight 166; multiple medical problems identified at initial visit (above)	88 years old, status the same; weight 160; 2 new problems (above)	89 years old, ambulation with walker assistance after CVA; weight 151; 4 new problems (above), hospitalized twice	90 years old, status the same; weight 140; 3 new problems (above)	91 years old; ambulation more impaired after second CVA; mentally intact, crochets and cans food; weight 139; no new problem

OTC, Over-the-counter; *CVA,* cerebrovascular accident.