Identifying Primary Care Disciplines By Analyzing The Diagnostic Content Of Ambulatory Care

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Background: **There is considerable controversy about which medical specialties are primary care disciplines. This paper addresses this issue by examining the extent to which the major physician disciplines provide comprehensive ambulatory care to large segments of the population, a characteristic central to the provision of primary care.**

Methods: **The study is based on ambulatory visits to office-based physicians recorded in the 1980-81 and 1989-90 versions of the National Ambulatory Medical Care Survey. Each diagnosis is aggregated into one of 120 mutually exclusive diagnostic clusters. A primary care encounter is defined as a nonreferred ambulatory visit for one of the top 20 clusters.**

Results: Family medicine, general internal medicine, and general pediatrics provide the majority of nonreferred ambulatory care for common conditions in the United States. All three of these disciplines provide a comprehensive range of ambulatory care to large segments of the population. Obstetrician-gynecologists are an important source of care for women of childbearing age, but they tend to limit their care to obstetric and gynecologic problems; most care for adult women is provided by family physicians and general internists.

Conclusions: **Although most specialties provide outpatient services to different segments of the population, only the traditional primary care disciplines of family practice, general internal medicine, and general pediatrics provide comprehensive ambulatory care to broad population groups. (J Am Board Fam Pract 1995; 8:34-45.)**

One of the most contentious components of health care reform is what type of physicians can and should provide primary care.[1] The United States differs from many other industrialized countries in the preponderance of specialists in the medical care system, the result of a trend toward medical specialization that began more than 50 years ago.[2] As we belatedly acknowledge that increasing the supply of primary care physicians is part of the process of health reform, we must decide which types of physicians we want to fill the primary care role in our society.

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The first step in rationally addressing this issue is to determine which specialties currently provide primary care. Unfortunately, primary care is an elusive concept, and many different operational definitions have been used in an attempt to determine its clinical essence.[3-5] The most elegant formulations, such as that proposed by the Institute of Medicine, are conceptually satisfying but methodologically impractical, requiring intrusive and expensive primary data-collection efforts.[6] Furthermore, it is important to recognize that there is a distinction between classifying an episode of care as falling into the realm of primary care and characterizing a specific physician or an entire medical specialty as a primary care discipline, a critical distinction for policy purposes.

The common element in all definitions of primary care is the ability to care for a broad range of conditions in the office setting. The primary care provider must have the ability to address and resolve the problems presented by unreferred ambulatory patients. From a policy standpoint, it is important to differentiate between those medical disciplines that provide limited primary care services incidental to their role as specialists for

defined subsets of patients and those for whom primary care constitutes their basic service role. Making these distinctions is further complicated in the United States because certain specialists, such as pediatricians or obstetrician-gynecologists, define themselves not only by the medical conditions they treat but the demographics of the populations they serve.

The purpose of this study is to begin to draw some distinctions between disciplines that are predominantly involved with the delivery of primary care services and those for whom primary care is subservient to a more specialized focus. We use a simplified operational definition of primary care that is based on the National Ambulatory Medical Care Survey (NAMCS), the most comprehensive longitudinal data base available for outpatient medical practice.[7] Although not all ambulatory care is primary care, most primary medical care takes place in the ambulatory setting and thus is captured by NAMCS. We define a primary care episode as a nonreferred ambulatory visit to a physician for a common medical condition.

Although most office-based specialties provide some primary care under this definition, not all specialties are primary care specialties. Because a comprehensive spectrum of care is one of the core characteristics of a primary care role, we define a primary care specialty as one that has a broad diagnostic repertoire and has the capability of addressing the full spectrum of diagnostic presentations for a large, defined segment of the population.

NAMCS allows us to examine the extent to which physicians in each of these specialties conform to these criteria. Because the physicians who participate in NAMCS are representative samples of the major specialties, we can reasonably generalize to the groups from which they draw. And because NAMCS collects information on the patients who visit these physicians, we have the ability to draw conclusions about patterns of ambulatory care given to the entire civilian population.

Methods

Data Sources

This study is based primarily on two NAMCS surveys, the first conducted in 1980-81 and the second in 1989-90. Physicians are selected randomly for participation in NAMCS from master rosters maintained by the American Medical Association and the American Osteopathic Association, thus ensuring that the study sample is representative of practicing, nongovernmental, office-based physicians in the United States.[7] Participation rates were high: the 1980-81 survey had 2677 physician respondents for a participation rate of 77 percent, and the 1989-90 survey had 3105 respondent physicians for a participation rate of 74 percent. Physicians were assigned to the specialty in which they spent the majority of their professional time. General internists and general pediatricians are treated as separate and distinct specialties.

Study physicians were asked to record information on the ambulatory patients they encountered during a randomly assigned week. NAMCS used specially designed encounter forms unrelated to the preexisting medical record or billing system, thus making it more likely that diagnoses recorded reflected the problems for which the patients sought care. The 1980-81 NAMCS data are based on 89,447 separate patient visits, and the 1989-90 data are based on 81,853 visits.

The NAMCS has a multistage sampling design, which makes it necessary to weight patient visits to produce essentially unbiased national estimates. Adjustment weights are based on the probability of selection, differences in response rates, and differences between population and respondent characteristics (e.g., specialty distribution). These weights allow extrapolation from the survey office visits to the entire United States.

Descriptions of the NAMCS methodology are available in National Center for Health Statistics (NCHS) publications.[7] These methods include a complex three-stage national sampling strategy, inflation by reciprocals of sampling probabilities, adjustment for nonresponse, poststratification adjustment to fixed population ratios, and the use of the Taylor series linearization method to calculate unbiased variance estimates.

In keeping with the descriptive nature of this paper and the standard procedure of the NCHS, estimates with approximate relative standard errors (RSEs) of 30 percent or greater are noted in the tables and figures with asterisks. RSEs are computed by dividing the standard error of an estimate by the estimate itself (the standard errors are calculated through formulae and parameters developed by NHSC statisticians). Estimates with large RSEs should be viewed with caution because they could be unreliable.

Diagnosis Clusters

The diagnosis clusters were developed as a way to manage the complexity of the International Classification of Diseases (ICD) coding scheme through which diagnostic rubrics are assigned to the medical conditions of individual patients.[8,9] Diagnosis clusters are groupings of individual diagnostic codes that bring together conditions with similar pathophysiologic characteristics that tend to evoke similar clinical responses on the part of physicians. Because there are more than 1000 individual diagnostic rubrics, and coding behavior can vary systematically across physicians and over time, it is impossible to use the more reductionistic coding schemes to follow specific conditions over time. Diagnosis clusters simplify the ICD system to manageable proportions and compensate for the idiosyncratic effects of labeling and coding behavior used by individual physicians.

The original diagnosis clusters were created based upon the information in the 1977 and 1978 NAMCS tapes. Because of the substantial revisions of the ICD system in 1979, the clusters were reconfigured in 1985 using the data from the 1980-81 NAMCS surveys, and a few clusters were added in a 1992 revision based on 1989 NAMCS data. In the results that follow, the current version of the clusters is used.

In total, there are 120 separate diagnosis clusters. The top 20 clusters represent more than 50 percent of all nonreferred visits to the physicians in this study and are thus considered to be common ambulatory conditions for the purposes of this study. Only physician face-to-face visits with patients are included in the analyses.

Results

Table 1 displays the 20 most common principal diagnosis clusters from the 1989-90 survey. Although the decision to use these diagnoses as part of our definition of primary care is arbitrary, the actual diagnoses have a considerable amount of face validity. These 20 clusters tend to fall into four broad general categories: infectious diseases, such as respiratory or urinary tract infections; traumatic conditions, such as sprains or lacerations; chronic medical conditions, such as diabetes or ischemic heart disease; or health maintenance examinations, such as a general medical examination or a prenatal visit. These medical problems are the core of primary care under any definition, and their diagnosis and treatment will occupy a major percentage of the resources of any health care system.

Table 1. Diagnosis Clusters That Make Up the Majority of Nonreferred Ambulatory Visits to US Office-based Physicians, NAMCS 1989-90.*

Rank	Cluster Title	Percent	Cumulative Percent
1	General medical examination	7.2	7.2
2	Acute upper respiratory tract infection	6.2	13.4
3	Hypertension	4.4	17.8
4	Prenatal care	4.3	22.1
5	Acute otitis media	3.5	25.6
6	Acute lower respiratory tract infection	2.7	28.3
7	Acute sprains and strains	2.7	31.0
8	Depression and anxiety	2.5	33.5
9	Diabetes mellitus	2.1	35.6
10	Lacerations and contusions	1.9	37.5
11	Malignant neoplasms	1.7	39.2
12	Degenerative joint disease	1.7	40.9
13	Acute sinusitis	1.6	42.5
14	Fractures and dislocations	1.6	44.1
15	Chronic rhinitis	1.5	45.6
16	Ischemic heart disease	1.4	47.0
17	Acne and diseases of sweat glands	1.3	48.3
18	Low back pain	1.2	49.5
19	Dermatitis and eczema	1.2	50.7
20	Urinary tract infection	1.1	51.8

*The estimated number of visits for 1989–90 (the denominator) is 1,297,334 (in thousands). This is based on 74,390 survey visits. All relative standard errors are less than 30 percent.

These relative diagnostic proportions have remained remarkably stable over time. There has been little change in the prevalence of individual diagnostic clusters from 1980-81 to 1989-90; only two of the diagnoses on the 1990 list were not among the most frequently encountered diagnoses in 1980. In only one case has the absolute change between 1980 and 1990 exceeded 1 percent of all encounters; general medical care accounted for 8.8 percent of first visits in 1980 and only 7.2 percent in 1990, but it represents the most common diagnosis cluster in both time periods.

Which Specialties Provide Ambulatory Care for Common Conditions in the United States?

As seen in Table 2, family physicians (i.e., family and general physicians combined), general internists, and general pediatricians continue to provide the majority of nonreferred ambulatory care for

common conditions in the United States. Family medicine is the only one of the traditional primary care disciplines to provide care for all age groups, although its relative contribution has decreased during the study interval. The greatest decrease has occurred among the elderly, with many more elderly obtaining care from medical subspecialists in the later survey. Pediatricians are the second largest source of ambulatory care for common conditions and provide the majority of such care to patients less than 17 years of age, a proportion that has changed little within the past decade. General internists are the second most important source of care for both men and women older than 44 years.

Obstetrician-gynecologists are the second most frequent providers of care for the top 20 diagnosis clusters for patients between the ages of 17 to 44 years, although the contribution of these specialists has diminished somewhat during the study interval. Internists provide virtually no care to children, pediatricians see an insignificant number of patients older than 17 years, and obstetrician-gynecologists see very few children or elderly. Among other specialty groups, general surgery has seen the greatest decline, with a decrease from 3.2 percent of all encounters in 1980-81 to 1.7 percent in 1989-90. The proportion of care provided by medical subspecialties has gone in the opposite direction, more than doubling during the decade, paralleling the increase in the number and relative proportion of medical subspecialists.

If one examines each of the 20 most common diagnosis clusters in detail, they tend to fall into two mutually exclusive groups: those conditions in which the majority or plurality of care is provided by the traditional generalist specialties of family medicine, general internal medicine, and general pediatrics and those conditions where the majority or plurality of care is provided by a specific specialty. The former group is displayed in Figure 1 and in some sense constitutes the bread

Table 2. Percentage of Nonreferred Ambulatory Visits to Office-based Physicians for Common Conditions by Patient Age and Physician Specialty, NAMCS 1980–81 and 1989–90.

	Patient Age									
	Less Than 17 Years		17–44 Years		45–64 Years		65 Years and Older		All Ages	
Physician Specialty	1980–81	1989–90	1980–81	1989–90	1980–81	1989–90	1980–81	1989–90	1980–81	1989–90
Family practice	26.5	25.9	35.1	35.0	42.3	40.3	41.7	33.0	35.5	33.0
General pediatrics	56.7	57.1	1.3	1.3	0.4	0.3*	0.1*	0.1*	15.2	16.4
General internal medicine	1.5	1.7	7.7	10.8	24.1	20.6	26.7	25.6	12.6	12.9
Obstetrics and gynecology	0.8	0.7	27.0	23.9	2.8	2.4	1.1	0.5	11.0	9.0
Orthopedics	2.8	2.7	6.4	7.2	6.7	6.2	4.1	4.8	5.2	5.3
Ophthalmology	0.8	0.2*	1.3	0.7	2.8	2.4	9.2	10.6	2.8	2.8
Dermatology	3.2	1.5	6.3	4.5	2.2	2.3	1.2	1.5	3.8	2.7
Psychiatry	0.6	0.4	4.7	3.7	3.6	3.8	0.7	0.8	2.7	2.2
Otolaryngology	2.3	2.2	1.7	1.7	1.4	1.9	1.1	1.2	1.7	1.8
General surgery	1.3	0.3*	3.7	1.5	4.3	2.7	3.9	3.2	3.2	1.7
Cardiology	0.0*	0.0*	0.4	0.3	2.5	3.2	3.8	5.1	1.3	1.7
Urology	0.0*	0.0*	0.2*	0.1*	0.5	0.5	1.6	1.6	0.4	0.4
Other medical	0.5	1.4	1.2	4.1	2.1	8.3	2.1	9.1	1.4	5.1
Other surgical	0.4	2.7	1.0	2.0	1.6	2.0	0.6	1.2	0.9	2.1
Other pediatrics	0.8	1.6	0.4	0.3	0.2*	0.0*	0.0*	0.0*	0.4	0.6
Other	1.6	1.4	1.6	2.9	2.6	3.0	1.9	1.7	1.8	2.3
Total (for most common 20)†	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent of most common 20†	25.8	27.8	37.1	34.6	20.1	18.3	17.1	19.3	100.0	100.0

Note: See 20 most common diagnostic clusters (Table 1).
The estimated number of visits for 20 most common diagnosis clusters for 1989–90 (1980–81) is 675,144 (581,660) in thousands (based on 35,624 (43,804) survey visits).
*Relative standard error of 30 percent or greater.
†Totals percentages may not add to 100 because of rounding error.

and butter of primary care. In all of these cases some patients receive their care from one or more of the specialties, but the majority of care is provided by generalist physicians.

The other seven common diagnostic clusters display a very different pattern, as seen in Figure 2. Individual diagnoses tend to fall within the domain of specific specialties; in fact, specific specialties are largely defined by the diagnostic clusters in which they predominate. For example, obstetrician-gynecologists are responsible for the majority of prenatal visits, orthopedists for the majority of fractures and dislocations, and dermatologists for the majority of visits for acne and diseases of the sebaceous gland. In addition, psychiatrists see the plurality of visits for anxiety or depression, oncologists have the greatest share for any specialty of malignant neoplasms, and cardiologists see the greatest number of patients with ischemic heart disease. Each of these specialties is dominant within one or two specific diagnostic clusters but provides very little ambulatory care outside of this fairly narrow diagnostic domain.

The amount of ambulatory care provided by specialists for several of the most common diagnoses is increasing. Table 3 again lists the 20 diagnosis clusters that make up our definition of ambulatory care and shows the percentage of visits in each cluster that is provided by the three traditional primary care specialties during the decade of the 1980s. Overall, the proportion of nonreferred ambulatory care visits attributable to the three traditional primary care disciplines has declined from 57.5 in 1980-81 to 56.2 in 1989-90, a small but statistically significant difference. The most dramatic changes

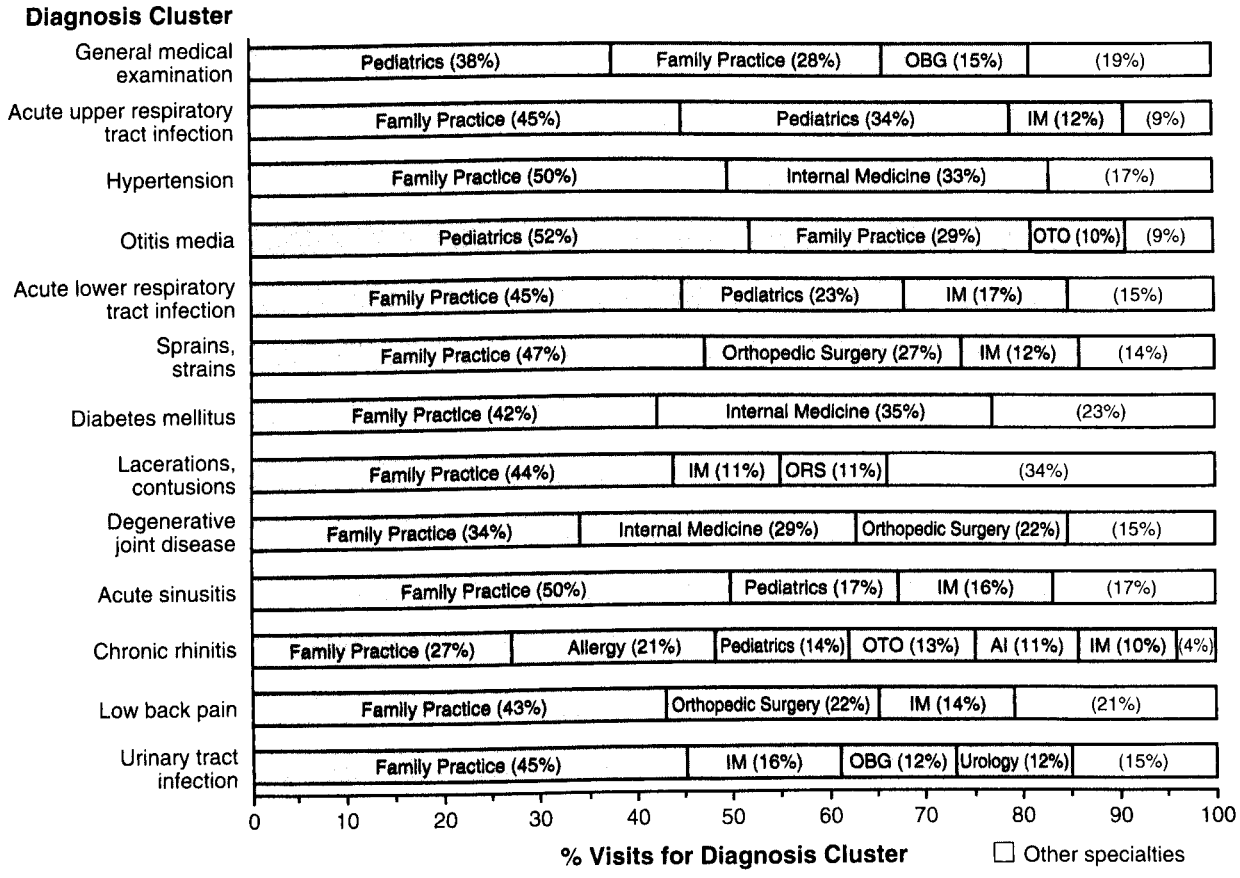

Figure 1. Physician specialties providing care for generalist-dominant diagnosis clusters, NAMCS 1989-90 (all specialties are listed that accounted for ≥10% of visits for that condition).

Note: all relative standard errors are <30%.
Specialty key:
AI=allergy and immunology; Internal Medicine=general internal medicine; IM=general internal medicine; OBG=obstetrics and gynecology; ORS=orthopedic surgery; OTO=otolaryngology; Pediatrics=general pediatrics.

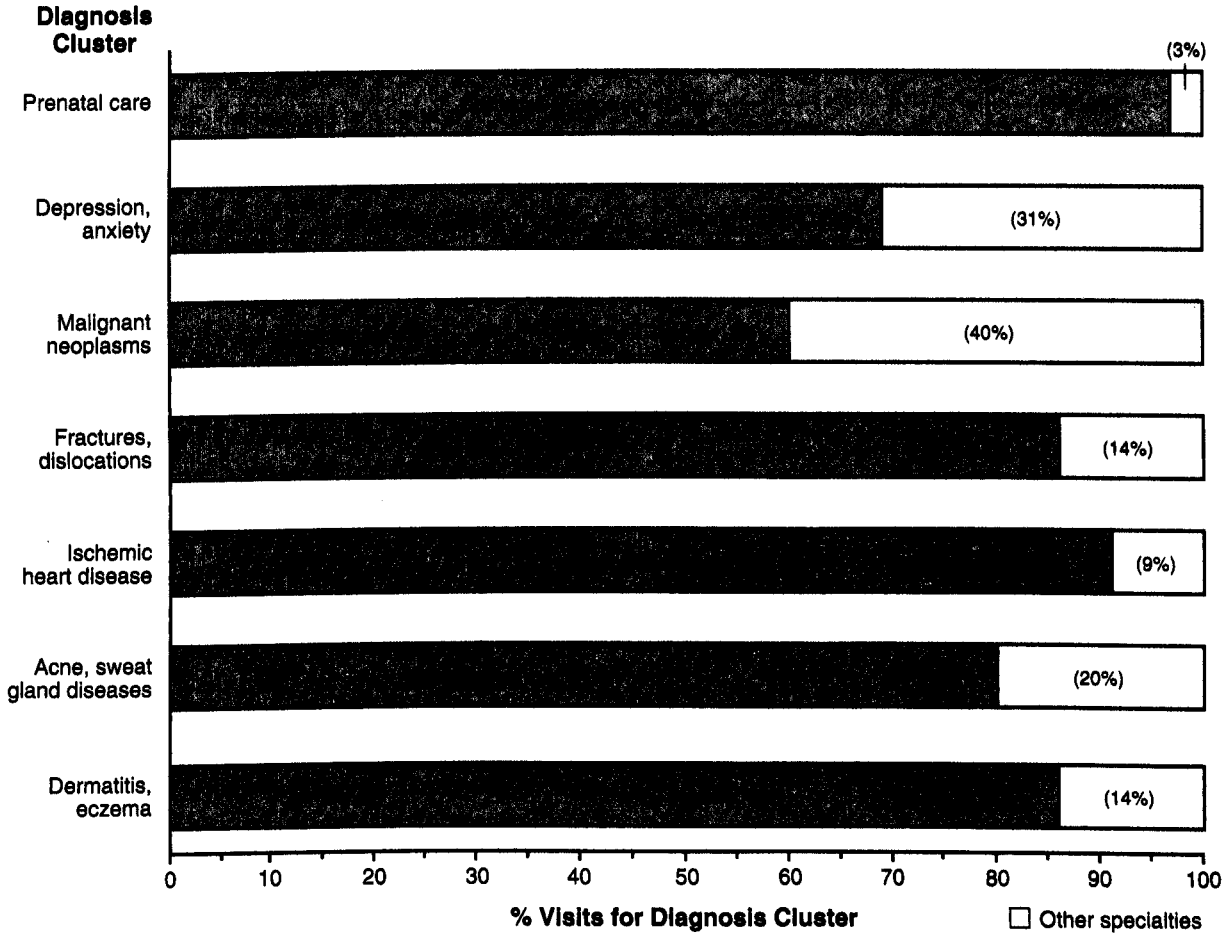

Figure 2. Physician specialties providing care for specialty-dominant diagnosis clusters, NAMCS 1989-90 (all specialties are listed that accounted for ≥10% of visits for that condition).

Note: all relative standard errors are <30%.
Specialty key:
FP=family practice; GS=general surgery; Internal Medicine=general internal medicine; IM=general internal medicine; Pediatrics=general pediatrics.

are in patterns of ambulatory care for two serious medical conditions, malignant neoplasms and ischemic heart disease. In these two areas, a substantial amount of the ambulatory care has shifted from primary care physicians to the medical subspecialties of oncology and cardiology, respectively.

Which Disciplines Provide Comprehensive Ambulatory Care?

One of the characteristics of primary care in most definitions is comprehensiveness.[3,6] One role of the primary care provider is the ability to manage the majority of problems for which patients seek care, without needing to refer them to specialists. The NAMCS data base allows us to determine whether specific disciplines are likely to be able to function in this capacity.

Figure 3 displays the ambulatory diagnostic content of the 10 specialties in the United States that account for the greatest number of ambulatory visits. The disciplines tend to fall into two quite different categories based upon the number of conditions for which they routinely provide care. The first group includes the three specialties that deal with a broad range of diagnoses in their ambulatory roles: family medicine, general internal medicine, and general surgery. By contrast, the other seven specialties are defined by one to three major diagnostic clusters.

There is considerable overlap between family medicine and internal medicine, and these two disciplines share a common core of diagnostic problems. General surgeons see an even broader variety of diagnostic conditions, a mixture of sur-

Table 3. Changes in Diagnosis-Specific Market Share of Primary Care Physician Specialties, NAMCS 1980–81 and 1989–90.

Rank Order	Diagnosis Cluster	Percent of Visits to 3 Traditional Primary Care Specialties* 1980–81	1989–90
1	General medical examination	73.4	73.5
2	Acute upper respiratory tract infection	90.4	90.4
3	Hypertension	86.8	82.9
4	Prenatal care	21.8	18.2
5	Acute otitis media	82.0	85.1
6	Acute lower respiratory tract infection	91.5	85.0
7	Acute sprains and strains	58.2	61.9
8	Depression and anxiety	38.2	35.6
9	Diabetes mellitus	86.7	77.7
10	Lacerations and contusions	61.8	62.7
11	Malignant neoplasms	45.8	22.1
12	Degenerative joint disease	68.9	63.5
13	Acute sinusitis	81.3	83.6
14	Fractures and dislocations	26.2	20.7
15	Chronic rhinitis	62.5	51.2
16	Ischemic heart disease	74.9	57.8
17	Acne and diseases of sweat glands	12.0	20.2
18	Low back pain	49.3	58.0
19	Dermatitis and eczema	55.5	55.8
20	Urinary tract infection	65.4	66.9
	Total (all conditions including above)	57.5	56.2

*Family medicine, general internal medicine, general pediatrics. The estimated number of visits for 1989–990 (1980–81) is 1,297,334 (1,079,819) in thousands (based on 74,390 (82,805) survey visits).
All relative standard errors are less than 30 percent.

gical diagnoses and more traditional primary care problems. By contrast, as noted earlier, the specialties of ophthalmology, orthopedics, dermatology, psychiatry, and cardiology focus on a much smaller number of specific diagnoses. This pattern appears quite logical, the practice profile closely mirroring the training and interests of the specialty in question.

Do pediatricians and obstetrician-gynecologists provide the majority of primary care to children and women of childbearing age? Their diagnostic profiles as seen in Figure 3 resemble those of the narrower specialties more than they do the diagnostic repertoire of family medicine or internal medicine. Although the majority of the ambulatory encounters of pediatricians and obstetrician-gynecologists fall within the domain of two or three diagnostic clusters, it is possible that the patients to whom they restrict themselves have a limited number of problems for which they seek medical consultation. Figures 4 and 5 restrict the analyses to children younger than 17 years and to women between the ages of 17 and 44 years, examining the extent to which pediatricians and obstetrician-gynecologists provide comprehensive care for the members of those particular segments of the population.

Figure 4 displays the 10 most common diagnostic clusters for children less than 17 years old and the specialties of the physicians from whom they seek ambulatory care. In every diagnostic category, pediatricians provide a substantial amount of care, and they are the most important providers for all diagnoses except fractures and lacerations and contusions. There seems little doubt that for children in the United States pediatricians act as primary care physicians for children.

The situation is somewhat different for obstetrician-gynecologists. Obstetricians restrict themselves to the care of women, and 86 percent of the patients they see are between the ages of 17 and 44 years. Perhaps more importantly, the diagnoses for which they provide the majority of care are concentrated within their particular specialty domain: care related to pregnancy, general medical examinations, vaginitis and vulvitis, and menstrual disorders. Although these four diagnostic clusters are very important for women during their childbearing years, they account for only 29.3 percent of the visits of women aged from 17 to 44 years to outpatient physicians. The diagnostic profiles suggest that women visit obstetrician-gynecologists for problems that fall within the domain of their specialty but tend to utilize family physicians, internists, and other physicians for many of their other medical needs.

Discussion

Primary care has languished in the United States.[10] Despite repeated federal, state, and foundation attempts to stimulate the production of primary care physicians, progress has been slow.[11] In fact, declining medical student interest in the traditional primary care specialties of family medicine, general internal medicine, and general pediatrics in recent years is a harbinger of an even more drastic potential contraction in the generalist supply in the United States.[12] Primary

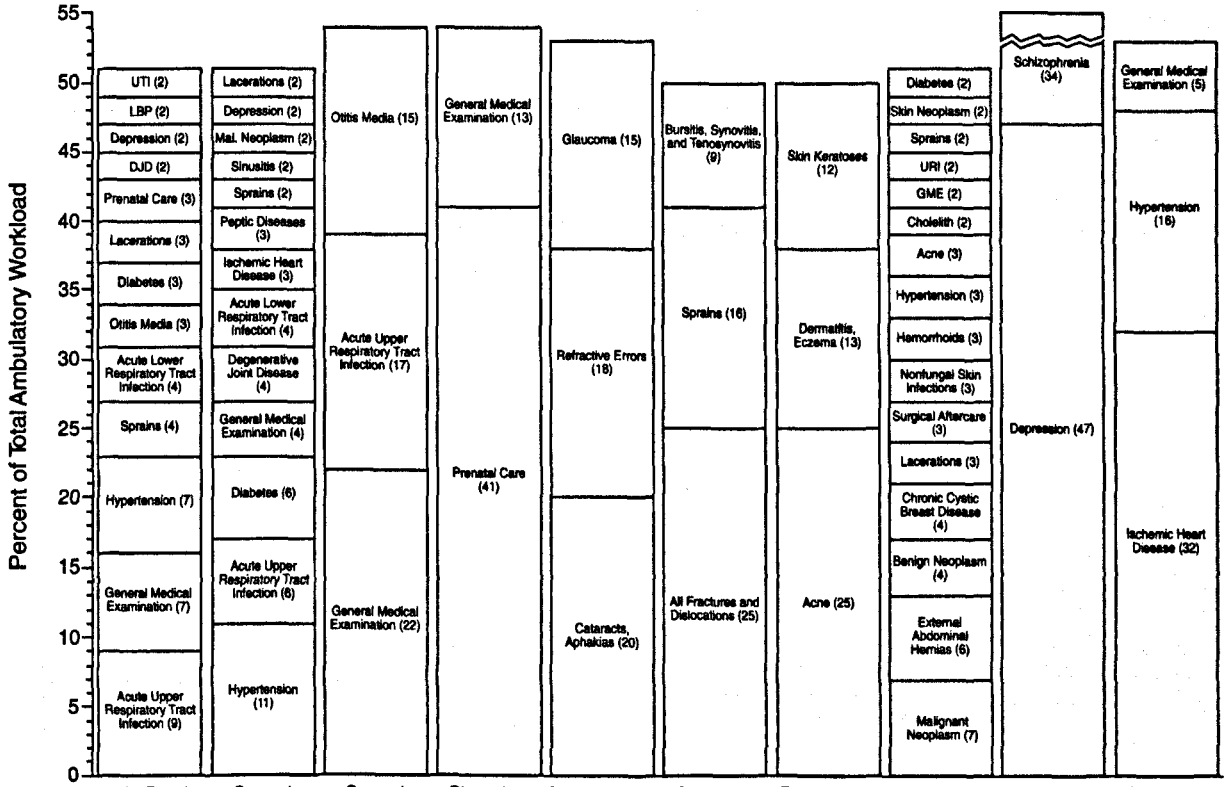

Figure 3. Diagnostic profiles of 10 largest physician specialties based on all nonreferred ambulatory visits, NAMCS, 1989-90.

Note: All relative standard errors are <30%. Numbers in parentheses are percent of all visits to indicated specialty for that diagnostic cluster. Diagnosis cluster key:
Acne=acne and diseases of sweat and sebaceous glands; Cholelith=cholelithiasis and cholecystitis; Depression=depression, anxiety, and neuroses; Diabetes=diabetes mellitus; DJD=degenerative joint disease; GME=general medical examination; Lacerations=lacerations, contusions, abrasions; LBP= low back pain; Schizophrenia=schizophrenia and affective psychosis; Skin Neoplasm=malignant neoplasms of skin; Sprains=acute sprains and strains; URI=acute upper respiratory tract infection; UTI=urinary tract infection.

care has indeed become an unloved segment of the medical endeavor, at least as reflected in the choices made by the future physicians.[13]

Nevertheless, this situation seems to be on the verge of a change.[1] Driven by the powerful winds of health reform, influential institutions within our society have begun to pay concrete attention to training and deploying new primary care physicians. Generalism has gained adherents as prestigious private medical schools start new departments of family medicine and strengthen departments of general pediatrics. Major health care organizations have developed a voracious appetite for primary care physicians, and salaries have begun to rise as demand exceeds supply. In addition, the proposed national health reform for the first time has provisions that allow the federal government to influence directly the process by which residency slots are allocated.

The result of this transformation is that specialties which once rejected generalism have begun to assert their roles as primary care disciplines. In a recent series of hearings before the Physician Payment Review Commission, 18 specialty groups asserted that they should be considered as primary care specialties under health reform. One version of the Health Security Act expands the traditional triad of primary care specialties to include obstetrics and gynecology. It seems reasonable to try to determine which of the 88 specialties and subspecialties concentrate on the provision of comprehensive ambulatory care to large segments of the population, one of the defining characteristics of a primary care discipline.

The results of this study suggest that in the United States family medicine, general internal medicine, and general pediatrics deal with a spec-

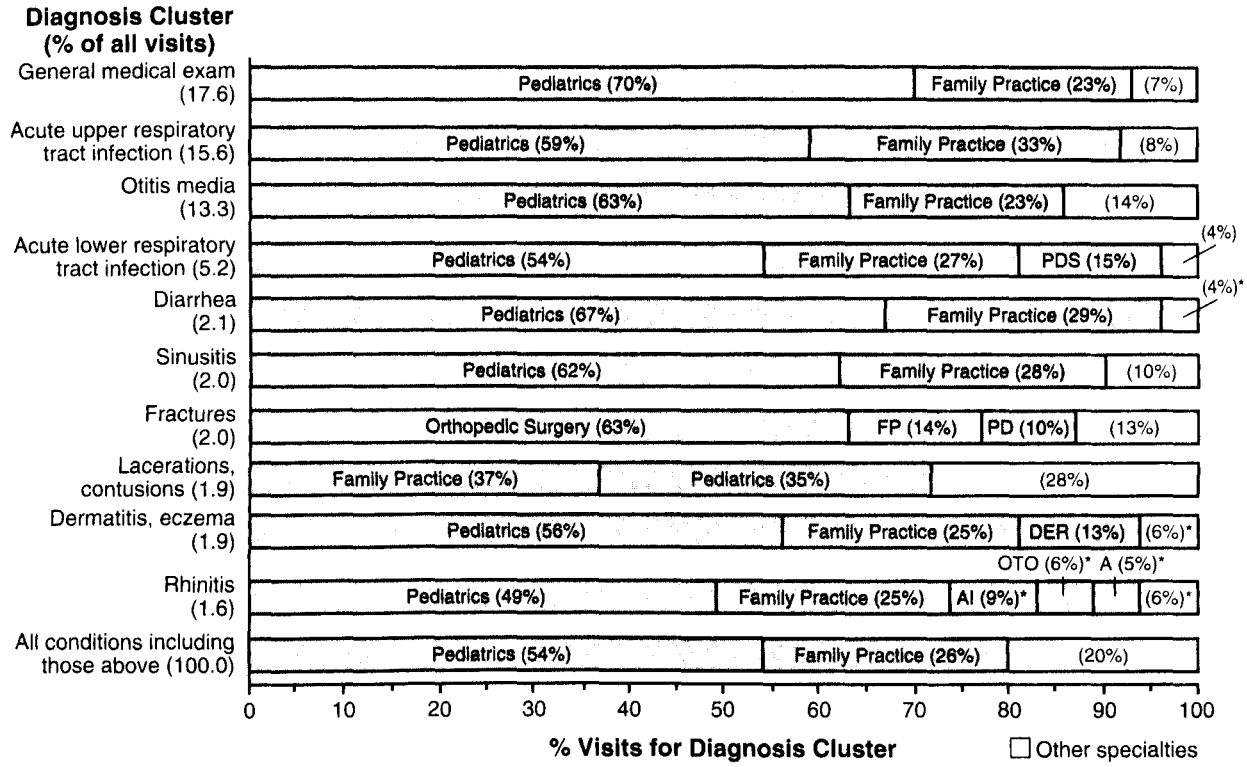

Figure 4. Contributions of major physician specialties to care of nonreferred children less than 17 years old by 10 most common diagnosis clusters for age group, NAMCS 1989-90 (all specialties responsible for more than 5% of visits for a specific diagnosis are listed).

*Relative standard error of 30% or greater.
Specialty key:
A=allergy; AI=allergy and immunology; DER=dermatology; FP=family practice; OTO=otolaryngology; PD=general pediatrics; PDS=pediatric surgery; Pediatrics=general pediatrics.

trum of diagnostic problems characteristic of primary care practices. Although the definition of primary care remains imprecise,[14] it is likely that future systems of care will be based on medical generalists who provide a broad range of ambulatory care for defined population groups.[15] In this country only the three specialties mentioned above share the following characteristics: they are office based, have a broad clinical repertoire, and provide care for a large proportion of the ambulatory conditions presented by a defined subset of the population.

To what extent can general surgery and obstetrics-gynecology be considered primary care specialties? Some obstetrician-gynecologists assert that they are important providers of primary care services to women of reproductive age, in addition to their role as specialists,[16] and have argued that they should be included as primary health care providers within the context of health reform. This study supports the earlier findings of other investigators that show that general surgery and obstetrics-gynecology share characteristics of both primary care and specialty care, at least in the ambulatory portion of their practice.[17]

General surgery is a dwindling specialty[18] and, despite the apparent versatility of the relatively few remaining practitioners, has relatively little impact on the overall supply of ambulatory care. Most obstetrician-gynecologists limit themselves to problems of the reproductive system occurring in women during the childbearing years. Although about one-half of all obstetrician-gynecologists report that they spend the majority of their time providing primary care,[16] this study suggests that most women are more likely to consult either a family physician or an internist for most of their ambulatory care problems. The extent to which obstetrician-gynecologists serve as primary care providers in the future will probably depend on the role assigned to the specialty in the managed-care systems and the shape of future health care reform.

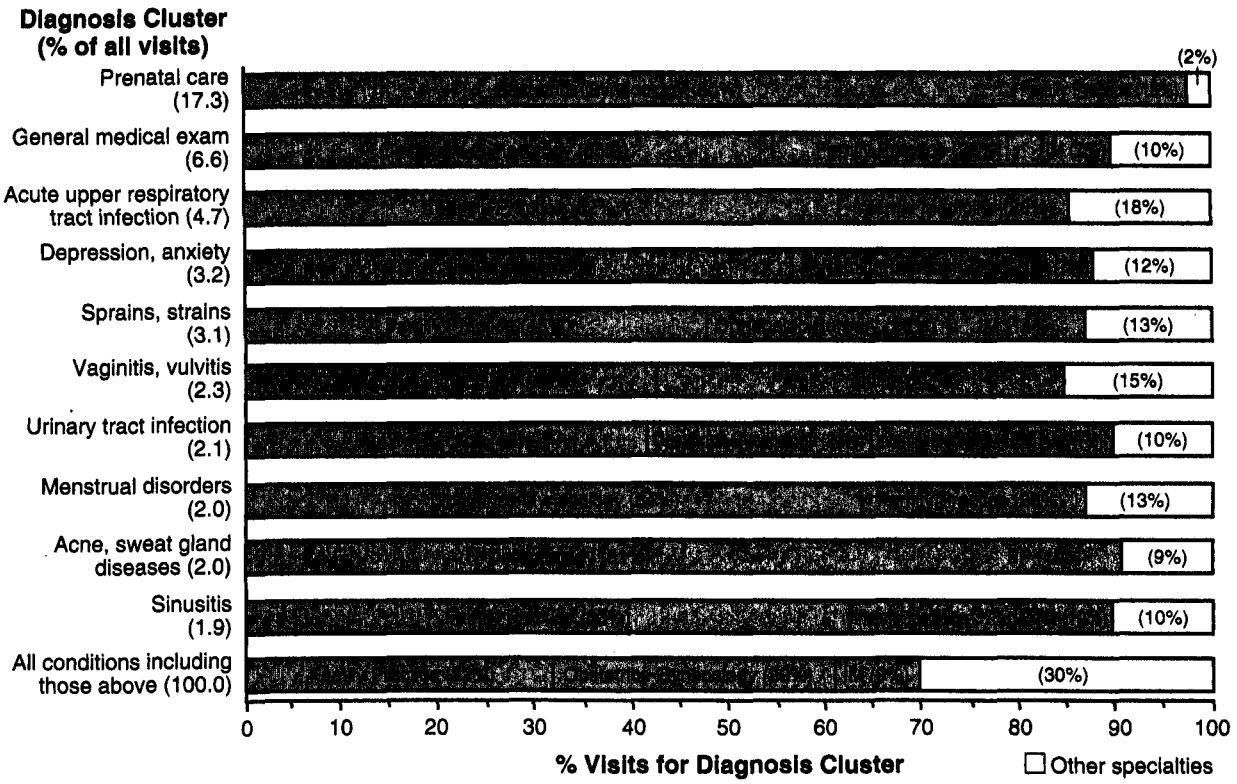

Figure 5. Contributions of major physician specialties to nonreferred care of women from 17 to 44 years of age by 10 most common diagnosis clusters for patient subpopulation, NAMCS 1989-90 (all specialties responsible for more than 5% of visits for a specific diagnosis are listed).

* Relative standard error of 30% or greater.

Specialty key:

FP=family practice; IM=general internal medicine, Internal Medicine=general internal medicine; OTO=otolaryngology; Uro=urology.

Do Specialists Provide Primary Care?

No matter which of the competing conditions are used to define primary care, there is no question that specialists provide primary care. It would probably be the rare endocrinologist who does not treat the occasional diabetic patient who comes in with a simple otitis media, though most endocrinologists would probably be unlikely to suture a laceration. The important distinction that is often unrecognized in this debate is that occasionally providing care outside the domain of a specific specialty does not transform the provider into a primary care physician.[19] Primary care specialties are those whose mission and objective are to provide comprehensive services for defined groups of patients over time. It could be argued that whereas specialties define themselves in terms of organ systems (nephrologists), technologies (radiologists), or procedural competence (plastic surgeons), primary care specialists define themselves in terms of the full range of diagnostic problems presented by groups of patients (internists and pediatricians) or the population as a whole (family physicians).

As the number and proportion of primary care providers have decreased, it would seem almost inevitable that specialists in the aggregate would provide more primary care services, regardless of whether they felt comfortable with this arrangement. As NAMCS illustrates, there has been a decline in the last decade in the total proportion of visits to primary care physicians, particularly to family physicians, continuing a trend that began decades earlier.[20] Other previous studies using NAMCS and other encounter-based data sources have estimated that many primary care visits are provided by specialists[21]; however, that this arrangement exists does not make it desirable.[22]

In some ways it is unfortunate that we have chosen to encapsulate so much of the work force

debate within the fuzzy concept of primary care. An efficient system of care requires that patients have ready access to a single ambulatory provider who can empathetically handle the majority of illnesses.[23] Optimally such a provider would also pay attention to psychosocial and health maintenance issues while recognizing that the individual is part of both a family and the larger society. This study suggests that the traditional primary care specialties are the physician groups that are most likely to be able to fill this role.

Even though specialists can provide primary care services, such care tends to be inaccessible to certain populations, fragmented, and expensive.[24-26] One solution might be to encourage specialists to broaden their practice repertoire, but this solution is unlikely to be satisfying to the specialists themselves — particularly if they are reimbursed as if they were primary care physicians — or some of the patients they treat. Another solution is to turn to nurse practitioners and physician assistants for primary care services.[27,28] Given the prevailing patterns of care reflected in this study, it might be best to concentrate on a rapid expansion of the traditional primary care work force during the inevitably prolonged period of health reform implementation.[29]

Limitations of this Study

The major limitations of this study are inherent in the data base upon which it is based. NAMCS is an excellent snapshot of ambulatory medical practice in the United States, and it has the virtue of faithfully providing information about the vast majority of office-based physicians over time. But to achieve breadth, the survey sacrifices depth, and we know little about an individual encounter beyond the major diagnoses, demographic characteristics of the patients and physicians, and types of medications prescribed. It is really impossible to know very much about the complexity or urgency of the problem the physician was seeking to address and whether the skills required would ordinarily fall within the realm of the generalist or require the expertise of the consultant.

In fact, however, no study would resolve this issue to the satisfaction of everyone. Even an observational study of patient-physician interactions would produce disagreement about the level of expertise required for optimal care. Although interspecialty comparisons of the quality of health care are contradictory at best, the policy issue does not revolve around the quality of care. If we accept that primary care physicians should be those who provide first-contact comprehensive ambulatory care to the general public, then the NAMCS data base allows us to determine which specialties fulfill these criteria.

The other shortcomings of the study are the consequences of classification decisions that have been made to allow analysis of this immense data base. NAMCS depends on the AMA masterfile for its sampling frame, and specialty designation based on physician self-classification might introduce errors in the specialty to which individual respondents are assigned. There is no a priori reason to suspect that there is a systematic bias in the process of self-classification, however, and no other better method has been developed. The use of diagnosis clusters in some areas might group together diagnoses of vastly different complexity into a single diagnostic rubric, such as prenatal care; on the other hand, disaggregating the data into individual ICD-9 codes makes the data unmanageable, and all other classification techniques suffer from the same potential problem as the diagnosis clusters while producing clusters that are less useful from the clinical perspective.

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