

Change in Self-Definition from Specialist to Generalist in a National Sample of Physicians

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■ **Objective:** Current proposals to reform the health care system call for a physician work force composed of at least 50% generalists. Achieving this objective will likely require that some physicians who are currently specialists become generalists. We sought to determine the extent of such change before any concerted reform efforts and the types of physicians most amenable to such change.

■ **Design:** Retrospective cohort study.

■ **Participants:** 335 438 physicians in active practice.

■ **Measurements:** Rates of change between 1982 and 1986 in self-defined specialties, analyzed with demographic methods and logistic regression.

■ **Results:** In 1982, our participants comprised 134 647 (40.1%) generalists and 200 791 (59.9%) specialists. Over the 4-year period of the study, 8319 (6.2%) of the generalists became specialists and 4322 (2.2%) of the specialists became generalists. Although physicians younger than 40 years of age were more likely than those older than 40 years of age to switch into generalist disciplines, specialist physicians between the ages of 40 and 69 years (who accounted for 62.0% of the physician work force) made most of the moves into generalist fields (58.4%). After adjustment for other factors, the physicians most likely to switch into generalist disciplines were women, subspecialty internists, emergency medicine physicians, subspecialty pediatricians, and pathologists. In 1986, the 130 650 physicians (38.9%) in this cohort who considered themselves generalists were supplemented by another 49 226 (14.7%) who considered themselves to have a secondary interest in generalist practice. Physicians with such a secondary interest in 1982 constituted 65% of the new generalists in 1986.

■ **Conclusions:** Our findings support three principal conclusions. First, change from specialist to generalist disciplines is not uncommon, even for physicians older than 40 years of age. Second, many physicians already consider a generalist discipline to be a secondary emphasis of their practices. And third, efforts to retrain specialists to be generalists might effectively target those physicians predisposed to become generalists.

Many current proposals to reform the U.S. health care system call for an increase in the number of generalist physicians. President Clinton's proposal, for example, advocates "shifting the balance in the graduate training of physicians from specialties to primary care," with "at least 50% of new physicians [being] trained in primary care" (1). Other commentators have also endorsed the idea of raising the proportion of primary care physicians in the work force to 50% or more (2-10). These proposals have been driven by the concern that an under-reliance on generalists compromises the quality, cost, and accessibility of health care (5, 6, 11-14).

It is increasingly clear, however, that the reform of undergraduate (15-17) or graduate (18, 19) medical education alone, no matter how thoroughgoing, will not raise the proportion of generalists in the physician work force to 50% quickly enough. Even if 50% of medical school graduates each year were to choose generalist careers, the goal would not be reached until 2040 (20). Given the lengthy delay that would result from using education reform alone, the Clinton plan and other proposals recommend that some specialists become generalists (1, 11, 21). Incipient changes in the marketplace, such as increasing salaries for generalists and fewer job openings for specialists, may be reinforcing this recommendation (22).

Are physicians amenable to changing from specialist to generalist disciplines? Previous research has shown that not all physicians remain in their initial specialties. Several early studies considered specialty changes among graduates from the classes of 1915 through 1950 (23-25). Two later studies found that many medical school graduates from the 1960s subsequently changed their fields of practice (26, 27). Formulating a realistic and effective physician work force policy, however, will require analysis of more recent trends in specialty mobility. The extent to which physicians are currently altering their professional self-definitions, and either entering or leaving generalist disciplines, is unknown. Moreover, if policymakers knew the characteristics of physicians who changed from specialist to generalist disciplines, work force policy initiatives could strive to support this target population. Conversely, if the characteristics of those physicians likely to change from generalist to specialist were known, efforts could be targeted to increase their retention rate.

Our study addresses physicians' movements between specialist and generalist disciplines by examining physicians' self-reported primary and secondary specialties. Compared with previous work in this area, our study examines a larger number of specialties, with more recent and more complete data, and uses multivariate statistical methods to adjust for potential confounding factors. Also, in contrast to previous studies, we examine the age profile of physicians who make career changes over a very broad age range. Our study examines shifts in professional iden-

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tivity between 1982 and 1986. This period was chosen because it coincided with a quadrennial data collection effort and because it immediately preceded any deliberate, large-scale efforts to promote shifts to generalist practice.

Classification of physicians into particular specialties may be based on the physicians' preferences (what physicians say they wish to do), choices (what they actually do), or attainments (what they are trained or certified to do) (28, 29). The formulation of physician work force policy should ideally rest on what practicing physicians actually do, with respect to activities of a generalist or specialist nature. In keeping with theory regarding occupational identity (29) and with past studies of physicians (26), we rely on self-report of physician specialty—that is, what physicians say they do—for three reasons: 1) what physicians say they do is itself highly relevant to efforts to retrain them; 2) what they say they do is likely to be strongly correlated with what they actually do (especially for older, more established physicians); and 3) comprehensive data regarding the self-identified specialties of a complete national sample of physicians are available. Previous evidence supports the contention that some physicians, particularly generalists, reliably report the nature of their practices (30); nevertheless, the data used in our study are limited by the fact that we rely on physicians' self-reports of their specialties.

Methods

Data Source

Our data were obtained from the American Medical Association (AMA) Physician Masterfile, which contains information on all physicians practicing in the United States—whether or not they are members of the AMA—including graduates of foreign medical schools (31, 32).

A comparison of data regarding physicians practicing in 1982 and 1986 forms the basis of our analysis; data for individual physicians from the 1982 and 1986 files were linked. A cohort of 335 438 physicians was created from the 483 046 physicians in the Masterfile in 1982. Because we were interested in specialty changes made by physicians who were already trained and practicing in both years (that is, physicians who actually had the opportunity to change their specialties), we excluded physicians who were not in active practice in either 1982 or 1986 ($n = 73\ 102$) or who were students or residents in 1982 ($n = 69\ 380$). We also excluded physicians who had inconsistent data regarding their sex or birth year ($n = 1103$) or whose records lacked data on key variables ($n = 4023$). Most individuals (73%) who were excluded because they were not in active practice were greater than 60 years old in 1982. In 1982, the physicians in our cohort ranged in age from 24 to 77 years, with an average age of 45.6 years. The cohort is described further in Table 1.

The AMA Physician Masterfile contains information about variables such as age, sex, and board certification. It is supplemented by the results of a mail questionnaire, which is distributed to the entire physician population at 4-year intervals (questionnaires were distributed in 1982 and 1986). Physicians are asked to self-designate their primary, secondary, and tertiary fields of specialization. The primary specialty is the area to which the physician devotes most of his or her professional time (defined in the survey as "that [specialty] in which the most hours are spent weekly"). We use the term "secondary emphasis of practice" to refer to the fields of practice identified by physicians as either their secondary or tertiary specialties.

Concerned that the specialty information given by recently graduated physicians might not reflect the true nature of their practice as reliably as the specialty information given by more established physicians, we also conducted separate analyses for a subset of our cohort consisting of 278 167 physicians who had

Table 1. Characteristics of the Physician Cohort ($n = 335\ 438$)

Characteristic	Number (Percentage)
Sex	
Female	34 500 (10.3)
Male	300 938 (89.7)
Foreign graduate	
Yes	77 824 (23.2)
No	257 614 (76.8)
Board certification in 1982	
Yes	220 431 (65.7)
No	115 007 (34.3)
Practice setting in 1982	
Solo or joint	143 111 (42.7)
Group	65 800 (19.6)
Private hospital	24 013 (7.2)
Medical school	22 626 (6.7)
Government hospital	16 579 (4.9)
Military	13 813 (4.1)
Other	49 496 (14.8)
Specialty in 1986	
Generalist disciplines	130 650 (38.9)
General internal medicine	37 942
Family practice	26 842
General practice	22 283
Obstetrics and gynecology	21 607
General pediatrics	20 632
Geriatrics	737
General preventive medicine	607
Surgery	67 501 (20.1)
Subspecialty internal medicine	35 731 (10.7)
Psychiatry	25 880 (7.7)
Radiology	17 476 (5.2)
Anesthesiology	14 584 (4.3)
Pathology	9995 (3.0)
Emergency medicine	8304 (2.5)
Neurology	5342 (1.6)
Dermatology	5166 (1.5)
Subspecialty pediatrics	2998 (0.9)
Subspecialty gynecology	272 (0.1)
Other	11 539 (3.4)

graduated from medical school in 1974 or earlier. These physicians would probably have completed their training by 1982, should have been certain about their specialties, and should have reported them faithfully; that is, the specialties that these physicians self-identified should have stabilized and should have been more likely to accurately reflect the actual nature of their practices in each of the two surveys. The conclusions from these analyses strongly support the findings for the entire cohort, and so only the latter are presented here.

Definition of Specialty Change

To analyze the rates of mobility across specialties, the specialties must be categorized. The AMA Masterfile includes 85 self-designated specialty categories. The rate of mobility observed will vary with the number of specialties used: The more detailed the list of specialties, the greater is the observed rate of change. For example, if a detailed list of specialties is used, movement from oncology to immunology would constitute a change in specialty. On the other hand, if all subspecialties of internal medicine were aggregated into one category, this example would not be designated as a change.

We classified physicians into 13 categories (see Appendix), which we termed "broad" specialties: generalist disciplines, surgery, subspecialty internal medicine, neurology, subspecialty gynecology, pathology, subspecialty pediatrics, psychiatry, radiology, emergency medicine, dermatology, anesthesiology, and "other." For the physicians in the "other" category in 1986, the top three subcategories were as follows: Forty-one percent noted that they had a specialty not listed in the AMA survey, 20% were occupational medicine physicians, and 17% were public health phy-

Table 2. Source Specialties of Physicians Entering Generalist Disciplines and Destination Specialties of Physicians Leaving Generalist Disciplines

Specialty	Source Specialties of Physicians Entering Generalist Disciplines			Destination Specialties of Physicians Leaving Generalist Disciplines		
	Total	Complete Change	Change in Emphasis	Total	Complete Change	Change in Emphasis
	<i>number of physicians</i>					
Internal medicine specialty	1444	210	1234	3906	600	3306
Emergency medicine	842	356	486	1384	517	867
Surgery	464	284	180	272	136	136
Subspecialty pediatrics	188	48	140	572	158	414
Psychiatry	182	115	67	236	103	133
Pathology	180	135	45	67	33	34
Anesthesiology	128	78	50	266	122	144
Radiology	93	54	39	103	50	53
Neurology	41	14	27	98	34	64
Dermatology	21	10	11	90	29	61
Subspecialty gynecology	3	2	1	195	54	141
Other	736	220	516	1130	328	802
Total	4322	1526	2796	8319	2164	6155

sicians. We also analyzed specialty mobility using both the original 85 specialties and an intermediate classification of these into 38 specialties; however, because our study focused on broad movements in the physician work force, especially with respect to movement into and out of generalist disciplines, we do not here present these results, all of which reflected even higher rates of mobility than those reported here.

Analyzing rates of mobility across specialties using the AMA Masterfile requires an additional definition. The file contains physicians' primary, secondary, and tertiary self-designated specialties. Some physicians who changed their primary specialty between 1982 and 1986 switched to a field that was their secondary or tertiary specialty in 1982. In our cohort, 37% of the physicians listed a secondary specialty in addition to their primary one, and 7% listed a tertiary specialty as well. We therefore defined two types of mobility that together constitute overall specialty mobility: "complete specialty change" and "change in emphasis." "Complete specialty change" indicates that a physician adopted a primary specialty in 1986 that differed from his or her primary, secondary, or tertiary specialty in 1982. A "change in emphasis" occurred when the physician's new primary specialty in 1986 was the same as his or her secondary or tertiary specialty in 1982. In such cases, physicians were emphasizing areas already within their expertise, with a secondary area of specialization preempting a former principal interest. We thus examined the total rate of change between broad specialties along with the subordinate rates of complete change and change in emphasis.

Definition of Generalist Physicians

As shown in the Appendix, we define a "generalist" as a physician who practices one of the "primary care" specialties: general practice, family practice, general pediatrics, geriatrics, general preventive medicine, internal medicine without a listed subspecialty ("general internal medicine"), or obstetrics and gynecology. In keeping with the Clinton Proposal, we elected to include obstetrician-gynecologists as generalists. We chose not to include emergency medicine physicians because they typically do not provide the type of long-term longitudinal follow-up of patients envisaged by current reform proposals. We recognize that many generalist fields are technically specialties with their own training and certification requirements. We also note that additional analyses, not presented here, that were in keeping with some definitions of generalist disciplines (33, 34) and that excluded obstetrician-gynecologists from the generalist category, did not meaningfully alter our major findings.

Statistical Analysis

For logistic regression models, the dependent variable was whether or not a change in specialty occurred. The predictor

variables that were available in the Masterfile were age, sex, foreign medical graduate, previous board certification, indicators of different practice settings, and indicators of specialty. To calculate annualized, age-specific change rates, we assumed a constant rate of change over the 4-year period, a common demographic tool for estimating these rates from data with a longer time interval.

Results

Overview of Specialty Change

A total of 16 135 physicians in the cohort (4.8%) changed their broad specialty over the 4-year period between 1982 and 1986. More than one half of this mobility (56%) consisted of complete specialty changes and the remainder were changes in emphasis. Based on these figures, the annualized rate of specialty change is 1.2% per year, with 0.65% of physicians completely changing their self-defined broad specialties each year.

Physicians continue to change broad specialties throughout their careers. The data (not shown) indicate that the rate of complete specialty change per 4-year period decreases from 15% at age 30 to 2.5% at age 40 to 1.7% at age 44, and then remains approximately constant until age 69. Changes in emphasis per 4-year period, on the other hand, occur at roughly 2.5% from age 30 until age 69. Overall, only half of all changes in broad specialty occurring in the U.S. physician work force occur while physicians are between the ages of 30 and 39 years. The

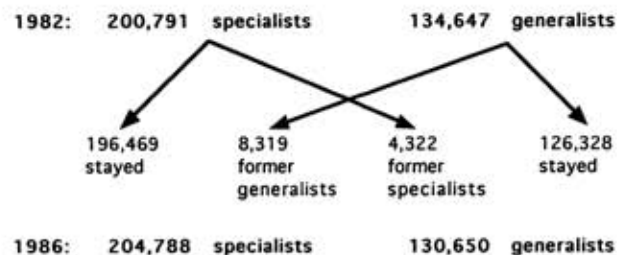


Figure 1. Overview of movement between specialist and generalist disciplines between 1982 and 1986 for a cohort of 335 438 physicians.

remaining half of the specialty changes occur at a nearly even annual rate over the rest of physicians' careers between the ages of 40 and 69 years.

Entry into and Departure from Generalist Disciplines

Of the 335 438 physicians in our cohort, 134 647 (40.1%) were generalists by our definition in 1982. By 1986, 8319 (6.2%) of the generalists had left generalist practice, 2164 by making a complete change and 6155 by making a change in emphasis. Of the 200 791 specialists in 1982, 4322 (2.2%) became generalists by 1986, 1526 by making a complete change in specialty and 2796 by changing emphasis. A summary of these changes is provided in Figure 1.

The 200 791 physicians who were specialists in 1982 may be divided into two groups. The first, consisting of 155 340 physicians (77.4%), did not list a generalist field as a secondary emphasis of their practices. The second, consisting of 45 451 physicians (32.6%), did list a generalist field as a secondary emphasis. Of the former group, 1526 (1.0%) switched to generalist fields by 1986. Of the latter group, 2796 (6.2%) switched to generalist practice by 1986. The difference in the proportion switching in the two groups is highly significant (Pearson $\chi^2 = 4461$; $P < 0.001$), supporting the conclusion that specialists who already list generalist disciplines as a secondary emphasis of their practice were much more likely to switch to those disciplines. Seen from another perspective, 2796 of the 4322 specialists who switched into generalist practice (65%) had previously listed a generalist discipline as a secondary focus of their practice.

By 1986, there was thus a net loss of 3997 generalists in the cohort, and the pool of generalists had decreased to 130 650 (38.9%). However, although there was a net overall decrease in generalists, not every constituent category of generalist practice experienced a decrease; specifically, there was a slight net increase in the number of general practitioners and geriatricians during the period studied (data not shown).

It is noteworthy that in addition to the 130 650 generalists in 1986, 49 226 physicians (14.7% of the whole cohort) listed generalist disciplines as a secondary emphasis of their practice. This group listed their primary specialties as subspecialty internal medicine (57.7%), surgery (7.2%), emergency medicine (6.9%), psychiatry (4.7%), subspecialty pediatrics (4.1%), radiology (2.5%), anesthesiology (2.3%), neurology (2.1%), dermatology (1.4%), pathology (1.3%), subspecialty gynecology (0.4%), and "other" (9.5%).

Table 2 shows details of movement into and out of generalist disciplines. Most of the physicians entering generalist disciplines came from the internal medicine subspecialties (1444 physicians), mostly through a change in emphasis (1234 physicians); that is, the physicians who made up the largest number of new generalist physicians had, 4 years earlier, been subspecialty internists who identified a primary care specialty as a secondary emphasis of their practice. Similarly, most of the generalists leaving generalist disciplines (3906 physicians) entered subspecialties of internal medicine, again, principally through a change in emphasis (3306 physicians). The predominance of internists among the physicians switching to generalist disciplines is not surprising because, in 1982, the pool of

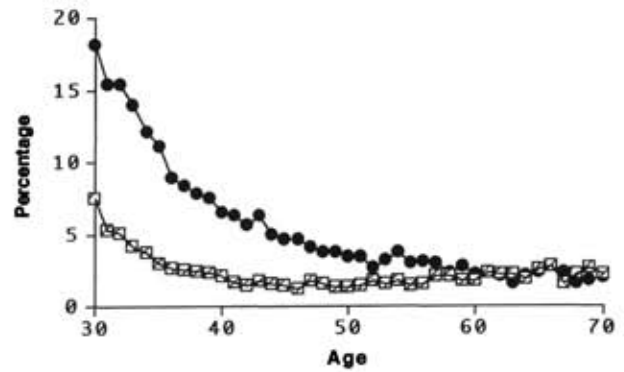


Figure 2. Percentage of physicians entering and leaving generalist disciplines by age. The graph illustrates the percentage of 200 791 specialists entering (□) and the percentage of 134 647 generalists leaving (●) generalist disciplines, by age, over a 4-year period from 1982 to 1986. Age is as of 1984.

subspecialty internists who might have switched to generalist practice was large. In relative terms, however, the proportion of subspecialty internists switching was small: Of the pool of 29 530 subspecialty internists in 1982, only 210 (0.07%) made a complete change to a generalist discipline. On the other hand, of 2651 subspecialty pediatricians in 1982, 48 (1.8%) had made a complete switch to a generalist discipline by 1986. Similarly, of 10 139 pathologists in 1982, 135 (1.3%) had made a complete change to a generalist discipline by 1986. And of 7731 emergency medicine physicians in 1982, 356 (4.6%) had made a complete change to a generalist discipline by 1986. For physicians leaving generalist practice, the most common destinations of those making a complete change were internal medicine subspecialties (600 physicians), emergency medicine (517 physicians), pediatric subspecialties (158 physicians), surgery (136 physicians), anesthesiology (122 physicians), and psychiatry (103 physicians).

Figure 2 shows the age distribution of those entering and leaving generalist disciplines. The tendency of younger physicians to enter generalist disciplines from other fields decreases from 7.5% per 4-year period to 2.0% per 4-year period by the age of 40 and then remains relatively constant. However, 58.4% of all moves by U.S. physicians into generalist specialties were accomplished by physicians between the ages of 40 and 69 years, who constituted 62.0% of the physician labor force. By comparison, the rate of departure from generalist disciplines decreases steadily with age and does not reach the plateau that characterizes entry. The relation between the likelihood of switching specialty and age could represent either a change with age or a cohort effect, whereby people entering medicine in different eras behave differently; it is not possible to distinguish the two using our data (35). The age pattern of changes shown in Figure 2 also reinforces the point made earlier that even if newly trained physicians (such as those less than 40 years of age) were excluded from the analysis, most changes in specialty would still occur; specialty mobility is not restricted to recent graduates who might be thought to waver in the self-report of their specialty.

Table 3 presents a multivariate logistic regression model predicting the odds of switching into generalist disciplines. After adjustment for other factors, women

Table 3. Risk Factors for Specialists to Switch to Generalist Disciplines*

Variable	Odds Ratio (95% CI)
Demographic variables	
Female sex	1.94 (1.48 to 2.55)†
Foreign graduate	1.66 (1.33 to 2.07)†
Age (ten year increment)‡	0.94 (0.85 to 1.05)
Certification	0.36 (0.28 to 0.45)†
Specialty	
Emergency medicine	6.58 (4.65 to 9.30)†
Pathology	3.23 (2.11 to 4.93)†
Subspecialty pediatrics	2.97 (1.51 to 5.85)†
Subspecialty internal medicine	1.51 (1.05 to 2.17)†
Dermatology	0.80 (0.29 to 2.26)
Anesthesiology	0.78 (0.47 to 1.31)
Radiology	0.69 (0.37 to 1.31)
Psychiatry	0.59 (0.37 to 0.96)†
Neurology	0.58 (0.21 to 1.64)
Other specialty	3.10 (2.10 to 4.57)†
Practice site	
Medical school	0.43 (0.25 to 0.73)†
Group	0.56 (0.38 to 0.83)†
Government hospital	0.61 (0.37 to 0.99)†
Solo or joint	0.72 (0.51 to 0.99)†
Other practice setting	0.98 (0.71 to 1.36)
Military	1.11 (0.68 to 1.80)

* A multivariate logistic regression model was used to predict the odds (with 95% CIs) of making the switch from specialist to generalist disciplines. Odds ratios greater than 1.0 imply an increased risk for switching. This model was evaluated on a one-in-four random sample of the 200 791 specialists practicing in 1982. All dichotomous variables were coded as 1 = present and 0 = absent; for sex, 0 = male and 1 = female. Omitted categories are "private hospital" for practice setting and "surgery" for specialty. The specialty "subspecialty gynecology" was merged into the omitted category of "surgery" because of the small number of physicians in "subspecialty gynecology."

† $P < 0.05$

‡ The reported odds ratio is for a 10-year increment in age.

were 94% more likely to switch into generalist disciplines than were men. When controlling for other attributes, age was not associated with switching to generalist disciplines. Previously certified physicians were 64% less likely to switch into generalist disciplines than those without certification, and graduates of foreign medical schools were 66% more likely to switch into generalist disciplines than were graduates of U.S. medical schools. Compared with surgeons, emergency medicine physicians were more than six times as likely, pathologists were three times as likely, subspecialty pediatricians were three times as likely, and subspecialty internists were 51% more likely to switch to generalist practice. Compared with surgeons, psychiatrists were 41% less likely to switch. Compared with physicians practicing in private hospitals, physicians in solo or joint practice were 28% less likely and those in group practice were 44% less likely to switch. In comparison to the foregoing model, physicians leaving generalist disciplines tended to be male, less than 40 years of age, and in hospital-based practice, and they typically moved to internal medicine subspecialties (data not shown).

Discussion

We have documented significant rates of interspecialty mobility. Every year, 1.2% of U.S. physicians take the major step of changing their broad specialty, 0.65% by making a complete change to a new one. Entry into com-

pletely new fields decreases until physicians are in their early 40s, after which rates of mobility remain relatively constant.

Because the number of physicians leaving generalist disciplines exceeded the number entering them, the proportion of generalist physicians in the cohort decreased from 40.1% to 38.9% during the study period. Nevertheless, a substantial number of specialists ($n = 4322$) swam against the tide and switched to generalist disciplines. Those specialists entering generalist specialties tended to be female, graduates of foreign medical schools, and located in hospital-based practices. They tended to come from internal medicine subspecialties, emergency medicine, pediatric subspecialties, and pathology. They were from across the entire age range.

Our findings have several implications for health care reform. First, change in broad specialty is neither impossible nor uncommon, even when a physician is more than 40 years of age. The significant proportion of physicians changing specialties suggests that retraining physicians might be a feasible means of reallocating physicians into generalist disciplines. Although physicians less than 40 years of age are more likely to switch, more than half of all changes to generalist practice in the U.S. physician work force are made by physicians who are more than 40 years of age. This is not surprising because physicians between the ages of 40 and 69 years account for 62.0% of the specialist physician labor force. Of course, older physicians may differ from younger physicians in many important, unmeasured attributes, such as the number of hours per year they devote to patient care.

Second, many physicians in specialty practice—14.7% of the cohort in 1986—list a generalist discipline as a secondary emphasis of their practices. These physicians, who appear more likely to switch to generalist disciplines than do other specialists, would be good targets of efforts to increase the number of generalists. Indeed, they account for 65% of all physicians in our cohort switching into generalist fields. Because provision of primary care by specialists has been criticized as potentially unduly costly (11, 12, 36) and fragmented (37, 38), those specialists who change their emphasis to generalist disciplines should also be targeted for continuing medical education to improve their primary care skills.

Third, because departures from generalist disciplines are more numerous than entries into generalist disciplines in this cohort, a strategy for decreasing the rate of departure from generalist specialties is also essential. A substantial number of primary care physicians leave generalist practice every year—a loss that, if stemmed, might rapidly boost the proportion of generalist physicians. Efforts might be targeted to male generalists less than 40 years of age, especially those in hospital practice.

Fourth, efforts to increase the influx of physicians into generalist practice might effectively and efficiently target populations who are apparently predisposed toward making such a shift: women, subspecialty internists, subspecialty pediatricians, emergency physicians, pathologists, and physicians in hospital-based practice. Because the primary care specialties have not traditionally been considered to have high prestige, the fact that many physicians with the foregoing characteristics changed their professional identities—from medical specialist to medical generalist—is noteworthy.

Our results must be interpreted with caution because we were obliged to rely on self-reported specialties. Nevertheless, our findings suggest that even before any systematic, external efforts to meet policy objectives by retraining physicians were implemented, a substantial fraction of physicians across the entire age range were willing to change their professional identities and stated practices. We believe that the observed prevalence of volitional change in professional self-definition provides an appropriate substrate for current efforts to change both what physicians say they do and what they actually do with respect to their practices. However, current efforts should not, in our opinion, unduly constrain the choices physicians make in their careers. Incentives to enter generalist disciplines rather than disincentives to leave are, in our opinion, more likely to succeed.

Our study has several additional limitations. First, our analysis is based on data from the mid-1980s and thus warrants replication using more recent data; this will be especially important once the proposed organizational and economic changes in U.S. health care delivery are implemented. Our data thus serve as a baseline. Second, defining who is a generalist is somewhat arbitrary and, indeed, many specialists provide some generalist care even if they do not consider themselves to be doing so. Data on hours devoted to various activities and on other practice parameters could add much needed detail to the results presented here regarding change in self-designated specialty. Third, we do not know the extent to which the changes in specialty that we observed were permanent. And fourth, we know nothing about the motivations of the physicians in this cohort who changed specialties.

Although the reasons why generalists switch to specialty practice—including attributes of generalist practice such as the inherent uncertainty (39), the lack of autonomy, the lack of control over work schedule, the high degree of patient contact, and the relatively low pay (40)—have been relatively well examined, the reasons why specialists become generalists are less well understood. Our results show that specialists voluntarily adopt new professional identities and that physicians with particular characteristics may be predisposed to join the ranks of generalists. Although these data can inform current proposals to enlarge the pool of primary care providers, more information on physician characteristics and on the dynamics of specialty fields from which the greatest outflows have occurred is needed. A better understanding of the complex interplay between cultural, occupational, economic, and individual factors that motivate physicians to leave one specialty and enter another is essential. Individual characteristics alone cannot account for the mobility patterns we have documented. In some cases, positive features of a given field, such as the regularity of work hours, may pull physicians toward it. Conversely, negative factors may push physicians away from a field. For example, women may opt to practice general medicine to escape discrimination or perceived discrimination in specialist fields. If this is indeed the case, efforts to achieve the proposed objective of having 50% generalists should not proceed without examination and modification of any adverse factors that might be at play.

An understanding of the reasons physicians change specialties in general, and move from specialist to generalist

disciplines in particular, is fundamental to our understanding of the physician labor supply. Although they are not a panacea, efforts to increase the proportion of generalist physicians have merit. The mobility between specialties could potentially be harnessed to achieve this objective of health care reform.

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Appendix

Broad Specialty	American Medical Association Detailed Specialty	(Continued)	
Generalist Disciplines	Family practice	Neurology	Child neurology
	General practice		Neurology
	General preventive medicine	Subspecialty Gynecology	Gynecologic oncology
	Geriatrics		Maternal and fetal medicine
	Internal medicine, no subspecialty listed	Pathology	Reproductive endocrinology
	Gynecology		Forensic pathology
	Obstetrics		Anatomical pathology
	Obstetrics and gynecology		Anatomical/clinical pathology
	General pediatrics		Bloodbanking
	Colon and rectal surgery		Clinical pathology
Surgery	Abdominal surgery		Chemical pathology
	Cardiovascular surgery		Dermatopathology
	General surgery		Immunopathology
	Hand surgery		Medical microbiology
	Head and neck surgery		Neuropathology
	Pediatric surgery	Subspecialty Pediatrics	Radioisotopic pathology
	Traumatic surgery		Adolescent medicine
	Vascular surgery		Neonatal-perinatal medicine
	Neurologic surgery		Pediatric endocrinology
	Ophthalmology		Pediatric hematology-oncology
Subspecialty Internal Medicine	Orthopedic surgery		Pediatric nephrology
	Facial plastic surgery		Pediatric allergy
	Otolaryngology	Psychiatry	Pediatric cardiology
	Plastic surgery		Child psychiatry
	Thoracic surgery		Psychiatry
	Urologic surgery	Radiology	Psychoanalysis
	Allergy		Diagnostic radiology
	Cardiovascular diseases		Nuclear medicine
	Gastroenterology		Nuclear radiology
	Allergy and immunology		Pediatric radiology
Diabetes		Radiology	
Diagnostic immunology	Emergency Medicine	Therapeutic radiology	
Endocrinology	Dermatology	Emergency medicine	
Hematology	Anesthesiology	Dermatology	
Immunology	Other	Anesthesiology	
Infectious diseases		Aerospace medicine	
Nephrology		Clinical pharmacology	
Nutrition		Legal medicine	
Oncology		Occupational medicine	
Rheumatology		Physical medicine and rehabilitation	
Pulmonary diseases		Public health	
Critical care medicine		Other specialty, not listed	