

Health Manpower for the Nation—A Look Ahead at the Supply and the Requirements

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IN THE MID-1960s, INCREASES IN THE NUMBER and capacity of the nation's health professions schools began to be reflected in sharply rising enrollments and graduates. By the early 1970s, the rise in the number of graduates of health professions schools had been transformed into major increases in the supply of health manpower. A substantially expanded educational pipeline is now in place and operating at near capacity. Even without further increases in enrollment, there will be a major expansion in the supply of health manpower in the 1980s, barring drastic reductions in the educational capacity of the nation's health professions schools. Although requirements for health manpower are also expected to rise, the current and projected output of the existing or firmly planned health professions schools should be more than adequate to meet the anticipated manpower requirements in most health professions by 1990. Overall, severe personnel shortages are not foreseen for any health discipline by 1990 and, in a few disciplines, the projected supply may exceed requirements, thus providing an oppor-

tunity to ameliorate or eliminate some instances of geographic and specialty maldistribution.

Assumptions and Caveats of the Projections

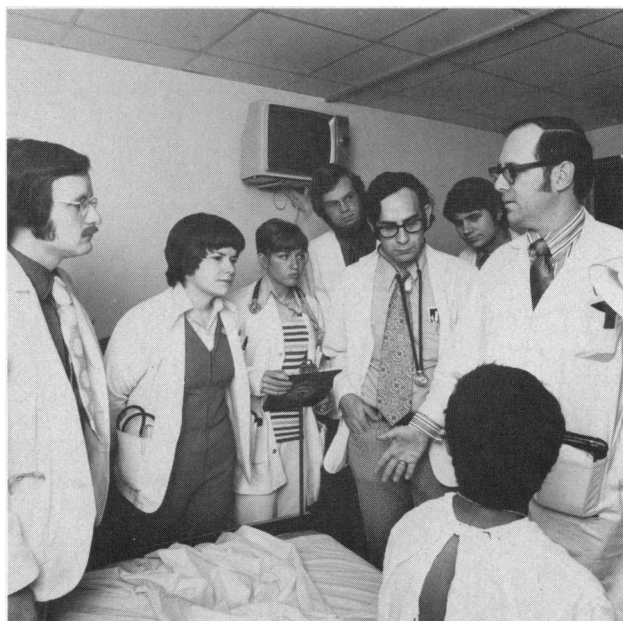
Much of the information in this paper is based on the work of the Bureau of Health Manpower in preparing the 1978 report to the President on the status of health professions personnel (1,2) and a report on the Nurse Training Act of 1975 (3). The projections of future supply and requirements were developed by the Bureau as part of its continuing activities in manpower analysis and research. The supply forecasts are based on estimates of currently active professionals, year-by-year separation rates for the existing supply, projected enrollments and graduates from U.S. schools (including student attrition) and, for physicians, a sharply reduced net inflow of foreign medical graduates (FMGs). Schools incorporated in the estimates of enrollment and graduates are those currently or soon to be in operation, and those firmly in the planning stage. An accompanying assumption is that this educational pipeline will not be reduced by significant financial or other disruptions; essentially the projections assume maintenance of current capacity and a continuation of current manpower and education patterns and trends.

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Estimates of requirements are essentially forecasts of the population's anticipated utilization of services translated into estimates of manpower. For most disciplines, services use patterns of individuals in 1975 (by age, sex, and family income in constant dollars) in various care settings were adjusted for long-term trends inherent in the current system. These long-term adjustments may include, depending on the profession, projections of price levels, private insurance coverages and co-payment, general nonprice trends toward increased care demands, other use factors, and productivity changes. The projections also assume that neither a shortage nor a surplus existed in the base year and that no profound or drastic changes will occur in the health care system by the target year. Most important, the estimates do not include the possible impact of a major comprehensive national health insurance program. Introduction of such a program would raise requirements well beyond the projected levels (4,5).

Whether a shortage of manpower currently exists nationally is a significant and unresolved issue. Although the evidence is strong that we may indeed have an inadequate national supply in a few health professions, the evidence is by no means conclusive. One indication of the shortages is the generally accepted view that the nation does have geographic maldistributions. If this is so, then the aggregate supply of health manpower is, in reality, inadequate, for whatever reasons, since there is no effective or acceptable way at present to shift practitioners from areas with a current surplus to areas with a shortage. Some other indications that an aggregate shortage may exist are high rates of return on educational investments, low unemployment or low nonprofessional unemployment, rising wages and incomes, continuing vacancies, heavy demand for school places, and rising costs of care. In a number of health professions, including medicine, podiatry, and dentistry, it might be said that there has been a slight shortage since the mid-1960s.

The projections offer a reasonable picture of what the balance of practitioner supply and requirements could be in the future, given the stated assumptions and a continuation of current trends and developments. They should be used with caution, however, for several reasons. One is the uncertain effects that a surplus of a specific type of health practitioner might have on demand and costs. Evidence is mixed, for example, as to whether physicians (and some other independent practitioners) appreciably generate demands for care or whether they respond to such demand. A sharply expanded supply, such as envisioned for most fields, could lead to high prices and provider-generated de-



mand, as providers attempt to maintain or increase their incomes in the face of declining demand per provider. In the response view, an expansion in the supply of providers compared to demand could lead to lower prices and smaller professional incomes (6).

Requirements for health professionals 10 or 15 years hence can not be known with certainty. Furthermore, no current method of projecting future requirements is without significant data and conceptual problems, and different analytical approaches often provide different end results. These problems are discussed in two recent Bureau publications (7,8).

To summarize, the supply and requirements projections presented are for the total United States and should properly be viewed as broad comparisons of future aggregate national supply with requirements that reflect patterns of care and supply-demand interactions and trends inherent in the basic system in the mid-1970s. Factors such as shortages or surpluses of physicians' services either by specialty, setting, or geographic location that may exist in the current system have in essence been carried through the projections, but possible basic changes in the system such as the institution of national health insurance or hospital cost controls have not been incorporated. Thus, the projections of supply and requirements show what the future manpower situation might be if developments and trends continue on their current course.

The following sections describe the anticipated manpower supply and requirements situation for the major health professions: medicine, dentistry, optometry, po-

HEALTH MANPOWER

Table 1. Health manpower supply and requirements for selected years, 1960-90

<i>Discipline and year</i>	<i>Supply (in thousands)</i>	<i>Ratio per 100,000</i>	<i>Requirements (in thousands)</i>
Physicians¹:			
1960	259.5	143.6	NA
1970	323.2	157.8	NA
1975	378.6	177.3	NA
1980	444.0	199.3	424.9-427.0
1985	519.0	221.7	481.0-492.0
1990	594.0	242.4	543.0-571.0
Dentists:			
1960	90.1	49.6	NA
1970	102.2	49.8	NA
1975	112.0	52.3	116.7
1980	126.2	56.8	132.5
1985	140.7	60.4	144.7
1990	154.5	63.4	153.7
Optometrists:			
1960	16.1	8.9	NA
1970	18.4	9.0	NA
1975	19.9	9.3	NA
1980	22.0	9.9	22.1
1985	24.4	10.4	24.0
1990	26.7	10.9	25.9
Podiatrists:			
1960	7.0	3.9	NA
1970	7.1	3.5	NA
1975	7.3	3.4	NA
1980	8.7	3.9	9.9
1985	10.5	4.5	12.8
1990	12.5	5.1	16.1
Pharmacists:			
1960	92.7	51.3	NA
1970	109.6	53.5	NA
1975	122.5	57.4	NA
1980	144.3	64.8	144.4
1985	165.2	69.5	166.4
1990	185.4	75.7	190.3
Veterinarians:			
1960	19.5	10.8	NA
1970	25.9	12.6	NA
1975	31.1	14.6	NA
1980	37.5	16.8	41.4
1985	45.6	19.5	46.3
1990	54.9	22.4	51.3
Registered nurses¹:			
1960	504.0	282.0	NA
1970	722.0	356.0	NA
1975	906.0	427.0	NA
1980	1,152.0	520.0	{1,027.0-1,127.0 1,155.0-1,326.0
1985	{1,345.0- 1,380.0	579.0	1,169.0-1,409.0
1990	{1,484.0- 1,587.0	616.0- 653.0	1,344.0-1,614.0 1,571.0-1,885.0

¹ Ranges shown represent the results of different models currently being evaluated. Numbers for registered nurses are as of Jan. 1.
Source: Bureau of Health Manpower.
Note: NA = not available.

diatry, pharmacy, veterinary medicine, nursing, and allied health disciplines. Estimates are provided for the base year 1975 and for 1980, 1985, and 1990. Two equivalent 15-year periods (1960-75 and 1975-90) are used to make the projected changes more understandable and compatible with earlier periods. Tables 1 and 2 summarize most of the relevant figures.

Physicians

The numbers of schools, enrollments, and graduates in medicine and osteopathy have grown dramatically since the early 1960s. First-year enrollments in allopathic and osteopathic medicine schools reached nearly 17,000 in academic 1976-77, up from less than 9,000 in the early 1960s. Similarly, the numbers of graduates in 1976-77, at almost 15,000, were twice the 1960 level.

The large increase in enrollments and graduates, coupled with the major influx of foreign medical graduates in the 1960s and early 1970s, brought the number of active physicians to 379,000 in 1975, a 46 percent (120,000) increase over the 1960 level. The physician to population ratio grew less rapidly, but still reached 177 per 100,000 in 1975 compared with 144 per 100,000 in 1960.

In the next decade, enrollments in U.S. medical and osteopathic schools will continue to rise, although at a much slower rate than in the recent past. Assuming maintenance of current capacity, small increases in enrollments in existing schools, and the addition of the few schools committed to open soon, the number of graduates may reach close to 20,000 a year by 1990. The continued growth in new graduates, however, will be partly offset by sharp drops in the supply of FMGs because of the restrictive provisions of the Health Professions Educational Assistance Act of 1976 (Public Law 94-484 as amended). The number of FMGs should increase only slightly in the coming years.

Reflecting these developments, the number of active physicians (MDs and DOs) is expected to rise significantly, reaching 594,000 in 1990 compared with 379,000 in 1975, an increase of 215,000 or 57 percent. The physician to population ratio (per 100,000) would increase from 177 in 1975 to 222 in 1985 and to 242 in 1990.

The number of physicians working in the primary care specialties—general practice, family practice, general internal medicine, and general pediatrics—are expected to become a larger component of the supply

of active physicians. Their numbers are projected to rise from about 140,000 in 1975 to somewhere around 240,000 in 1990. These estimates are preliminary and subject to change; they represent only a small increase in the proportion that the primary care specialties comprise of all physicians, however. It is important to note, too, that many physicians counted in this primary care category will later transfer to other specialties or to subspecialties of their initial choice and that many, currently in the primary care specialties, do not limit their practices to primary care services.

Requirements for physicians are also expected to increase in the coming years, with requirements in 1990 projected to range between 543,000 and 571,000. This estimate represents an increase of about 45 percent over 1975 supply levels. Despite these major increases in requirements, however, the even larger increases in the supply of physicians suggest that aggregate supply and requirements should be roughly in balance in the 1980s and that the supply of physicians may very well exceed requirements by 1990, unless some major development, such as introduction of national health insurance, should lead to sharply increased demands for care.

Dentists

Dental school enrollments and graduates will increase much less rapidly in the future than they did during the past decade and a half. Recent increases, due largely to Federal support for expansion of dental schools and for new school construction, are approaching a halt, and future enrollments should remain very close to the 1976-77 level. First-year enrollments are expected to increase only about 5 percent between 1975 and 1990, as compared with a 59 percent in-

crease over the 1960-75 period. The number of graduates is expected to stabilize by the early 1980s, reaching 5,400 in 1989-90, only a few hundred above the levels of the mid-1970s. By 1990, only 1 new dental school will be added to the 59 that were operating in 1976.

The numbers of active dentists (civilian and those in the military services) are projected to rise from 112,000 in 1975 to 141,000 by 1985 and to 155,000 by the end of 1990—a level of about 43,000 or 38 percent higher than that in 1975. This growth compares with a 24 percent increase in the previous 15-year period.

The projected increase in the number of dentists will likely result in a small improvement in the nation's dentist-to-population ratio. The national ratio of 52 active dentists per 100,000 population in 1975 is projected to increase to 60 in 1985 and to 63 in 1990. Between 1960 and 1975 the ratio had scarcely increased, although rising use of auxiliaries such as dental hygienists and dental assistants undoubtedly raised the quantity of dental services being provided during that period.

Requirements for dentists are projected to increase about in concert with their supply, with requirements reaching 145,000 in 1985 and 154,000 in 1990. It appears that the slight recent shortage of dentists could persist through 1980 and 1985; subsequently, the supply of dental services will likely catch up with the demand. Thus, if the current level of production of dental manpower is maintained, supply and demand are projected to come into balance in the late 1980s (1,9).

It is important to note, however, that the projections

Table 2. Changes in the supply of health manpower, selected years, 1960-90

Discipline	1960-75 changes			1975-90 changes		
	Number	Percent	Ratio	Number	Percent	Ratio
Physicians	119,000	46	23	215,000	57	37
Dentists	21,900	24	5	42,500	38	2
Optometrists	3,800	24	4	6,800	34	17
Podiatrists	300	4	-13	5,200	71	50
Pharmacists	29,800	32	12	62,900	51	32
Veterinarians	11,600	59	35	23,800	77	53
Registered nurses	402,000	80	51	¹ 578,000-681,000	64-75	44-53

¹ Ranges shown for requirements represent the results of different models currently being evaluated. Numbers are as of Jan. 1.

Source: Bureau of Health Manpower.

of demand do not allow for significant changes in the structure of the dental marketplace, such as the establishment of comprehensive dental benefits for the entire population under a national health insurance program. Such a program, if enacted, would have great potential for substantially increasing demand.

Optometrists

The supply of optometrists is expected to rise moderately in the coming years. First-year enrollments in schools of optometry have doubled since the early 1960s, with Federal legislation providing much of the impetus, but future growth should be much slower. The number of first-year enrollments is expected to be only about 1,200 in the 1985-86 school year, less than 100 above the current level. Graduates would reach about 1,000-1,100 by 1990, compared with 900 in 1975-76. The present 13 optometry schools in the United States will increase by only 1 by 1990.

The supply of active optometrists is expected to increase by about one-third between 1975-90, rising from 20,000 in 1975 to 24,000 in 1985 and to nearly 27,000 in 1990, or about 2 percent a year. However, the ratio of active optometrists per 100,000 population would thus increase only slightly, from 9.3 in 1975 to 10.9 in 1990. Over the 1960-75 period, the ratio of optometrists to population was essentially unchanged, edging up only from 8.9 per 100,000 in 1960 to 9.3 in 1975.

Although estimating the precise level of future requirements for optometrists is difficult, it is likely that the supply projected will be roughly in line with the number of optometrists required. A requirement for about 24,000 optometrists is projected for 1985 and 26,000 for 1990, about the same levels as the anticipated supply for those years. On the other hand, if either the optimum ratio of 14.3 optometrists per 100,000 or the ratio existing in the best-supplied State in 1975 were accepted as an appropriate standard, requirements would be greater than the anticipated supply.

Podiatrists

Among the health professions, only veterinarians are expected to surpass podiatrists in their rate of growth in the 1975-90 period. Although enrollments in schools of podiatry have grown extraordinarily since the early 1960s, future enrollment increases are expected to be small; only one new and firmly planned school will open. Enrollments of first-year podiatry students will likely remain at roughly the 1978-79 level, while the

number of graduates is expected to rise slightly, from about 500 a year currently to 600 a year by 1990.

The supply of active podiatrists is projected to grow from 7,300 in 1975 to 10,500 in 1985 and to 12,500 in 1990—a rise of 5,200, or 71 percent, between 1975 and 1990. This compares with a 15-year rise of only about 300 podiatrists between 1960 and 1975. The ratio of active podiatrists to population is projected to increase to 5.1 per 100,000 in 1990 compared with 3.4 in 1975. The ratio actually declined in the 1960-75 period. Even greater increases in podiatrists' productivity and services should occur, however, as many young podiatrists, whose productivity is higher than that of their older colleagues, enter the field and replace the older group.

Because the geographic distribution of podiatrists is markedly skewed toward large metropolitan areas and several practitioner groups other than podiatrists (such as orthopedic surgeons and general practitioners) also treat foot problems, it is particularly difficult to estimate future requirements for podiatrists or for others providing foot care services. Most measures of future requirements indicate that the projected supply of podiatrists may fall somewhat short of the numbers required, even if the foot care provided by orthopedic surgeons and general practitioners is included. The projections indicate that requirements for podiatrists may reach 13,000 in 1985 and 16,000 in 1990, well above the supply of 10,500 in 1985 and 12,500 in 1990. The currently perceived shortfall in podiatry may thus very well continue into the 1980s.

Pharmacists

Enrollments in schools of pharmacy doubled during the 1960s and early 1970s, although the number of schools actually declined from 76 in 1963-64 to 72 in the late 1970s. Currently, enrollments appear to be stabilizing, with little or no further growth expected, and with third-to-last year enrollments remaining at roughly the 1976-77 level. However, enrollments of women who comprise more than one-third of all pharmacy students are expected to continue to rise, leveling off in the 1980's at nearly one-half of all pharmacy enrollments.

The supply of active pharmacists grew by about one-third in the 1960-75 period, and is expected to grow by about one-half over the succeeding 15 years. The number is expected to rise from nearly 123,000 in 1975 to 165,000 in 1985 and to 185,000 by 1990, a total increase of approximately 62,000 pharmacists over the 15-year projection period. This total would

raise the pharmacist to population ratio (per 100,000) from 57 in 1975 to 76 in 1990, a much greater improvement than during the previous 15 years, when the ratio rose only from 51 to 57 per 100,000.

Indications are that the 1990 requirements for pharmacists should be close to the available supply. In view of the increasing proportion of women pharmacists expected to make up one-third of all these practitioners by 1990—many of whom will likely work on a part-time basis—and the variety of nonpharmaceutical tasks they perform, it is difficult to state with any certainty what the supply-demand situation will be in coming years. Most pharmacists are not independent practitioners and thus must rely on jobs created by employers, as do teachers and engineers, two groups of professionals whose employment situations changed quickly from shortage to surpluses in the early 1970s. Overall, the best judgment of the Bureau staff is that supply will be adequate to meet most levels of need by 1985. The picture is less clear for 1990, but again the best judgment seems to call for at least a balance and, perhaps, even a small surplus.

Veterinarians

Anticipated increases in the supply of veterinarians will likely be the largest among all the health professions. Their numbers are projected to rise from 31,000 in 1975 to 55,000 in 1990, an increase of 77 percent. This sizable increase in the supply of veterinarians is due largely to five new schools of veterinary medicine that are relatively certain of opening in the next few years and to the several that opened during the 1970s. First-year enrollments of the schools rose from about 1,000 in the early 1960s to 1,700 in the mid-1970s, and are expected to reach 2,600 by the late 1980s. The demand for admission to schools of veterinary medicine has been and is remaining very strong, with an application-to-acceptance ratio of around 6 to 1, more than double that of medical schools.

Estimates of requirements for veterinarians, obtained by separate analysis of each area of veterinary medicine practice (companion animal, food animal, meat inspection, teaching, research, and so on) indicate that total requirements are expected to reach 46,000 in 1985 and 51,000 in 1990. Thus, a balance is likely to occur in the mid-1980s, but the supply is likely to exceed requirements by 1990. However, the relative distribution of the supply of veterinarians between food and fur-bearing animal practitioners, who are currently scarce in many areas, and companion animal veterinarians raises major questions about the

adequacy of the supply of the most important group—the veterinarians who deal with food and fur-bearing animals.

Registered Nurses

In 1975 (all figures for nurses are as of January 1), there were 906,000 active registered nurses in the United States, an increase of 25 percent (184,000) over the level only 5 years earlier, and an increase of 80 percent (400,000) over the 1960 level. The increase in full-time equivalent (FTE) RNs was somewhat smaller; in 1975 there were an estimated 775,000 FTE RNs, an increase of about 69 percent over the 459,000 full-time equivalent RNs in 1960. The ratio of total RNs to population, which was about 427 per 100,000 in 1975, was up sharply from the 282 per 100,000 in 1960.

Admissions to schools of nursing more than doubled over the past 15 years, with admissions for baccalaureate and associate degrees growing rapidly and diploma school admissions declining. However, the number of RN graduates available for or seeking nursing employment is dependent on a host of factors, as is the number of RNs seeking less than full-time employment. While RN unemployment remains low nationally, there is evidence that new RN graduates are experiencing slightly more difficulty obtaining initial positions in some parts of the country than was the case earlier.

In the coming years, the supply of RNs is expected to continue to rise rapidly, reaching between 1.35 and 1.40 million by 1985, and between 1.5 and 1.6 million by 1990. The ratio may reach 650 per 100,000 by 1990, nearly half again as high as the 1975 ratio. (The lower projections reflect the impact of the withdrawal of present levels and types of Federal support, while the higher figures are based roughly on maintenance of present conditions and trends in graduations, including continuation of Federal support.)

Although a number of preliminary estimates of future requirements for RNs have been developed in several important studies supported by the Bureau's Division of Nursing, evaluation of these estimates is not completed. A preliminary evaluation, however, indicates that future requirements may be roughly in balance with future supply, although the range of requirements estimates, which vary by as much as 270,000 in 1985 and 310,000 in 1990, leaves the issue somewhat in doubt. However, the consensus appears to be that baccalaureate and graduate degree nurses

may well be in short supply in the 1980s, while the supply of diploma and associate degree RNs may be more than adequate.

Allied Health Professions

Although the future for the health professions may be described with a moderate degree of confidence, the adequacy of the aggregate supply of allied health manpower disciplines, both currently and in the future, is much more difficult to determine. This uncertainty reflects not only the large and growing numbers and types of workers in these occupations, but also the overall paucity of data on them.

Section 795 of the Health Professions Educational Assistance Act, as amended, has broadly defined allied health personnel to include "individuals with training and responsibilities for (A) supporting, complementing, or supplementing the professional functions of physicians, dentists, and other health professionals in the delivery of health care to patients or (B) assisting environmental engineers and other personnel in environmental health control and preventive medicine activities." Included in categories A and B are such personnel as clinical laboratory technologists and technicians, dietitians, medical records personnel, physical therapists, respiratory therapists, and speech pathologists. More than 100 occupational titles and as many as 250 secondary or alternate titles have been identified within the definitions given in the act.

In general, the current supply of most types of allied health manpower is believed to be relatively adequate nationally, largely reflecting the recent substantial increases in the number of graduates of training programs at the collegiate level. Between 1969 and 1975, the number of formal training programs for allied health professions at the collegiate level nearly doubled, and the number of graduates of such programs more than tripled, rising from 31,800 in 1970 to 104,200 in 1976. Nevertheless, the extremely limited evidence available indicates that supply shortfalls currently exist among personnel such as cytotechnologists, medical record administrators, occupational therapists, physical therapists, and respiratory therapists, and these shortfalls may continue in the years ahead.

Geographic and Specialty Distribution

Beyond the general topic of aggregate numerical supply and requirements figures nationally, there are continuing questions about the geographic adequacy of the future supply of health manpower. Will the rela-

tively greater supply of practitioners induce more health professionals to work in the rural and inner-city areas that are now underserved? Will it cause some to enter the medical specialties that are most in need of personnel?

Aggregate national manpower statistics, such as those presented previously, unfortunately serve to conceal significant disparities in distribution by specialty and geography. And, concern over the maldistribution of practitioners has intensified in the past few years as the total supply of manpower expanded markedly with only marginal improvements in the geographic distribution. These concerns are reflected in the Health Professions Educational Assistance Act of 1976, which deals rather substantially with ways of resolving physician and other health manpower geographic and specialty problems.

The supply of health practitioners seems to follow a general geographic pattern in which New England and the Middle Atlantic States have the most favorable supplies of practitioners relative to population and the Southern States the less favorable. There are also sharp differentials among counties and between metropolitan and nonmetropolitan areas of the nation. Metropolitan counties, especially those with large populations, have larger shares of all types of health professionals than their populations would indicate, and many inner cities and urban centers within metropolitan areas are largely underserved. The simplest and most often used criteria for evaluating geographic distribution are the differentials in gross manpower to population ratios, even though these measures do not necessarily correlate precisely with differentials in availability of services because specific practitioners differ in hours worked, number of patients seen, and other factors. Nevertheless, it is clear that there is a highly uneven distribution of physicians and other trained health manpower in the United States, whether the distribution is examined by region, State, county, or health service area.

Many Federal and State programs are now directed toward improving practitioner distribution. For example, Public Law 94-484 calls for substantial increases in National Health Service Corps (NHSC) scholarships, which are aimed at stimulating a more even geographic spread of primary care physicians, dentists, and other health workers in relation to population. Although identification of shortage areas is a difficult and still inexact procedure, shortage criteria developed by the Bureau of Health Manpower for the National Health Service Corps in late 1978 identified nearly 1,200 areas short of primary care physicians

and 500 areas short of dentists. These areas are eligible for placement of NHSC personnel, and a total of 7,125 primary care physicians and dentists would be needed to bring the practitioner to population ratio up to criteria and standards set by the Corps. To cope with this need, the NHSC had a field staff of only 930 physicians and 200 dentists in early 1978. For the other types of health manpower, the numbers of designated shortage areas are also substantial. Thus, given the past intractability of geographic distribution problems, the difficulties of measuring maldistribution, and the long lead time before provisions designed to alter the distribution of professionals now in training can have an impact, it appears that even the strengthened shortage area programs and related provisions enacted in Public Law 94-484 may not immediately resolve maldistribution problems.

In addition to geographic maldistribution, there are substantial disparities in distribution by specialty within disciplines, particularly the inadequate numbers of primary care physicians. The disparities in distribution of physician specialists, for example, resulted in the creation of the Graduate Medical Education National Advisory Committee (GMENAC), set up by the Secretary of Health, Education, and Welfare to study and make recommendations concerning an appropriate physician residency and specialty distribution. There are also indications of specialty distribution problems in the other health professions. For example, there appears to be an inadequate supply of veterinarians specializing in large animals and of RNs with baccalaureate and advanced degrees or with specialized training of various types.

The anticipated favorable aggregate national supply to requirements balances in 1990 in most disciplines, therefore, does not necessarily mean that geographic and specialty distribution problems will be resolved. To solve geographic inequities will require some leeway in the supply to encourage potentially excess health personnel to locate in areas that would not otherwise get the manpower required.

Education and Future Manpower Needs

What do these projections of supply and requirements portend for the future of the nation's educational institutions? The supply projections, which in general incorporate an assumption of no significant increase in the capacity of first-year enrollments in health professions schools, imply little further need to expand the number of schools or to increase enrollments within existing schools. The increases already in the pipeline and the educational system appear to be adequate to

bring about the projected large increases in supply; supply increases in the 1980s are nearly assured by the high first-year enrollment levels of the mid- and late 1970s. If the nation retains its current educational capacity and way of educating health professionals, and if no drastic and unforeseen changes in the health care system occur in the coming years, by 1990 the envisioned large increases in health manpower should bring requirements and supply for most health professions into a better balance than at any recent time in the nation's history.

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