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ABSTRACT

This report examines data on degrees conferred in the health professions and the absorption of these professionals into the economy. Overall, the number of degrees awarded in the health professions increased by 10 percent between 1984-85 and 1991-92. However, during the same period, the number of degrees conferred in all other fields increased by 19 percent. The two most popular degrees in the health professions in 1991-92 were nursing (47 percent) and medicine (8 percent). Nearly 77 percent of all health degrees awarded in 1991 92 went to women, and 82 percent went to white students. One year after graduation, 1989-90 recipients of bachelor's degrees in the health professions were more likely to find employment related to their field of study than recipients of bachelor's degrees in other fields of study. Freshman interest in pharmacy, therapy, and pre-professional health majors reached an all-time high in 1993, while their interest in nursing majors reached record levels in 1992. The U.S. Bureau of Labor Statistics projects that employment in the health professions will account for 12 percent of total job growth between 1992 and 2005. (MDM)

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Vital Signs for the Academy and the Health Professions

NANCY HORTON AND LINDA KNOPP

hile much attention has been focused on escalating health care costs, little study has been done recently on students in the health professions (see sidebar on page 2 for definition) and the role the higher education community plays in fulfilling the nation's demand for health professionals. 1 Overall, the number of degrees conferred in the health professions has increased during the past decade. This statistic reflects an increase in college students' interest in the health professions and a growth in health-related employment opportunities.

This brief examines data on degrees conferred in the health professions and the absorption of these professionals into the economy. How does the current number of degrees earned compare with the number awarded in the previous decade? How will employment in the health professions change over the next 10 years? What are the implications of these changes for higher education and society?

All data on degrees conferred are drawn from the U.S. Department

Nancy Horton interned as a Research Analyst and Linda Knopp is a Research Analyst in the Division of Policy Analysis and Research at the American Council on Education (ACE). of Education's Integrated Postsecondary Education Data System (IPEDS) surveys (1991–92) and their predecessor, the Higher Education General Information Survey (HEGIS) (1984–85). All data are for degrees conferred at colleges and universities in the 50 states and the District of Columbia.

Degrees Conferred

This section examines the number of degrees conferred in the health professions at the associate, bachelor's, master's, doctoral, and first-professional² levels in 1991–92. When possible, these data are compared to degrees awarded in 1984–85.³

HIGHLIGHTS

- Overall, the number of degrees awarded in the health professions increased by 10 percent between 1984–85 and 1991–92. However, during the same period, the number of degrees conferred in all other fields increased more (by 19 percent).
- The two most popular degrees in the health professions in 1991–92 were nursing and medicine (M.D.). Nearly half (47 percent) of all health degrees awarded were in nursing, and 8 percent were in medicine.
- More than three-quarters (77 percent) of all health degrees awarded in 1991–92 were awarded to women.
- A majority (82 percent) of the health degrees awarded in 1991–92 went to white students.

- One year after graduation, 1989–90 recipients of bachelor's degrees in the health professions were more likely to find employment related to their field of study and to earn higher salaries than recipients of bachelor's degrees in other fields of study.
- Freshman interest in pharmacy, therapy, and pre-professional health majors reached an alltime high in 1993, while their interest in nursing majors reached record levels in 1992.
- The U.S. Bureau of Labor Statistics (BLS) projects that employment in the health professions will account for 12 percent of total job growth between 1992 and 2005. During this period, such positions will increase by 42 percent (from 7.4 million to 10.5 million).



DEFINITION OF HEALTH PROFESSIONALS

n this report, "health professions" include chiropractic (D.C., D.C.M.), communication disorder sciences/ services (e.g., speech pathology/audiology), community health services, dentistry (D.D.S., D.M.D.), dental services, diagnostic/treatment services (e.g., emergency medical technicians), health aides, health/medical administrative services, health/medical assistants, laboratory technologies/technicians, medical sciences (e.g., nutrition, physiology), medicine (M.D.), mental health services, nursing, optometry (O.D.), optometric services, osteopathic medicine (D.O.), pharmacy, podiatry (D.P.M., D.P., Pod.D.), pre-professional health programs

(e.g., pre-medicine, pre-dentistry), public health, rehabilitative/therapeutic services (e.g., physical/occupational therapy), veterinary medicine (D.V.M.), and veterinary services.

This listing is based on the 1990 version of the U.S. Department of Education, National Center for Education Statistics (NCES) Classification of Instructional Programs (CIP). This system collapses the more than 400 specific study areas into approximately 40 divisions. Health professions is one of these divisions. The CIP system is used in all NCES surveys as the accepted standard on programs for education information surveys.

Total Degrees Conferred

Overall, the health professions ranked third (after business and education) in degrees awarded by field in 1991–92.

- Approximately 194,000 (9.2 percent) of the 2.1 million degrees awarded were in the health professions (Figure 1).
- Business topped all fields with 427,951 degrees (20.4 percent), followed by education with 217,805 degrees (10.4 percent).

Since 1984-85, the number of degrees awarded in the health professions has increased, although more slowly than degrees in all other fields.

- Durit, ne period, the number of degrees awarded in the health professions increased by 10 percent, from 175,762 to 193,874.4
- The number of earned degrees in all other fields increased by 19 percent, from 1,606,149 to 1,914,553.
- Degrees in the health professions accounted for 9.2 percent of all degrees awarded in 1991–92, down from 9.9 percent in 1984–85.

Differences by Academic Level

While degrees in the health professions accounted for 9 percent of all degrees conferred in 1991–92, they made up an even greater proportion of some levels (Figure 1). Degrees in the health professions accounted for:

- 16 percent of all associate degrees.
- 5 percent of all bachelor's degrees.

- ♦ 7 percent of all master's degrees.
- 4 percent of all doctoral degrees, and
- 38 percent of all first-professional degrees.

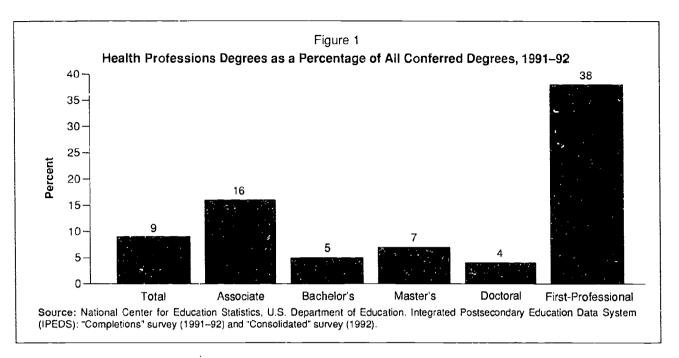
Most degrees in the health professions were awarded at the undergraduate level.

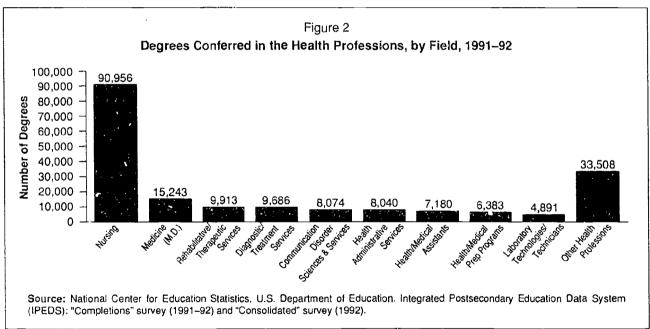
- Forty-one percent (79.453) of the degrees awarded in the health professions were associate degrees, and 32 percent (61.720) were bachelor's degrees.
- First-professional degrees accounted for 14 percent (27.975 degrees).
- Master's degrees (23.065) and doctoral degrees (1.661) accounted for the smallest proportion of health degrees (12 percent and 1 percent, respectively).

Although the majority of health degrees are awarded at the undergraduate level, graduate degrees experienced the most rapid growth between 1984–85 and 1991–92.

- ♦ The number of master's degrees awarded in the health professions grew by 35 percent, from 17,062 to 23,065.
- ▶ Doctoral degrees in the health professions increased by 42 percent, from 1.172 to 1,661.
- By contrast, the number of bachelor's degrees awarded in the health professions decreased by 2 percent (from 63,289 to 61,720), and the number of first-professional health degrees dropped by 1 percent (from 28,375 to 27,975).

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Differences by Field of Study

Nursing continues to be the most popular field of study in the health professions, followed by medicine (M.D.) (Figure 2).

- Forty-seven percent (90,956 degrees) of all degrees awarded in the health professions in 1991–92 were in nursing.
- Medicine accounted for 8 percent, or 15,243 degrees.

While degrees in nursing topped all other health professions in both 1984–85 and 1991–92, there have been shifts in the types of degrees awarded in the field.

- During the period, nursing degrees increased by 10.5 percent, led by a 30 percent jump at the graduate level and a 25 percent increase at the associate level.
- Bachelor's degrees in nursing decreased by 10 percent.



Increases in the number of associate and graduate nursing degrees can be traced to efforts by the health care industry to cut costs.

As the health care industry becomes more cost conscious, many hospitals are scaling back nursing staffs in favor of lower-paid (associate-level) technicians. At the same time, highly trained nurses (post-baccalaureate level) are more in demand to do some of the work that traditionally has been done by physicians (Henneberger, 1994).

Degrees awarded in medicine declined during the late 1980s and early 1990s, after reaching record levels in 1984-85.

- Degrees in medicine reached an all-time high of 16.041 in 1984–85. This number dropped by 5 percent (to 15,243) in 1991–92.
- A study published recently in the Journal of the American Medical Association projected that even if the government does not enact health care reform, by the year 2000, 550,400 doctors will practice medicine in the United States 165,000 more than the country will need. This total is projected to include 376,000 specialists 151,000 more than will be required.

Although degrees in nursing and medicine accounted for more than half (55 percent) of all degrees awarded in the health professions in 1991–92, many degrees also were

awarded in other health service fields (Figure 2, page 3). These fields included:

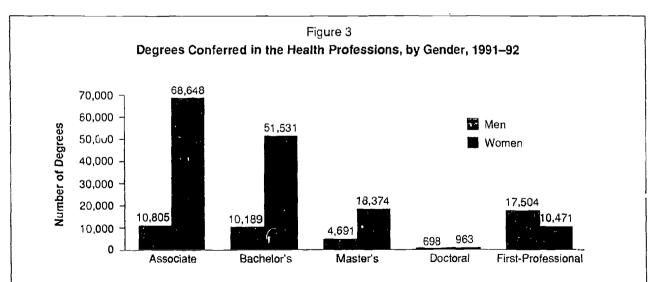
- Rehabilitative/therapeutic services (9.913 degrees).
- Diagnostic/treatment services (9.686 degrees).
- Communication disorder sciences and services (8,074 degrees),
- Health/medical administrative services (8.040 degrees),
- Health/medical assistants (7,180 degrees),
- Pre-professional health programs (6,383 degrees), and
- ▶ Laboratory technologies/technicians (4,891 degrees).

The remaining 33,508 degrees were distributed among the other health profession fields of study identified by NCES.

Differences by Gender

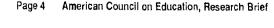
Women earned more than three-quarters (77 percent) of all health degrees in 1991–92, including a majority at all academic levels except the first-professional level (Figure 3). Women received:

• 86 percent of the associate-level health degrees (68,648 degrees).



Note: The totals shown here are higher than the totals in Table 1 (page 6) because they include degrees for which the race/ethnicity of recipient was not reported.

Source: National Center for Education Statistics, U.S. Department of Education. Integrated Postsecondary Education Data System (IPEDS): "Completions" survey (1991–92) and "Consolidated" survey (1992).





- 83 percent of the baccalaureate-level health degrees (51,531 degrees),
- 80 percent of the master's-level health degrees (18.374 degrees),
- 58 percent of the doctoral-level health degrees (963 degrees), and
- 37 percent of the first-professional-level health degrees (10,471 degrees).

Women have made significant gains in health degrees earned at all academic levels except the bachelor's level since 1984–85:

- Associate degrees increased by 18 percent, from 58,106 to 68,648,
- ▶ Bachelor's degrees decreased by 4 percent, from 53,755 to 51,531,
- Master's degrees grew by 41 percent, from 13.010 to 18.374.
- Doctoral degrees jumped by 56 percent, from 616 to 963, and
- First-professional degrees increased by 26 percent, from 8,320 to 10,471.

For men, the number of degrees awarded in the health professions has increased at all academic levels except the first-professional level:

- Associate degrees jumped by 39 percent, from 7.758 to 10.805.
- Bachelor's degrees increased by 7 percent, from 9,534 to 10,189,
- Master's degrees grew by 16 percent, from 4,052 to 4,691.
- Doctoral degrees rose by 26 percent, from 556 to 698, and
- First-professional degrees *decreased* by 13 percent, from 20,055 to 17,504.

Differences by Race/Ethnicity

A majority (82 percent) of degrees conferred in the health professions in 1991–92 went to whites, while

6 percent were awarded to African Americans, 3 percent to Hispanics, 4 percent to Asian Americans, 1 percent to Native Americans, and 2 percent to non-resident aliens (Table 1).⁵ Both whites and minorities received more degrees in the health professions in 1991–92 than they did in 1984–85.

- The number of health degrees awarded to whites increased by 3 percent, from 153,559 to 158,638.
- Racial/ethnic minority groups (including non-resident aliens) received 39 percent more health degrees (from 22,203 to 30,782).

The number of degrees awarded in the health professions also increased for each racial/ethnic minority group, as highlighted below:

- ♦ African American recipients increased by 19 percent, from 10,339 to 12,310,
- ♦ Hispanic recipients increased by 31 percent, from 4.581 to 5.981.
- The number of Asian Americans receiving degrees jumped by 97 percent, from 3,827 to 7,523,
- Native American recipients increased by 28 percent. from 858 to 1,098, and
- Degrees awarded to non-resident aliens increased by 49 percent, from 2,598 to 3,870.

The Outlook for Recent Graduates

Recipients of bachelor's degrees in the health professions are more likely to find employment in their field of study and generally earn higher salaries than recipients of bachelor's degrees in all other fields of study, the U.S. Department of Education's 1991 Recent College Graduate survey indicates. This study summarized the occupational and educational experiences of 1989–90 recipients of baccalaureate degrees one year after they graduated.⁶

Employment Rate of Recent Baccalaureate Graduates

Health profession graduates were more likely to be employed one year after graduation than graduates in all other fields.

The unemployment rate for health profession graduates in 1991 was 1 percent, which was significantly lower than the average for all other majors (5.1 percent).



Table 1 Degrees Conferred in the Health Professions, by Race/Ethnicity, 1991-92

	Whites	African Americans	Hi sp anics	Asians	Native Americans	Non- Resident Aliens	Race/ Ethnicity Unknown	Total
Associate	66,445	5,737	2,637	1,611	545	642	1,686	79,303
Men	8,337	706	558	349	94	123	633	10,800
Women	58,108	5,031	2,079	1,262	451	519	1,053	68,503
Bachelor's	51,328	4,151	1,636	2,229	326	863	1,167	61,700
Men	8,230	530	325	541	61	248	243	10,178
Wornen	43,098	3,621	1,311	1,688	265	615	924	51,522
Master's	18,464	1,092	537	709	90	1,310	788	22,990
Men	3,399	171	135	215	23	539	172	4,654
Women	15,065	921	402	494	67	771	616	18,336
Doctoral	1,116	43	25	65	3	359	50	1,661
Men	373	14	14	32	0	239	27	699
Women	743	29	11	33	3	120	23	962
First								
Professional	21,285	1,287	1,146	2,909	134	696	506	27,963
Men	13.584	604	742	1,718	76	472	308	17,504
Women	7,701	683	404	1,191	58	224	198	10,459
TOTAL	158,638	12,310	5,981	7,523	1,098	3,870	4,197	193,617
Men	33,923	2.025	1,774	2,855	254	1,621	1,383	43,835
Women	124.715	10,285	4,207	4,668	844	2,249	2,814	149,782

Note: The totals shown here are lower than the totals in Figure 3 (page 4) because they do not include degrees received by individuals whose race/ethnicity was not reported.

Source: National Center for Education Statistics, U.S. Department of Education. Integrated Postsecondary Education Data System (IPEDS): "Completions" survey (1991-92) and "Consolidated" survey (1992).

Occupations of Recent Baccalaureate Graduates

Health profession graduates were more likely than graduates in other fields to find employment related to their field of study.

- Ninety-five percent of employed health profession graduates held jobs related to their field of study; the average for all other majors was only 69 percent.
- The percentage of employed graduates who reported that their jobs had career potential ranged from a high of 92 percent for health profession majors to a low of 60 percent for history majors.

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Average Salaries of Recent Baccalaureate Graduates

Graduates in the health professions ranked first in salary (Figure 4).

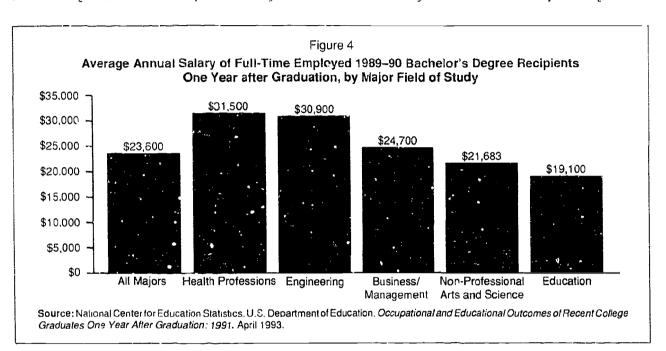
- Health profession graduates had the highest average full-time salary (\$31.500) in 1991. However, average salaries for female graduates were lower than for males (\$30,900 vs. \$33,900).
- In the U.S. Department of Education's 1985 and 1987 Recent College Graduate surveys, health profession majors ranked second in salary, after engineering majors.

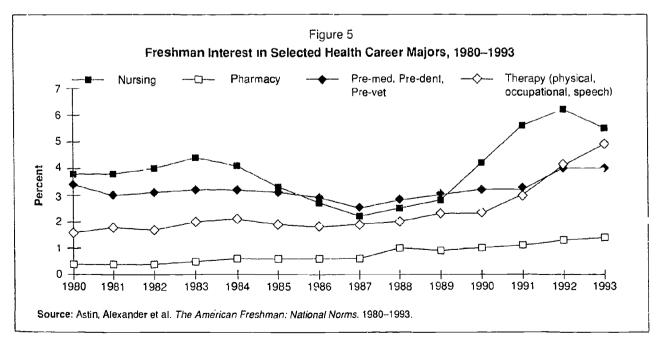
Future Trends

Although predicting the actual number of degrees that will be conferred in the health professions over the next few years is impossible, analyzing the degree aspirations of 1993 full-time freshmen provides some clues. *The American Freshman* survey, conducted by the Higher Education Research Institute at the University of California, Los Angeles, gathers data on freshman degree aspirations, which have been reliable indicators of the fields in which bachelor's degrees are conferred. Aspirations to major in

health-related fields reached all-time highs in 1992 and 1993 (Figure 5); therefore, the number of degrees conferred in the health professions also may reach record levels in the next few years.

- From 1980 to 1987, freshman interest in nursing and pre-professional health majors decreased, while interest in pharmacy and therapy majors remained constant.
- However, from 1988 to 1993, freshman interest in health majors increased considerably, reaching record







levels in 1993 for all majors except nursing. The share of freshmen interested in nursing declined, from a high of 6.2 percent in 1992 to 5.5 percent in 1993.

Employment Projections: 1992-2005

The Bureau of Labor Statistics projects that employment in the health professions will account for 12 percent of total job growth between 1992 and 2005. During this period, the number of people employed in the health professions is projected to increase by 42 percent, from 7.4 million to 10.5 million, while the number who work in non-health professions will rise by 20 percent, from 113.8 million to 137 million.

BLS projections assume that the demand for health care services will rise as new medical technologies permit intervention for conditions previously undiagnosable or untreatable, and as the U.S. population ages. If these projections prove to be accurate, increases in employment opportunities may trigger a further increase in the number of degrees conferred in the health professions.

Thirty-eight percent of the U.S. population will be over the age of 45 by 2005, compared with about 31 percent in 1990 (BLS. Occupational Outlook Quarterty, Fall 1993).

Projected Growth of Health Care Industries

BLS projects that employment in certain health care industries will grow faster than others between 1992 and 2005 (Figure 6).

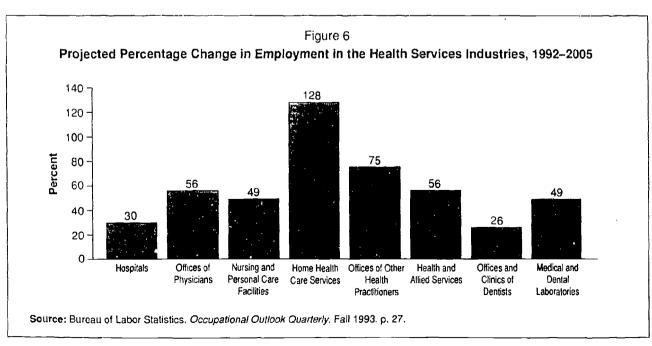
- The fastest growing health care industries are projected to be home health care services and offices of health care practitioners other than physicians. This growth reflects efforts by health care industries to control costs by using more outpatient and home care services.
- Hospitals will grow more slowly than other health industries, but they still will account for about onethird of the job growth in the health industry.

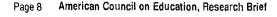
BLS provides two indicators of future employment levels over the 1992–2005 period: (1) numerical changes in employment, and (2) percent changes in employment. Information on numerical changes provides an absolute n.easure of projected job gains or losses over the 13-year period, while data on percent changes measure the rate of change in employment.

Projected Numerical Growth

Nursing and therapy occupations are projected to have the largest increase in employment⁷ among the health professions. By 2005, projections indicate there will be:

- 765,000 new registered nurse positions.
- 616.000 new nursing aide and psychiatric aide positions,
- 261,000 new licensed practical nurse positions, and
- 201,000 new therapy positions.8







- Most of these professions require at least some postsecondary education. Registered nurses and therapists usually must have at least a bachelor's degree, while most licensed practical nurses must have an associate degree. Nursing and psychiatric aide positions require either postsecondary or on-the-job training.
- Registered nurses are projected to have the second highest numerical growth in employment (765,000 new positions), surpassed only by those in the retail sales occupation (786,000 new positions).

Projected Percentage Growth

Although health occupations with a large percentage growth provide services that are increasingly in demand, they may not necessarily generate a large number of position openings. For example, a modest percentage increase in employment in a large occupation may result in many more job openings than a large percentage increase in a small occupation.

- Over the 1992–2005 period, three of the 10 fastest growing occupations requiring a bachelor's degree or more are tied to the health services industry:
 - Physical therapists (88 percent growth; 79,000 new positions),
 - Occupational therapists (60) percent growth;
 24,000 new positions), and
 - Speech-language pathologists and audiologists (51 percent growth; 37,000 new positions).
- Seven of the 10 fastest growing occupations requiring some postsecondary training or extensive employer training are in health-related occupations:
 - Physical and corrective therapy assistants and aides (93 percent growth; 57,000 new positions).
 - Occupational therapy assistants and aides (78 percent growth; 9,000 new positions),
 - Medical assistants (71 percent growth; 128,000 new positions).
 - Radiologic technologists and technicians
 (63 percent growth; 102,000 new positions),
 - Medical records technicians (61 percent growth;
 47,000 new positions),

- EEG technologists (54 percent growth; 3,400 new positions), and
- Nuclear medicine technologists (50 percent growth; 6,100 new positions).
- Home health aide is projected to be the fastest growing health occupation between 1992 and 2005, with 479,000 new positions (138 percent growth). Home health aides usually are required to have a high school diploma.

Conclusion

Over the past decade, the number of degrees conferred in the health professions has risen steadily, mirroring the increase in employment opportunities in the health professions that has been brought about, in part, by the aging of the U.S. population and technological advances in medicine. Recent health graduates have benefited from an increased demand for their services; they have been able to pursue high-paying and challenging health-relact careers immediately after graduation.

Projections indicate that employment opportunities in the health professions will continue to grow, although at faster rates for certain occupations, such as nursing and therapy, than for others. These disparities may trigger changes in the numbers and types of degrees conferred in the health professions in the decades to come,

Academic administrators are best able to plan for the future if they have a clear understanding of current and projected educational and occupational trends. By anticipating changes in the demand for certain professionals in the health care industry, administrators may prepare for changes in the types of training and skills required of their graduates in the marketplace. Knowledge of the health care industry is becoming increasingly important in light of the major changes in this field that will occur if national health care legislation is enacted by Congress,

Endnotes

¹ The actual number of degrees conferred in the health professions in any given year does not correlate directly with the number of health professionals who enter the workforce. Previously trained professionals may re-enter the workforce at any time, and new graduates may continue their education or be voluntarily or involuntarily unemployed. A 1991 survey of 1989–90 bachelor's degree recipients one year after graduation found that 2 percent of health profession graduates were unemployed but looking



for work, 5 percent were voluntarily unemployed *and* enrolled in further education, and 1 percent were voluntarily unemployed.

² First-professional health degrees include chtropractic (D.C. or D.C.M.), dentistry (D.D.S. or D.M.D.), medicine (M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (Pharm.D.), podiatry (Pod.D., D.P., or D.P.M.), and veterinary medicine (D.V.M.).

³ Data comparable to those gathered by current IPEDS surveys were not available prior to 1984-85.

⁴ Data for 1984–85 do not include awards to individuals whose race/ethnicity was not reported and could not be imputed — approximately 2.5 percent of the total.

⁵ This race/ethnicity analysis excludes counts of degree recipients whose race/ethnicity was unknown in 1984–85 and could not be imputed; and in 1991–92, reported as unknown. These figures may, therefore, not match other published data.

⁶ The 1991 Recent College Graduates Survey involved a sample of 18,000 graduates of 400 bachelor's and master's degree—granting institutions. The graduates consisted of 16,000 bachelor's degree recipients and 2,000 master's degree recipients who received their degrees between July 1, 1989, and June 30, 1990. The major fields of study evaluated in the study include health professions, education, business/management, engineering, public affairs/ social services, social sciences, math/computer sciences/ physical sciences, humanities, psychology, history, and biological sciences.

Numerical employment growth measures the absolute number of projected job gains or losses. These jobs may be filled by either newly trained or previously trained professionals.

⁸ Therapy positions include occupational, physical, recreational, respiratory, and all other therapy positions, as well as speech-language pathologists and audiologists.

Resources

The National Center for Education Statistics (NCES) collects information on degrees conferred by academic level, race/ethnicity, gender, and major field of study through its Integrated Postsecondary Education Data System (IPEDS) "Completions" and "Consolidated" surveys. Prior to 1985–86, these data were collected as part of the Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards

Conferred." Data may be obtained on magnetic tape or on diskette from NCES; for further information, contact Frank Morgan at (202) 219-1779.

NCES also conducts periodic surveys on the occupational and educational experiences of recipients of baccalaureate and master's degrees one year after graduation. Recent College Graduate (RCG) studies were conducted in 1976, 1978, 1981, 1985, 1987, and 1991. Copies of RCG data tapes are available from Peter Stowe. U.S. Department of Education, National Center for Education Statistics, 555 New Jersey Ave., NW, Room 321, Washington, DC 20208-5652, (202) 219-1363.

The Higher Education Research Institute at the University of California, Los Angeles, conducts an annual survey of first-time, full-time freshmen. The information is collected by institutional type and control, with data tabulated for all freshmen and separately for women and men. In 1991, a compilation of 25-year trends was published. For further information, contact the Higher Education Research Institute, Graduate School of Education, 320 Moore Hail, University of California, Los Angeles, CA 90024-1521, (310) 825-1925.

The Bureau of Labor Statistics biennially develops projections that include data on the labor force categorized by age, sex, and race/ethnicity, and changes in employment by occupation. These projections usually are published in a special issue of the *Monthly Labor Review*. For further information, contact the Bureau of Labor Statistics at (202) 606-5900.

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