NC Rural Health Research & Policy Analysis Center

A Rural-Urban Comparison of Allied Health Average Hourly Wages

Final Report No. 96

January, 2009

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This project was funded by the federal Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services through cooperative agreement #5-U1CRH03714-04-00.

Executive Summary

Allied health occupations play a major role in health care delivery and comprise a significant proportion of the health care workforce in the United States. Most allied health professionals are high school graduates who receive on-the-job training or two-year associate degrees from community college programs. A small subset are educated at four-year institutions, graduating with Bachelors, Masters, or Doctoral level terminal degrees.

Nationwide, demand for allied health services is projected to grow significantly in the next several decades, and there is evidence that allied health shortages already exits in many states. Given the longstanding history of health professional shortages facing rural areas, there are concerns that the existing and impending shortages in allied health professions may be particularly acute in rural areas**.**

To assess whether rural areas are potentially at a recruiting disadvantage because of relative wages, this final report uses data from the Bureau of Labor Statistics to describe the extent to which rural-urban differentials exist in wages for eleven allied health professions, focusing on professions that are both likely to be found in rural communities and have adequate data to support hourly wage estimates. Data are presented for the following eleven allied health professions: occupational therapists, physical therapists, radiation therapists, respiratory therapists, pharmacy technicians, radiation technicians, respiratory technicians, dental hygienists, speech pathologists, medical/clinical laboratory technicians and medical/clinical laboratory technologists.

Key findings:

- The national average wage of each of the 11 allied health professions is higher in metropolitan than nonmetropolitan areas.
- On average, the rural hourly wage is 12% less than the urban wage, although the extent of the difference varies by profession and by geographic area.
- In the few instances where for a census division, a profession has a higher wage in nonmetropolitan areas, the difference between the metropolitan and nonmetropolitan wage is minimal.
- For the vast majority of allied health professions, the hourly wage is higher in metropolitan areas.
- The Middle Atlantic and New England census divisions have the highest wage discrepancies, with metropolitan workers earning an average of $3.84 and $2.96 more per hour respectively.
- The census divisions with the lowest wage discrepancies are the East South Central (with an average difference of $1.10 per hour between metropolitan and nonmetropolitan workers), and Mountain (an average wage difference of $1.52).

These data are presented for informational purposes only. Neither the causes or implications of the observed wage differentials are known. Unequal wage rates could be the result of differences in the cost of living, differences in the supply of and demand for workers in a given profession, or both.

Introduction

Allied health occupations play a major role in health care delivery and comprise a significant proportion of the health care workforce in the United States. Definitions of which professions fall under allied health differ and it is often easier to define the allied health workforce by which professions are excluded, typically chiropractors, dentists, nurses, optometrists, pharmacists, podiatrists and physicians. Most allied health professionals are high school graduates who receive on-the-job training or two-year associate degrees from community college programs. A small subset are educated at four-year institutions, graduating with Bachelors, Masters, or Doctoral level terminal degrees.

Nationwide, demand for allied health services is projected to grow significantly in the next several decades, fueled to a large extent by a rapidly growing and aging population.[1] Researchers have found empirical evidence of allied health shortages in many states.[2-6] Given the longstanding history of health professional shortages facing rural areas, there are concerns that the existing and impending shortages in allied health professions may be particularly acute in rural areas**.**

Wage is an important factor when individuals are searching for employment. To assess whether rural areas are potentially at a recruiting disadvantage because of relative wages, this final report uses data from the Bureau of Labor Statistics to describe the extent to which rural-urban differentials exist in wages for eleven allied health professions, focusing on professions that are both likely to be found in rural communities and have adequate data to support hourly wage estimates. Although finer definitions of rural exist, the data only allow for defining rural as located in a nonmetropolitan county.

Data are presented for the following eleven allied health professions: occupational therapists, physical therapists, radiation therapists, respiratory therapists, pharmacy technicians, radiation technicians, respiratory technicians, dental hygienists, speech pathologists, medical/clinical laboratory technicians and medical/clinical laboratory technologists. The educational requirements for these eleven professions vary by state but in general dental hygienists, pharmacy technicians, radiation technicians, radiation therapists, respiratory technicians and medical/clinical laboratory technicians require less educational training than occupational therapists, physical therapists, speech pathologists, respiratory therapists and medical/clinical laboratory technologists. See Table 1 for descriptions of the educational requirements and the appendix for brief descriptions of the allied health professions discussed in this report.

TABLE 1. EDUCATIONAL REQUIREMENTS FOR ALLIED HEALTH PROFESSIONS ACCORDING TO THE BUREAU OF LABOR STATISTICS

Profession	Educational Requirements	Source
Occupational Therapist	Minimum entry requirement is master's degree or higher.	http://www.bls.gov/oco/ocos078.htm#training
Physical Therapist	Master's or doctoral degree from an accredited physical therapy program.	http://www.bls.gov/oco/ocos080.htm#training
Speech Pathologist	Most jobs require a master's degree. Graduation from an accredited program is required in some States to obtain a license.	http://www.bls.gov/oco/ocos099.htm#training
Radiation Therapist	Varies, requirements generally include a bachelor's degree, associate degree, or certificate in radiation therapy.	http://www.bls.gov/oco/ocos299.htm#training
Respiratory Therapist	An associate degree is the minimum educational requirement but a bachelor's or master's degree may be important for advancement.	http://www.bls.gov/oco/ocos084.htm#training
Pharmacy Technicians	Only a few states require formal training or certification of pharmacy technicians.	http://www.bls.gov/oco/ocos252.htm#training
Radiation Technicians	Varies, with programs ranging from 1 to 4 years, leading to a certificate, an associate degree, or a bachelor's degree.	http://www.bls.gov/oco/ocos105.htm#training
Respiratory Technician	An associate degree is the minimum educational requirement.	http://www.bls.gov/oco/ocos084.htm#training
Dental Hygienist	State licensure requirements usually require a degree from an accredited dental hygiene school, most of which grant an associate degree, although some also offer a certificate, a bachelor's degree, or a master's degree.	http://www.bls.gov/oco/ocos097.htm#training
Medical/Clinical Laboratory Technician	Varies, can include an associate degree from a community or junior college or a certificate from a hospital, a vocational or technical school, or the Armed Forces.	http://www.bls.gov/oco/ocos096.htm
Medical/Clinical Laboratory Technologist	Usual requirement for an entry-level position is a bachelor's degree with a major in medical technology or one of the life sciences; however, it is possible to qualify for some jobs with a combination of education and on-the-job and specialized training.	http://www.bls.gov/oco/ocos097.htm#training

Methods

Employment and wage information was obtained from the Occupational Employment Statistics (OES) Survey; Bureau of Labor Statistics; Department of Labor. OES is a program within the Bureau of Labor Statistics (BLS) that provides employment and wage estimates for wage and salary workers in 22 occupational groups and 801 occupations. The OES data are collected from a sample of 1.2 million establishments. Files for metropolitan areas and nonmetropolitan areas for years 2006 and 2007 were accessed from http://stat.bls.gov/oes/oes_dl.htm. The wage estimates are determined by surveying a sample of business establishments for number employed and annual wages paid for occupation classifications. The estimates synthesize the preceding six semi-annual panels adjusted to current value using the BLS Employment Cost Index. Wages include the following: "Base rate pay, cost-of-living allowances, guaranteed pay, hazardous-duty pay, incentive pay such as commissions and production bonuses, tips, and on-call pay." Excluded wages include "back pay, jury duty pay, overtime pay, severance pay, shift differentials, non-production bonuses, employer costs for supplementary benefits, and tuition reimbursements."[i]

Since 2005, the wage estimates are provided aggregated to the year 2000 Metropolitan Areas standards. Every state has wages summed to at least one "Balance of State" nonmetropolitan area.[ii] The years preceding 2006 did not offer state-by-nonmetropolitan-area estimates, only metropolitan areas, so earlier data were not used. The metropolitan area and nonmetropolitan area data for the studied occupations were selected and reformatted. The corresponding state and national wage estimates were then merged onto the metropolitan/nonmetropolitan data, stratified by census division.[iii] Because of the sampling design of the OES Survey, finer gradations of rural beyond nonmetropolian were not possible.

Wage data in the OES Survey were missing for some area-occupation-year combinations. Missing wages were imputed by NC RHR & PAC staff using a regression model accounting for observed area averages, occupation averages, and annual trend. Imputation was necessary to ensure that comparison of simple averages was informative; it could be, for example, that the occupations that were missing wage information in rural areas were different from those with valid wage information in non-rural areas. Analyses using only non-imputed data were performed to determine whether the assumption that missing wage data was due to insufficient observations in the survey data was correct. These analyses yielded qualitatively similar, but less interpretable, results, supporting the decision to include imputed data in the analyses. The performance of the imputation model was further tested by randomly suppressing some of the observed data and comparing the imputed with the observed values.

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[i] Survey Methods and Reliability Statement for the May 2007 Occupational Employment Statistics Survey. http://stat.bls.gov/oes/current/methods_statement.pdf.

[ii] Technical Notes for May 2007 OES Estimates. http://stat.bls.gov/oes/current/oes_tec.htm.

[iii] The nine census divisions, and the states found within them are as follows: New England--Maine,New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut; Mid-Atlantic States—New Jersey, New York, and Pennsylvania; East North Central States—Illinois, Indiana, Michigan, Ohio, and Wisconsin; West North Central—Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota; Pacific States—Alaska, California, Hawaii, Oregon, Washington; Mountain States—Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming; West South Central States—Arkansas, Louisiana, Oklahoma, and Texas; East South Central—Alabama, Kentucky, Mississippi, and Tennessee; South Atlantic—Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, and the District of Columbia.

Findings

The national average wage of each of the 11 allied health professions is higher in metropolitan than nonmetropolitan areas. On average, the rural hourly wage is 12% less than the urban wage, although the extent of the difference varies by profession and by geographic area (Tables 2-6). In all but three of the nine Census Divisions (East South Central, Mountain and West North Central) all of the allied health professions studied have higher hourly wages in metropolitan areas. And, in the remaining three Census Divisions, nonmetropolitan wages are higher for only a few of the eleven allied health professions. In the East South Central division, occupational therapist, physical therapist and medical/clinical laboratory technician wages are higher in nonmetropolitan areas, in the West North Central Census Division physical therapist wages are higher in nonmetropolitan areas, and in the Mountain Census Division medical/clinical laboratory technician wages are higher.

TABLE 2. OCCUPATIONAL THERAPISTS, PHYSICAL THERAPISTS & SPEECH PATHOLOGISTS' AVERAGE HOURLY WAGE, 2006-07

Census Division	Occupational Therapists			Physical Therapists			Speech Pathologist		
	Metro	Non-Metro	Non-Metro / Metro	Metro	Non-Metro	Non-Metro / Metro	Metro	Non-Metro	Non-Metro / Metro
NEW ENGLAND	$30.57	$26.52	86.75%	$32.79	$30.04	91.61%	$31.36	$26.21	83.58%
MIDDLE ATLANTIC	$30.99	$26.90	86.80%	$34.15	$32.18	94.23%	$32.25	$26.93	83.50%
EAST NORTH CENTRAL	$30.79	$27.59	89.61%	$33.52	$31.14	92.90%	$31.54	$27.59	87.48%
WEST NORTH CENTRAL	$27.54	$27.13	98.51%	$30.02	$31.11	103.63%	$25.86	$24.01	92.85%
SOUTH ATLANTIC	$31.73	$28.69	90.42%	$33.71	$33.16	98.37%	$30.03	$26.66	88.78%
EAST SOUTH CENTRAL	$29.41	$30.60	104.05%	$33.44	$34.07	101.88%	$26.92	$25.08	93.16%
WEST SOUTH CENTRAL	$32.24	$28.91	89.67%	$35.36	$34.03	96.24%	$27.53	$24.24	88.05%
MOUNTAIN	$27.72	$25.05	90.37%	$31.10	$30.56	98.26%	$28.97	$27.48	94.86%
PACIFIC	$34.45	$32.96	95.67%	$35.85	$32.71	91.24%	$33.48	$31.29	93.46%
NATIONAL	$31.10	$28.02	90.10%	$33.72	$32.16	95.37%	$30.35	$26.15	86.16%
Nonmetro wage relative to metro wage, for the occupation	90.1%			95.4%			86.2%		

Source: Occupational Employment Statistics (OES) Survey 2006, 2007; Bureau of Labor Statistics; Department of Labor.

TABLE 3. RADIATION AND RESPIRATORY THERAPISTS' AVERAGE HOURLY WAGE, 2006-07

Census Division	Radiation Therapists			Respiratory Therapists		
	Metro	Non-Metro	Non-Metro / Metro	Metro	Non-Metro	Non-Metro / Metro
NEW ENGLAND	$34.68	$30.65	88.38%	$26.25	$23.89	91.01%
MIDDLE ATLANTIC	$36.25	$29.77	82.12%	$26.59	$22.16	83.34%
EAST NORTH CENTRAL	$31.79	$29.60	93.11%	$23.06	$20.94	90.81%
WEST NORTH CENTRAL	$30.27	$29.21	96.50%	$22.52	$20.88	92.72%
SOUTH ATLANTIC	$31.23	$29.35	93.98%	$23.11	$21.21	91.78%
EAST SOUTH CENTRAL	$31.98	$28.22	88.24%	$21.41	$19.30	90.14%
WEST SOUTH CENTRAL	$32.08	$28.56	89.03%	$22.30	$20.02	89.78%
MOUNTAIN	$32.82	$28.64	87.26%	$22.88	$22.66	99.04%
PACIFIC	$38.92	$36.47	93.71%	$28.69	$25.40	88.53%
NATIONAL	$33.55	$29.56	88.11%	$24.37	$21.28	87.32%
Nonmetro wage relative to metro wage, for the occupation	88.1%			87.3%		

Source: Occupational Employment Statistics (OES) Survey 2006, 2007; Bureau of Labor Statistics; Department of Labor.

TABLE 4. PHARMACY, RADIATION AND RESPIRATOR TECHNICIANS' AVERAGE HOURLY WAGE, 2006-07

Census Division	Pharmacy Technician			Radiation Technician			Respiratory Technician		
	Metro	Non-Metro	Non-Metro / Metro	Metro	Non-Metro	Non-Metro / Metro	Metro	Non-Metro	Non-Metro / Metro
NEW ENGLAND	$13.71	$12.63	92.12%	$28.14	$24.06	85.50%	$21.02	$19.53	92.91%
MIDDLE ATLANTIC	$12.79	$11.27	88.12%	$26.45	$20.99	79.36%	$21.59	$18.41	85.27%
EAST NORTH CENTRAL	$12.70	$11.64	91.65%	$23.43	$21.50	91.76%	$19.44	$17.86	91.87%
WEST NORTH CENTRAL	$12.45	$11.52	92.53%	$23.07	$20.84	90.33%	$19.15	$17.00	88.77%
SOUTH ATLANTIC	$12.43	$11.28	90.75%	$23.73	$21.52	90.69%	$19.60	$18.17	92.70%
EAST SOUTH CENTRAL	$12.03	$11.00	91.44%	$21.55	$20.01	92.85%	$17.35	$16.13	92.97%
WEST SOUTH CENTRAL	$12.89	$11.15	86.50%	$22.47	$19.74	87.85%	$18.81	$17.07	90.75%
MOUNTAIN	$13.99	$13.14	93.92%	$23.87	$23.20	97.19%	$20.10	$18.88	93.93%
PACIFIC	$16.55	$15.12	91.36%	$28.08	$25.99	92.56%	$24.23	$22.12	91.29%
NATIONAL	$13.25	$11.68	88.15%	$24.62	$21.46	87.16%	$20.26	$17.77	87.71%
Nonmetro wage relative to metro wage, for the occupation	88.2%			87.2%			87.7%		

Source: Occupational Employment Statistics (OES) Survey 2006, 2007; Bureau of Labor Statistics; Department of Labor.

TABLE 5. DENTAL HYGIENISTS' AVERAGE HOURLY WAGE, 2006-07

Census Division	Dental Hygienist		
	Metro	Non-Metro	Non-Metro / Metro
NEW ENGLAND	$33.11	$29.02	87.65%
MIDDLE ATLANTIC	$29.51	$24.75	83.87%
EAST NORTH CENTRAL	$28.99	$26.82	92.51%
WEST NORTH CENTRAL	$30.40	$27.35	89.97%
SOUTH ATLANTIC	$28.46	$25.08	88.12%
EAST SOUTH CENTRAL	$23.34	$22.60	96.83%
WEST SOUTH CENTRAL	$29.26	$25.63	87.59%
MOUNTAIN	$33.17	$32.08	96.71%
PACIFIC	$37.57	$36.36	96.78%
NATIONAL	$31.00	$27.03	87.19%
Nonmetro wage relative to metro wage, for the occupation	87.2%		

Source: Occupational Employment Statistics (OES) Survey 2006, 2007; Bureau of Labor Statistics; Department of Labor.

TABLE 6. MEDICAL/CLINICAL LABORATORY TECHNICIAN AND TECHNOLOGISTS' AVERAGE HOURLY WAGE, 2006-07

Census Division	Medical/Clinical Laboratory Technician			Medical/Clinical Laboratory Technologist		
	Metro	Non-Metro	Non-metro / Metro	Metro	Non-Metro	Non-metro / Metro
NEW ENGLAND	$18.23	$16.86	92.48%	$25.62	$23.53	91.84%
MIDDLE ATLANTIC	$18.60	$17.35	93.28%	$25.76	$21.97	85.29%
EAST NORTH CENTRAL	$17.41	$16.91	97.13%	$23.80	$23.05	96.85%
WEST NORTH CENTRAL	$16.05	$15.73	98.01%	$24.32	$21.96	90.30%
SOUTH ATLANTIC	$16.71	$15.33	91.74%	$23.94	$21.98	91.81%
EAST SOUTH CENTRAL	$14.71	$14.97	101.77%	$23.41	$21.51	91.88%
WEST SOUTH CENTRAL	$15.02	$14.38	95.74%	$22.65	$20.78	91.74%
MOUNTAIN	$16.47	$16.48	100.06%	$24.24	$23.53	97.07%
PACIFIC	$18.72	$18.33	97.92%	$30.70	$28.10	91.53%
NATIONAL	$17.11	$15.97	93.34%	$25.04	$22.53	89.98%
Nonmetro wage relative to metro wage, for the occupation	93.3%			90.0%		

Source: Occupational Employment Statistics (OES) Survey 2006, 2007; Bureau of Labor Statistics; Department of Labor.

In the census divisions where allied health professions have a higher wage in nonmetropolitan areas, the difference between the metropolitan and nonmetropolitan wage is minimal, with nonmetropolitan wages ranging from 100.1% to 104% of metropolitan wages. Dollar differences in hourly wages across census divisions and professions were also small, ranging from $0.01 to

$1.19 (Table 7). However, for the vast majority of allied health professions, the hourly wage is higher in metropolitan areas and the wage difference is significantly larger. Looking across all professions and census divisions, nonmetropolitan wages as a percent of metropolitan wages begin as low as only 79.4%, and dollar differences range from $0.22 for respiratory therapists in the Mountain division to as much as $6.48 per hour for radiation therapists in the Middle Atlantic division. Among the various allied health professions studied, we find that in rural areas, physical therapists (professionals that have obtained a more extensive education) have the least wage discrepancy at 95.4% of the urban wage.

Among the nine census divisions, the Middle Atlantic and New England regions have the highest wage discrepancies. In the Middle Atlantic division, metropolitan workers earn an average of $3.84 more per hour than their nonmetropolitan counterparts, taking a simple average across the eleven professions, while in the New England division metropolitan workers earn an average of $2.96 more per hour than their nonmetropolitan counterparts. The census divisions with the lowest wage discrepancies are the East South Central, with an average difference of $1.10 per hour between metropolitan and nonmetropolitan workers, and Mountain (an average wage difference of $1.52).

Table 7: DIFFERENCE IN AVERAGE HOURLY WAGE COMPARING RURAL WAGES TO URBAN WAGES
(A minus sign indicates the rural wage is less than urban while a plus sign indicates that the rural wage is more than urban)

Profession	**Census Division**									
	NE	MA	ENC	WNC	SA	ESC	WSC	M	P	N*
Occupational Therapists	-$4.05	-$4.09	-$3.20	-$0.41	-$3.04	*+$1.19*	-$3.33	-$2.67	-$1.49	-$3.08
Physical Therapists	-$2.75	-$1.97	-$2.38	*+$1.09*	-$0.55	*+$0.63*	-$1.33	-$0.54	-$3.14	-$1.56
Speech Pathologists	-$5.15	-$5.32	-$3.95	-$1.85	-$3.37	-$1.84	-$3.29	-$1.49	-$2.19	-$4.20
Radiation Therapist	-$4.03	-$6.48	-$2.19	-$1.06	-$1.88	-$3.76	-$3.52	-$4.18	-$2.45	-$3.99
Respiratory Therapist	-$2.36	-$4.43	-$2.12	-$1.64	-$1.90	-$2.11	-$2.28	-$0.22	-$3.29	-$3.09
Pharmacy Technician	-$1.08	-$1.52	-$1.06	-$0.93	-$1.15	-$1.03	-$1.74	-$0.85	-$1.43	-$1.57
Radiation Technician	-$4.08	-$5.46	-$1.93	-$2.23	-$2.21	-$1.54	-$2.73	-$0.67	-$2.09	-$3.16
Respiratory Technician	-$1.49	-$3.18	-$1.58	-$2.15	-$1.43	-$1.22	-$1.74	-$1.22	-$2.11	-$2.49
Dental Hygienist	-$4.09	-$4.76	-$2.17	-$3.05	-$3.38	-$0.74	-$3.63	-$1.09	-$1.21	-$3.97
Medical/Clinical Laboratory Technician	-$1.37	-$1.25	-$0.50	-$0.32	-$1.38	*+$0.26*	-$0.64	*+$0.01*	-$0.39	-$1.14
Medical/Clinical Laboratory Technologist	-$2.09	-$3.79	-$0.75	-$2.36	-$1.96	-$1.90	-$1.87	-$0.71	-$2.60	-$2.51
Average rural-urban wage difference across professions*	-$2.96	-$3.84	-$1.98	-$1.35	-$2.02	-$1.10	-$2.37	-$1.24	-$2.03	-$2.80

NE=New England; MA= Middle Atlantic States; ENC=East North Central; WNC= West North Central; SA=South Atlantic; ESC=East South Central; WSC=West South Central; M=Mountain; P=Pacific; N=National
* Data shown are simple averages taken across all nine census divisions, or all eleven professions.

Conclusions

These data are presented for informational purposes only. Neither the causes or implications of the observed wage differentials are known. Unequal wage rates could be the result of differences in the cost of living, differences in the supply of and demand for workers in a given profession, or both. It is possible that higher rural wages for a few professions and a few census divisions reflect unmet demand for these workers, and the need for rural providers to offer higher wages to recruit staff. It would also be reasonable to expect a larger differential for professions where the workforce is trained locally (either because of no requirement for education beyond high school or because the educational requirements can be met by attending a community college), and staff do not need to be recruited from urban areas. However, the fact that professions such as medical/clinical laboratory technologists have less rural-urban wage differentials than do speech pathologists does not support this theory.

The data presented here do not account for geographic differences in the cost of living because the units of geography used to determine wages and those used for cost of living calculations are not the same. However, differences in cost of living alone cannot be the sole reason for the observed differences in wages, because the extent of a wage differential (and whether rural wages are lower or higher than urban) varies by profession. Another limitation of these data is that they do not capture recruiting bonuses. While it is likely that rural providers in divisions with the highest wage discrepancies for allied health professionals working in nonmetropolitan areas may find it more difficult to recruit these professionals, the extent to which this is the case can only be assessed with data on workforce vacancy rates.

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Appendix

Descriptions of the Allied Health Professions Discussed in this Report

Occupational Therapists

Occupational therapists help patients improve their ability to perform tasks in living and working environments. They work with individuals who suffer from a mentally, physically, developmentally, or emotionally disabling conditions. Occupational therapists use treatments to develop, recover, or maintain the daily living and work skills of their patients. The therapist helps clients not only to improve their basic motor functions and reasoning abilities, but also to compensate for permanent loss of function.[1]

Physical Therapists

Physical therapists provide services that help restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injuries or disease in an attempt to restore, maintain, and promote overall fitness and health. Their patients include accident victims and individuals with disabling conditions such as low-back pain, arthritis, heart disease, fractures, head injuries, and cerebral palsy.[2]

Radiation Therapists

Radiation therapists use machines, called linear accelerator, to administer radiation treatment to patients. During the treatment phase, the radiation therapist monitors the patient's physical condition to determine if any adverse side effects are taking place. Radiation therapists keep detailed records of their patients' treatments. These records include information such as the dose of radiation used for each treatment, the total amount of radiation used to date, the area treated, and the patient's reactions. Radiation therapists also assist medical radiation physicists and may assist dosimetrists with routine aspects of dosimetry, the process used to calculate radiation dosages.[3]

Respiratory Therapists

Respiratory therapists evaluate, treat, and care for patients with breathing or other cardiopulmonary disorders. Under the direction of a physician, respiratory therapists assume primary responsibility for all respiratory therapeutic treatments and diagnostic procedures. Respiratory therapists evaluate and treat all types of patients, ranging from premature infants whose lungs are not fully developed to elderly people whose lungs are diseased. Respiratory therapists provide temporary relief to patients with chronic asthma or emphysema, and they give emergency care to patients who are victims of a heart attack, stroke, drowning, or shock.[4]

Pharmacy Technicians

Pharmacy technicians help licensed pharmacists provide medication and other health care products to patients. Technicians usually perform routine tasks to help prepare prescribed medication, such as counting, pouring, weighing, measuring, and sometimes mix the medications. Technicians receive written prescriptions or requests for prescription refills and verify that information on the prescription is complete and accurate. Then, they prepare the prescription labels, select the type of prescription container, and affix the prescription and auxiliary labels to the container. They also perform administrative duties, such as answering phones, stocking shelves, operating cash registers, maintaining patient profiles and preparing insurance claim forms.[5]

Radiation Technicians

Radiation technicians produce x-ray films (radiographs) of parts of the human body for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing personal articles through which x-rays cannot pass, positioning patients so that the correct parts of the body can be radiographed and positioning radiographic equipment at the correct angle and height over the appropriate area of a patient's body. Experienced radiation technicians may perform more complex imaging tests such as fluoroscopies.[6]

Respiratory Technicians

Respiratory therapy technicians evaluate, treat, and care for patients with breathing or other cardiopulmonary disorders. Respiratory therapy technicians follow specific, well-defined respiratory care procedures under the direction of respiratory therapists and physicians. In clinical practice, many of the daily duties of therapists and technicians overlap. However, therapists generally have greater responsibility than technicians.[7]

Dental Hygienists

Dental hygienists are licensed to perform different clinical tasks. They may remove soft and hard deposits from teeth, teach patients how to practice good oral hygiene, and provide other preventive dental care. They examine patients' teeth and gums, recording the presence of diseases or abnormalities. They may use models of teeth to explain oral hygiene, perform root planning as a periodontal therapy, or apply cavity-preventative agents such as fluorides and pit and fissure sealants. In some States, hygienists are allowed to administer anesthetics, place and carve filling materials, temporary fillings, and periodontal dressings; remove sutures; and smooth and polish metal restorations.[8]

Speech Pathologists

Speech pathologists diagnose, treat, and help to prevent disorders related to speech, language, cognitive-communication, voice, swallowing, and fluency. Speech pathologists work with people who cannot produce speech sounds or cannot produce them clearly and with people who have swallowing difficulties. For individuals with little or no speech capability, speech pathologists may select augmentative or alternative communication methods, including automated devices and sign language, and teach their use. They teach patients how to make sounds, improve their voices and swallowing skills, or increase their oral or written communication skills so patients can fulfill their educational, vocational, and social roles.[10]

Medical / Clinical LaboratoryTechnologist

Medical technologists perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. A medical technologist performs a full range of laboratory tests from simple blood tests to more complex tests requiring the exercise of independent judgment and discretion and even assisting with the uncovering of diseases such as cancer. A medical technologist may also train or supervise medical and clinical laboratory technicians.[11]

Medical / Clinical Laboratory Technician

Medical technicians perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. Medical Technicians perform procedures that are less complex and require less technical or theoretical knowledge than those performed by Medical Technologists. [12]

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