IN-DEMAND HEALTH SCIENCES PROGRAMS

Prepared for Clarion University of Pennsylvania

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In the following report, Hanover Research presents findings from an environmental scan of health sciences programs. The analysis identifies promising degree programs through an assessment of labor market and student demand. Trends discussed in the report draw on data that can be found in an accompanying supplement, which includes detailed information on occupational projections, high-priority occupations, and degree conferral trends.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In recent years, the health care landscape has changed significantly as a result of reform, demographic trends, and technological advancements. These events have also had major impacts on future demand for health care. As of February 2015, nearly 17 million Americans had gained health insurance coverage as a result of the Affordable Care Act.[1] In addition, approximately 80 million Baby Boomers are anticipated to age into the Medicare system by 2020.[2] With the associated anticipated growth in demand for health care services, the Association of American Medical Colleges predicts a shortfall of 125,000 physicians alone by 2025, with projected shortages in other health occupations as well.[3] To fill these shortages, new programs will be required to train individuals to work in in-demand health care areas.

This environmental scan will assist Clarion University of Pennsylvania leaders explore current health care trends and identify areas of growing demand. The following report examines potential training opportunities for health care occupations from two perspectives – labor demand and educational demand – and consists of the following:

- **Section I – Labor-side Demand:** In the first section of the report, Hanover examines trends for health care occupations projected to experience strong future growth, as well as high-priority professions identified by the Pennsylvania Department of Labor and Industry. The analysis also links high-growth and high-priority occupations to potential programs of study.
- **Section II – Student-side Demand:** The second section of the report assesses student demand for different health care fields by drawing on conferral trends for non-degree awards, associate's degrees, bachelor's degrees, and master's degrees.
- **Data Supplement:** The supplement that accompanies this report includes detailed data used to identify trends in labor market and student demand. The supplement includes complete datasets for a range of relevant occupations and fields of study, including those that were not specifically discussed in this report.

[1] "Health Coverage Grows Under Affordable Care Act." RAND Corporation, May 6, 2015. http://www.rand.org/news/press/2015/05/06.html

[2] Lambeck, L.C. "New Med School Focuses on Primary Care." *Connecticut Post*, August 11, 2013. http://www.ctpost.com/local/article/New-med-school-focuses-on-primary-care-4724220.php

[3] [1] O'Reilly, K.B. "New Medical Schools Open, but Physician Shortage Concerns Persist." American Medical News, March 29, 2010. http://www.amednews.com/article/20100329/profession/303299963/2/ [2] "Nursing Shortage." American Nurses Association. http://www.nursingworld.org/nursingshortage [3] "Future Labor Shortfalls of Medical Professionals in U.S. Predicted Due to New Demands of Health-care Reform." *Science Daily*, July 8, 2011. http://www.sciencedaily.com/releases/2011/07/110706195902.htm

KEY FINDINGS

- **Most of the fastest-growing health care professions require either an associate's or a master's degree**. National and state projections suggest strong future job growth for supporting technician and assisting roles in health care provision, which typically require an associate's degree. This scan also revealed positive job outlooks for specialist positions that require master's-level training, such as occupational therapists, physician's assistants, and nurse practitioners. These observations suggest that Clarion's current graduate program for nurse practitioners may be particularly relevant, and the associate's programs in allied health and respiratory care may also be beneficial to those seeking advancement in allied health/medical support roles.
- **Pennsylvania has identified nursing, social work, and medical technician positions as high-priority occupations due to significant workforce gaps.** These positions report a relatively low number of graduates from relevant programs compared to the number of available openings. In addition, conferral trends for related programs of study suggest moderate student interest in these fields. Clarion's multiple programs in rehabilitation sciences may be well-positioned to respond to needs for certain social work demands, along with its full range of nursing options (from associate's degrees to the doctor of nursing practice) and allied health options.
- **Conferral trends indicate growing student demand for non-degree awards that provide training for specific medical technician and assistant positions.** In particular, national, regional, and state conferral trends suggest that the fastest-growing non-degree programs are assisted health sciences roles in nursing, electrocardiography, and renal/dialysis work. Pennsylvania conferrals have also increased for emergency medical technician, surgical technician, and dental assistant programs, which provide training for high-growth and high-priority occupations in the state. While Clarion does not offer such certificates, students seeking further development in the allied health roles noted may seek out Clarion's degree-based options.
- **At the associate's level, student demand is highest for programs in medical administration and office services.** The fastest-growing associate's programs relate to medical computing, insurance and billing, and health care management. State conferral trends indicate increasing demand for some medical technician positions that are also high-priority occupations, specifically dental assistants and emergency medical technicians. Although Clarion's current medical computing/health care management and administration offerings are limited, the Administration Technology program may lend itself to being adapted to suit this application.
- **Nursing degrees represent the fastest-growing programs at the bachelor's level.** Nursing science has the highest growth rate of all health science bachelor's degree programs in Pennsylvania from 2009 to 2013. In addition to general nursing science, demand has also grown nationally and regionally for specializations such as family practice nursing, adult health nursing, and nursing administration. Clarion is well-

positioned to respond to this demand, though it may consider further specializations.

- **The fastest-growing master's degree programs provide training in nursing and therapy/mental health services.** Of the top 10 fastest-growing health sciences fields of study in Pennsylvania at this level, three prepare students for specialized nursing roles, and four involve training in mental health counseling and therapy. Moreover, mental health nursing ranked as the top Pennsylvania program when measuring by growth rate. Clarion's counseling- or mental health-related offerings aside from rehabilitation science are limited, though its nursing programs could be well-positioned to respond to demand.

SECTION I: LABOR-SIDE DEMAND

In this section, Hanover Research assesses the overall employment landscape for the health care industry. This information is useful for determining potential workforce gaps and identifying appropriate postsecondary training opportunities that can address these areas of need.

LONG-TERM NATIONAL OCCUPATIONAL OUTLOOK

To identify future labor demand for health care professionals, Hanover draws on employment projections data provided by the U.S. Bureau of Labor Statistics (BLS) and the Pennsylvania Department of Labor and Industry. Labor projections rely on historic staffing trends and economic factors to assess possible future job growth, employment turnover, and new job creation.[4] This information can be useful for identifying occupations with positive future outlooks. For a detailed explanation of Hanover's methodology for reviewing this information, see Appendix A.

Figure 1.1 on the following page shows the health sciences professions that are projected to experience the strongest growth through the year 2022, ranked by national job growth rate. The projected growth rates for all of the occupations shown in the figure are in excess of the national growth rate for all occupations combined (and nearly all within Pennsylvania exceed the Pennsylvania all-occupations projected growth rate). Projection data also suggest that the greatest percentage growth in these occupations will be outside of Pennsylvania itself.

EDUCATION DATA RELATED TO HIGH-GROWTH OCCUPATIONS

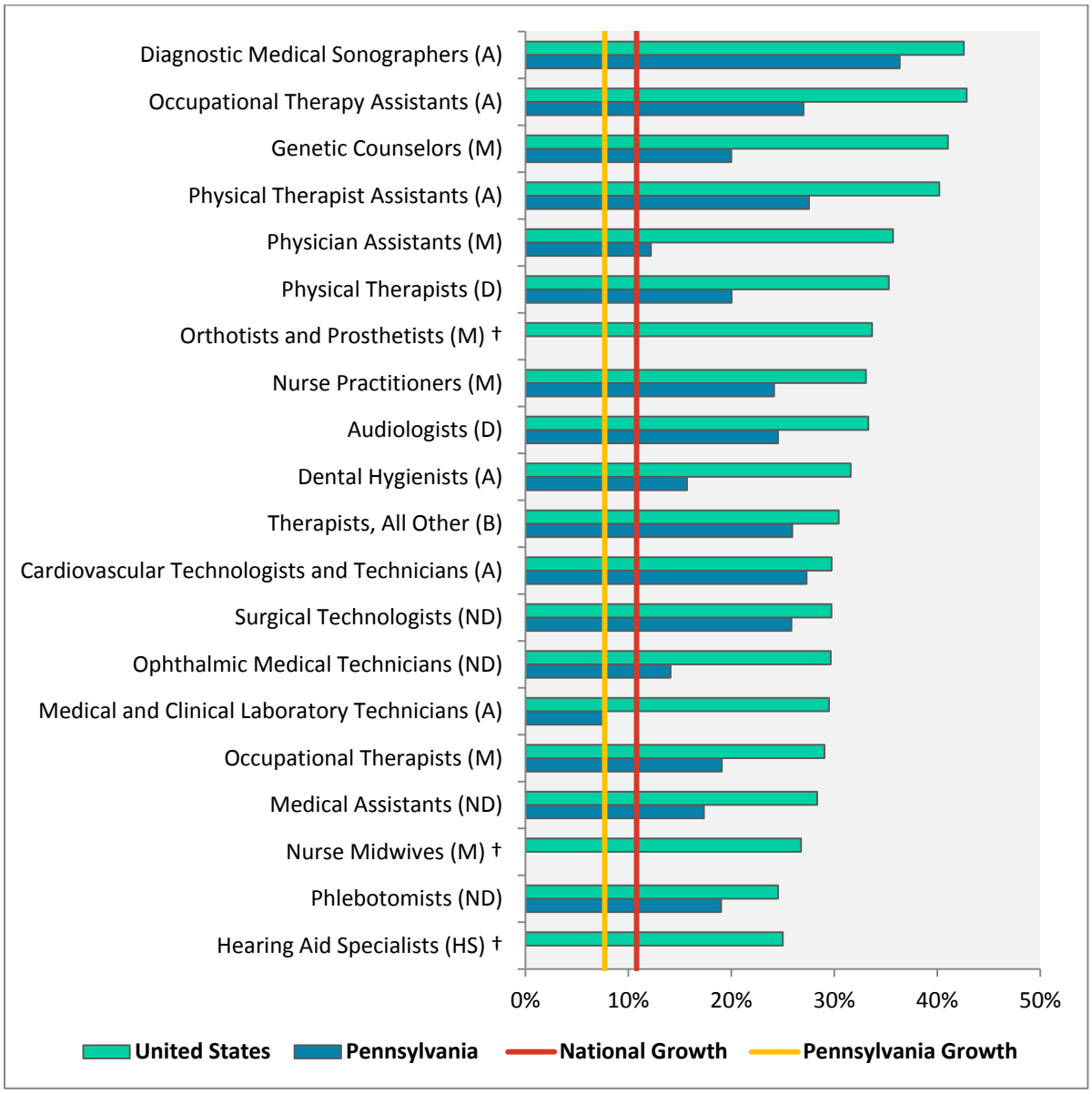
ATTAINMENT

In addition to projected occupational growth, Figure 1.1 also notes the BLS-assigned typical entry-level education that is associated a given health care profession.[5] **Most of the fastest-growing health care occupations typically require either an associate's degree or master's degree for job entry.** In Pennsylvania, the occupations that have the strongest outlooks for future job growth all require an associate's degree: diagnostic medical sonographers, physical therapist assistants, occupational therapy assistants, and cardiovascular technologists and technicians.

[4] For more information, see "Employment Projections Methodology." U.S. Bureau of Labor Statistics. http://www.bls.gov/emp/ep_projections_methods.htm

[5] "Education and Training Assignments by Detailed Occupation." U.S. Bureau of Labor Statistics. http://www.bls.gov/emp/ep_table_112.htm

Figure 1.1: Top Health Sciences Occupations, Ranked by National Projected Growth, 2012 to 2022

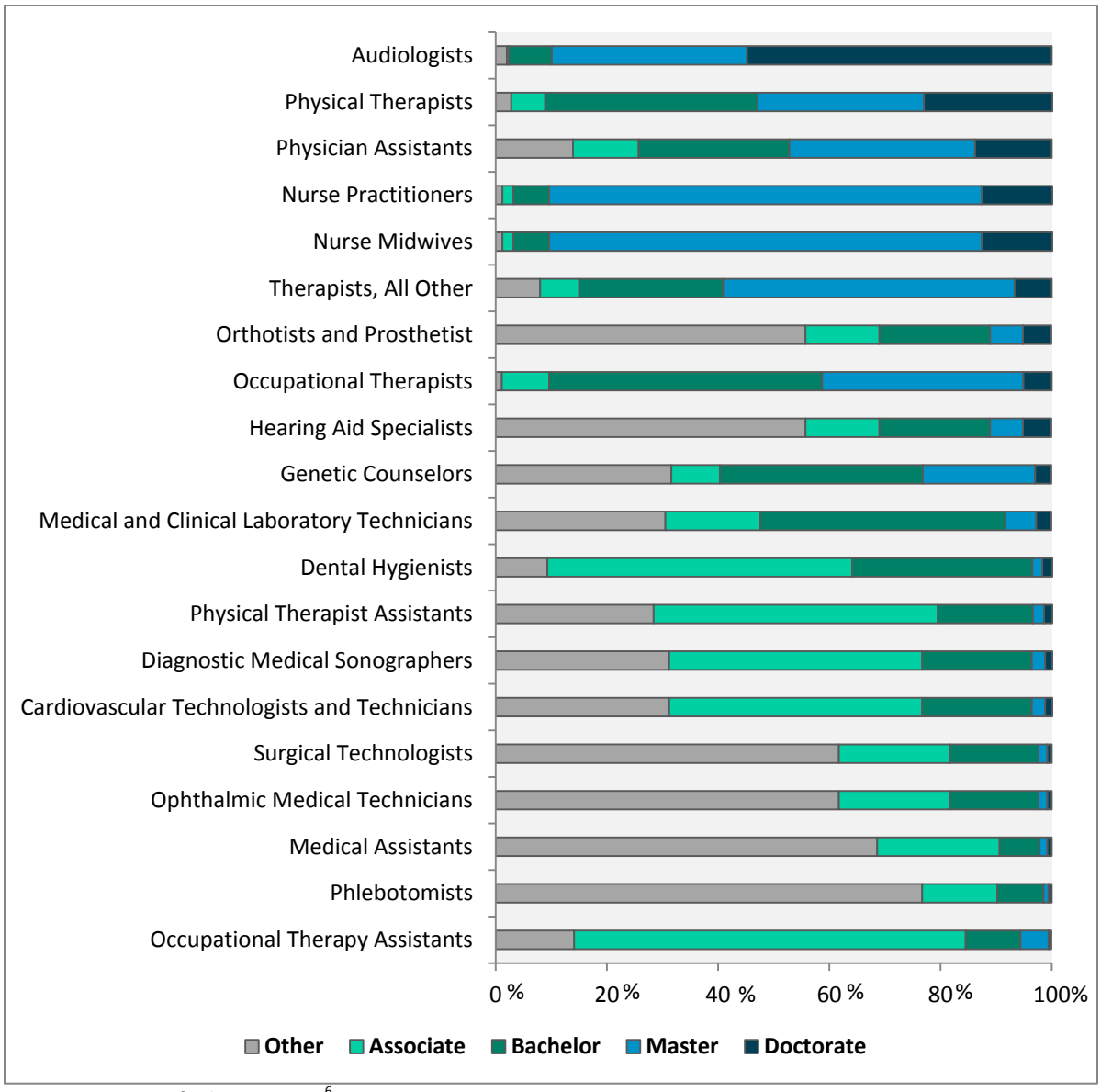


Source: Bureau of Labor Statistics; Pennsylvania Department of Labor and Industry
* Typical educational attainment for each occupation designated by the following codes: HS = high school diploma, ND = postsecondary non-degree award, A = associate's degree, B = bachelor's degree, M = master's degree, and D = doctoral or professional degree.
† Pennsylvania does not report projections for these occupations.

Figure 1.2 presents detailed national educational attainment data for the professions projected to experience the fastest future job growth. This provides a more refined view of the educational credentials held by individuals employed in each profession. For example, while a master's degree is considered the typical education required for an entry position as a genetic counselor, only approximately 20 percent of people working in this field have obtained a master's (or higher) degree. Changing entry requirements over time can be

reflected in this information, however. While occupational therapy used to be principally associated with a bachelor's degree (the qualification many practitioners still have), occupational entry is now at the master's degree level (as shown by the BLS-assigned value).

Figure 1.2: Educational Attainment for Top Health Sciences Occupations, 2010 to 2011*



Source: Bureau of Labor Statistics[6]

* These data are for educational attainment for only workers 25 and older. Some occupations, like Nurse Midwives and Nurse Practitioners, were combined in the original survey process and thus have identical data. Other occupations, like Surgical Technologist, were combined both with fields listed here (Ophthalmic Medical Technicians) and with fields not listed here.

[6] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation." U.S. Bureau of Labor Statistics. http://www.bls.gov/emp/ep_table_111.htm

AWARD CONFERRALS

In Figure 1.3, Hanover presents completions data for programs of study that correspond to the identified high-growth occupations. The figure includes data on the number of institutions that reported programs and completions for a given area of study in 2013, as well as the compound annual growth rate (CAGR) for completions awarded between 2009 and 2013.[7] The figure includes completions for award levels in line with Clarion's current offerings (from non-degree awards to the Doctor of Nursing Practice).

Several high-growth occupations are linked to education programs that have experienced high student demand. In particular, conferral trends show strong national demand for associate's programs for occupational therapist assistants, master's degrees in nurse midwifery, and master's degrees for orthotists and prosthetists. In Pennsylvania, demand has been increasing for postsecondary awards in surgical technology, associate's degrees for occupational therapist assistants, and master's degrees in occupational therapy.

Figure 1.3: National and State Conferrals for Associated High Growth Fields of Study, 2013

Program of Study	National Trends			Pennsylvania Trends		
	Programs	Completions	CAGR	Programs	Completions	CAGR
Postsecondary Awards of Four Years or Less						
Phlebotomy Technician/Phlebotomist	321	7,502	3.5%	11	285	-3.2%
Medical/Clinical Assistant	1,272	84,602	3.0%	44	2,823	2.4%
Optometric Technician/Assistant	20	151	-2.9%	0	--	--
Surgical Technology/Technologist	368	6,329	-0.5%	9	142	29.0%
Associate's Degree Programs						
Clinical/Medical Laboratory Technician	270	3,032	6.3%	13	146	26.5%
Cardiovascular Technology/Technologist	74	1,028	13.5%	4	48	9.8%
Dental Hygiene/Hygienist	304	5,708	1.9%	11	203	0.6%
Physical Therapy Technician/Assistant	317	6,158	10.6%	15	375	11.0%
Occupational Therapist Assistant	187	4,300	18.9%	9	220	17.1%
Diagnostic Medical Sonography/Sonographer and Ultrasound Technician	178	2,420	6.5%	8	131	7.5%
Bachelor's Degree Programs						
Rehabilitation and Therapeutic Professions, Other	25	635	-1.7%	4	128	-7.1%
Master's Degree Programs						
Nurse Midwife/Nursing Midwifery	15	301	34.1%	2	30	5.7%
Occupational Therapy/Therapist	150	5,366	8.6%	13	502	12.1%
Nursing Practice	10	358	--	1	--	--
Orthotist/Prosthetist	7	86	42.3%	1	20	--
Physician Assistant	137	6,031	10.8%	16	777	7.7%
Genetic Counseling/Counselor	18	130	5.5%	1	10	-2.4%
Doctor's Degree Programs						
Nursing Practice	90	890	--	7	63	--

Source: IPEDS

[7] Hanover does not calculate CAGR for categories that have fewer than five years of completions data.

SHORT-TERM PENNSYLVANIA OCCUPATIONAL OUTLOOK

The Pennsylvania Department of Labor and Industry identifies "High Priority Occupations" (HPOs) for each sector of the state workforce by drawing on a combination of employment statistics and input from industry representatives.[8] Figure 1.4 organizes data for the top health care industry HPOs according to the number of related annual educational program completers (i.e., the number of newly-qualified people) as a percent of annual total openings (i.e., the number of new job opportunities in the field). This metric highlights potential workforce gaps resulting from occupations that have more job openings than graduates of relevant programs. For example, the Department of Labor estimates that the number of completers in relevant programs for "Nurse Practitioners" will amount to only 27.5 percent of the openings for that occupation, which will lead to high demand for individuals trained in this field outside of Pennsylvania. The data supplement provides a full list of Pennsylvania's health care HPOs and complete data for estimated job openings, salary, and education requirements.

Figure 1.4: Pennsylvania High Priority Occupations in Health Care, Ranked by Completers as Percent of Total Openings, 2015*†

Occupation	Wages 2014	Job Openings	Employment Change (2010 - 2012)	Unemployment Rate (2010 - 2014)‡	Completers as Percent of Total Openings
Opticians, Dispensing	$37,993	121	-8.8%	0.0%	7.4%
Nurse Practitioners	$88,734	153	--	--	27.5%
Nursing Assistants	$27,884	2,160	--	--	35.5%
Emergency Medical Technicians and Paramedics	$30,690	683	6.8%	6.5%	41.1%
Social and Human Service Assistants	$27,360	915	17.5%	N/A	41.3%
Medical and Clinical Laboratory Technologists	$59,085	260	1.6%	1.6%	46.5%
Pharmacists	$110,141	423	6.6%	0.9%	64.5%
Healthcare Social Workers	$48,555	347	-8.1%	1.6%	72.0%
Dental Hygienists	$61,454	350	0.8%	0.0%	83.4%
Mental Health and Substance Abuse Social Workers	$37,090	370	0.6%	1.6%	84.3%
Substance Abuse & Behavioral Disorder Counselors	$40,407	366	10.5%	7.5%	93.7%

Source: Pennsylvania Department of Labor and Industry[9]

* Data are taken from the most recent 2015 draft of Pennsylvania's High Priority Occupations report. Numbers may differ in the final version of the 2015 report when it is completed.

† Figure presents only occupations in which the percentage of completers to total openings is less than 100 percent.

‡ Unemployment rate measures the percentage of trained individuals in a particular field that are unemployed.

[8] "High Priority Occupations (HPOs)." Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis. http://www.portal.state.pa.us/portal/server.pt?open=514&objID=814812&mode=2

[9] "2015 Statewide High Priority Occupations (HPOs)." Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis, 2015. http://www.portal.state.pa.us/portal/server.pt?open=18&objID=1497342&mode=2

DEGREE COMPLETIONS RELATED TO SELECTED PENNSYLVANIA HPOS

The top HPOs vary significantly in terms of expected educational training (see Figure B.2 in Appendix B for detailed data); educational requirements for these positions range from a high school diploma to a doctoral degree. To provide perspective on potential student demand for academic programs that correspond to HPOs, Hanover analyzed degree conferral trends for fields of study according to the typical award level associated with each position. Educational data are shown for award levels corresponding with Clarion's offerings, including the one doctorate program – the doctor of nursing practice.

Conferral data for HPO-related fields of study show that some academic programs would likely experience high student demand in addition to producing graduates in fields of high employment demand. Specifically, a comparatively large number of conferrals and high compound annual growth rats can be observed for **postsecondary awards in emergency medical technology** and **master's degrees in social work**, suggesting that these programs have been attracting more students.

Student demand data may also provide insight into optimal program offerings for targeting specific HPOs. For example, four CIP categories are linked to the occupation "Medical and Clinical Laboratory Technologists"—clinical laboratory science, histologic technology, cytogenetics, and cytotechnology (see Figure B.2 in Appendix B). However, bachelor's programs and conferrals predominately exist for only one of these four categories: "Clinical Laboratory Science/Medical Technology/Technologist." Compared to other relevant programs of study that would provide training for this occupation, the broader clinical laboratory science has demonstrated the highest demand among students at the bachelor's degree level.

Figure 1.5: National and State Conferral Trends for Associated HPO Fields of Study, 2013

Program of Study	National Trends			Pennsylvania Trends		
	Programs	Completions	CAGR	Programs	Completions	CAGR
Postsecondary Awards of Four Years or Less						
Emergency Medical Tech.	533	22,298	0.9%	13	165	23.5%
Health Aide	39	1,544	1.1%	0	--	--
Nursing Assistant/Aide	561	48,496	4.2%	8	237	-3.7%
Associate's Degree Programs						
Dental Hygiene/Hygienist	304	5,708	1.9%	11	203	0.6%
Bachelor's Degree Programs						
Social Work	558	19,110	5.4%	32	847	1.8%
Clinical/Medical Social Work	4	163	8.6%	1	25	-1.0%
Clinical Lab. Sci./Med. Tech.	311	2,734	2.8%	17	40	2.7%
Histologic Technology	2	14	--	0	--	--
Cytogenetics/Clinical Gene. Tech.	3	54	9.9%	0	--	--
Cytotechnology/Cytotechnologist	22	53	-6.0%	1	4	41.4%
Master's Degree Programs						
Social Work	249	23,348	5.0%	12	1,141	5.3%
Clinical/Medical Social Work	9	469	0.9%	0	--	--
Nursing Practice	10	358	--	1	0	--
Doctor's Degree Programs						
Nursing Practice	90	890	--	7	63	--

Source: IPEDS

SECTION II: STUDENT-SIDE DEMAND

This section explores the fastest-growing health sciences fields in terms of awarded conferrals, covering both non-degree awards and associate's, bachelor's, and master's degrees. The tables in this section show the 10 fastest-growing fields for each level for the United States, the Mideast Region,[10] and Pennsylvania (ranked by compound annual growth rate for 2009 to 2013).[11] Accompanying charts illustrate the relative size of each field (i.e., the number of students completing degrees) and the fields' growth rates in Pennsylvania, with equivalent national and regional graphs included in Appendix C. For further details on Hanover's methodology for developing this section, see Appendix A

NON-DEGREE AWARDS

In this section, Hanover presents trends for non-degree awards in the health sciences. As shown in Figure 2.1, **medical technician training programs comprise many of the top categories that have experienced increased student demand.** These programs include preparation for supporting roles in nursing, electrocardiography, renal/dialysis work, hematology, and phlebotomy.

Figure 2.1: Fastest Growing Non-Degree Awards (by CAGR) in Health Sciences by Region, 2009-2013

RANK	UNITED STATES	MIDEAST REGION	PENNSYLVANIA
1	Ophthalmic Laboratory Technology/Technician	Electrocardiograph Technology/Technician	Electrocardiograph Technology/Technician
2	Health/Medical Preparatory Programs, Other	Clinical/Medical Laboratory Assistant	Clinical/Medical Laboratory Assistant
3	Community Health and Preventive Medicine	Renal/Dialysis Technologist/Technician	Renal/Dialysis Technologist/Technician
4	Hematology Technology/ Technician	Medical Office Computer Specialist/Assistant	Health and Medical Administrative Services, Other
5	Public Health, General	Clinical Laboratory Science/Medical Technology/Technologist	Health Professions and Related Clinical Sciences, Other
6	Asian Bodywork Therapy	Phlebotomy Technician/Phlebotomist	Emergency Medical Technician (EMT Paramedic)
7	Mental Health Counseling/Counselor	Nursing Assistant/Aide and Patient Care Assistant/Aide	Health Information/Medical Records Technology/Technician
8	Family Practice Nurse/Nursing	Physician Assistant	Dental Assisting/Assistant
9	Pre-Nursing Studies	Health Professions and Related Clinical Sciences, Other	Medical Office Assistant/Specialist
10	Yoga Teacher Training/Yoga Therapy	Cardiovascular Technology/Technologist	Surgical Technology/Technologist

Source: NCES

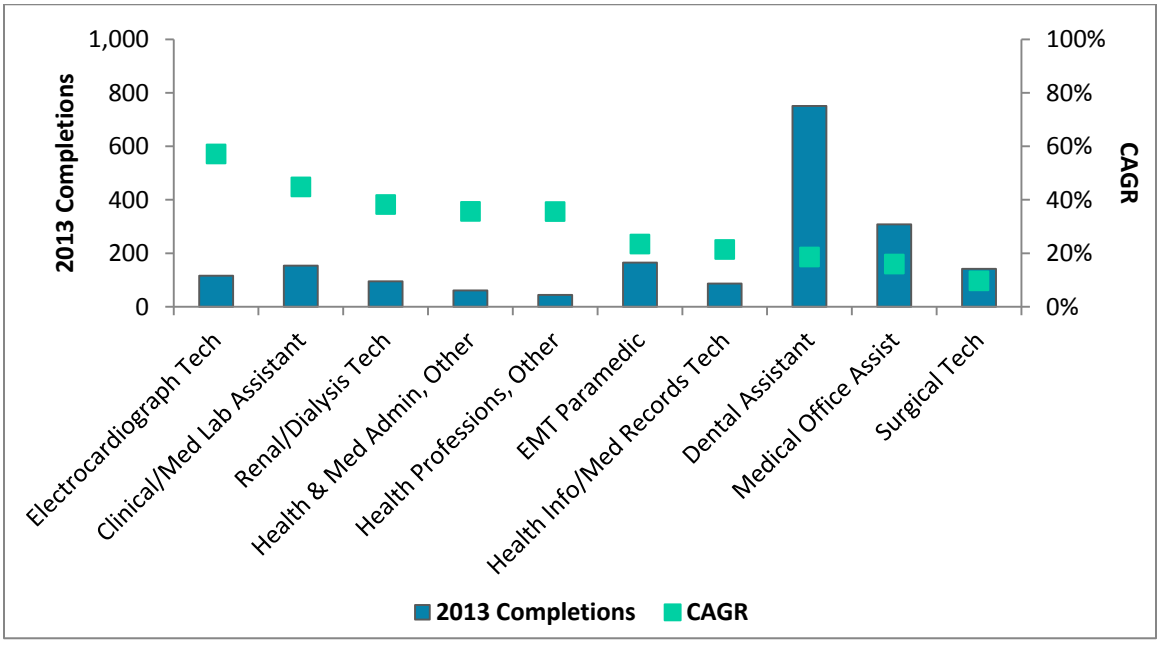
[10] The Mideast includes the District of Columbia, Delaware, Maryland, New Jersey, New York, and Pennsylvania.
[11] To minimize biases in CAGR that result from small sample sizes, programs must report more than 20 completions in 2013 to be considered in the analysis.

Of the programs in Figure 2.1, the highest number of non-degree awards nationwide was conferred in pre-nursing studies in 2013. In addition, the number of awards for pre-nursing more than quadrupled from 2009 to 2013, increasing from 189 to 883 conferrals. Awards for health and medical preparatory programs also increased significantly between 2009 and 2013, with a compound annual growth rate of approximately 126 percent. However, a single institution, Midlands Technical College in South Carolina, accounted for nearly 45 percent of the 445 awards conferred for health and medical preparatory programs in 2013.

As shown in Figure 2.1, the Mideast Region and Pennsylvania share the same top three health sciences programs for based on compound annual growth rate: electrocardiograph technology, clinical/medical laboratory assistant, and renal/dialysis technology. Regional and state trends demonstrate a strong demand for programs that develop technical skills for supporting roles in medicine. In the broader region, popular medical assistance training options include phlebotomy technology and nursing assistant programs, while dental assistant and surgical technology programs have historically performed better in Pennsylvania. Many office and administrative programs have also demonstrated high regional and state demand among students, including medical office computer assistant, health information/medical records technology, and medical office assistant.

Several non-degree award programs identified through these rankings also align with the high-growth and high-priority occupations discussed in Section I. Specifically, surgical technology, emergency medical technician, and dental assistant programs reflect strong student demand and are also projected to be sought by employers in the short- and longer-term future. Figure 2.2 illustrates completions and growth rates in Pennsylvania for the fastest-growing non-degree programs.

Figure 2.2: Fastest Growing Non-Degree Award Programs in Health Sciences, Pennsylvania



Source: NCES

ASSOCIATE'S DEGREES

Recent conferral trends show that medical administration and office training programs rank as two associate's degrees programs with the greatest student demand, as shown in Figure 2.3. In particular, programs appearing among the top 10 fastest-growing at the three geographic levels include medical office assistant, health information/medical records technology, health care administration, and medical insurance specialist/medical billing. Conferral volume for some of these rapidly growing programs was also strong at the national level (as shown in Figure C.3 in Appendix C), with more than 8,400 awards conferred in health information and medical records technology. In addition, medical office assistant programs ranked second among national programs for both completions and compound annual growth rate, reaching 5,242 conferrals in 2013 and posting a compound annual growth rate of 64 percent over the five-year period.

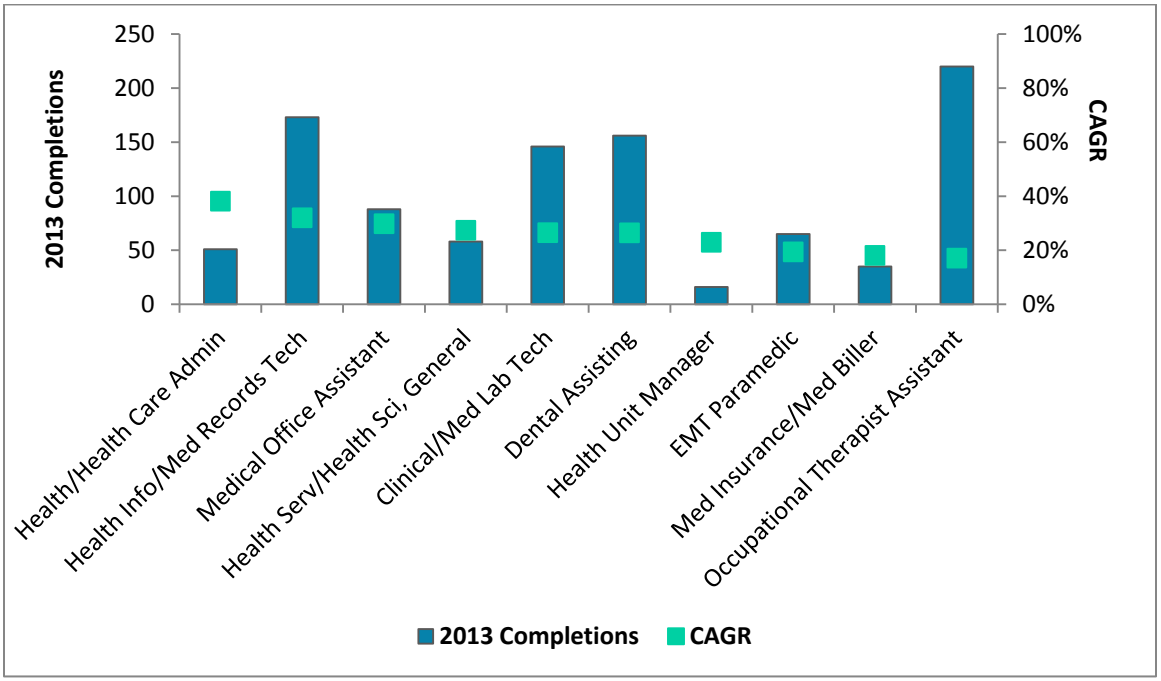
Figure 2.3: Fastest Growing Associate's Degrees in Health Sciences by Region, 2009-2013

Rank	United States	Mideast Region	Pennsylvania
1	Health Aide	Optometric Technician/Assistant	Health/Health Care Administration/Management
2	Medical Office Assistant/Specialist	Occupational Therapy/Therapist	Health Information/Medical Records Technology/Technician
3	Public Health, General	Cardiovascular Technology/Technologist	Medical Office Assistant/Specialist
4	Athletic Training/Trainer	Health/Medical Preparatory Programs, Other	Health Services/Allied Health/Health Sciences, General
5	Electrocardiograph Technology/Technician	Dietetics/Dietitian	Clinical/Medical Laboratory Technician
6	Pre-Nursing Studies	Medical Office Assistant/Specialist	Dental Assisting/Assistant
7	Family Practice Nurse/Nursing	Medical Insurance Specialist/Medical Biller	Health Unit Manager/Ward Supervisor
8	Clinical Laboratory Science/Medical Technology/Technologist	Health Services/Allied Health/Health Sciences, General	Emergency Medical Technology/Technician (EMT Paramedic)
9	Health/Health Care Administration/Management	Dental Assisting/Assistant	Medical Insurance Specialist/Medical Biller
10	Health Information/Medical Records Technology/Technician	Substance Abuse/Addiction Counseling	Occupational Therapist Assistant

Source: NCES

In Pennsylvania, health information and medical records technology ranks second among programs for highest conferrals and compound annual growth rate, shown in Figure 2.4. Half of the included high-demand associate's degrees in Pennsylvania include office and administrative programs, but several programs that provide medical support training, such as dental assistant, EMT, and occupational therapist assistant, are also represented. All three of these fields also correspond to the high-growth and high-priority occupations identified in Section I.

Figure 2.4: Fastest Growing Associate's Degrees in Health Sciences, Pennsylvania



Source: NCES

BACHELOR'S DEGREES

Nursing degrees rank at the top of the list for fastest-growing bachelor's programs at the national, regional, and state levels, as shown in Figure 2.5**.** Nursing science has shown the highest growth in degree conferrals in Pennsylvania, but more specialized nursing programs have grown nationally and regionally, including family practice nursing, adult health nursing, and nursing administration. Conferrals trends also show that some programs related to pharmacy and public health have performed well at all three geographic levels.

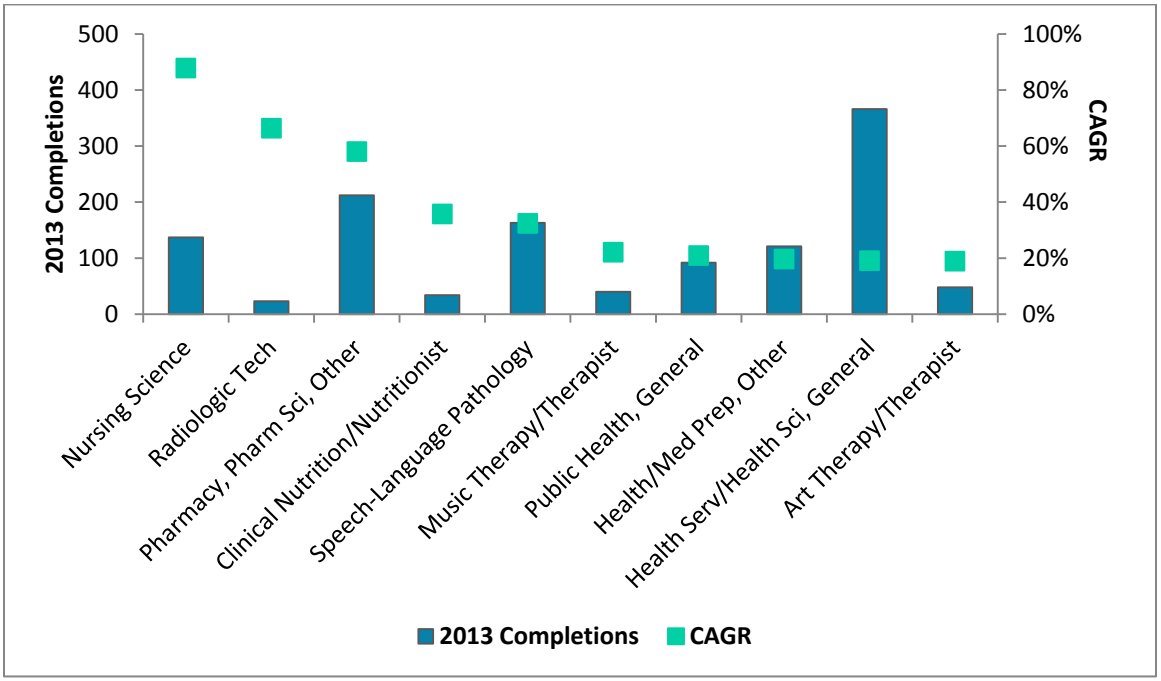
Figure 2.5: Fastest Growing Bachelor's Degrees in Health Sciences by Region, 2009-2013

RANK	UNITED STATES	MIDEAST REGION	PENNSYLVANIA
1	Family Practice Nurse/Nursing	Family Practice Nurse/Nursing	Nursing Science
2	Marriage and Family Therapy/Counseling	Pharmacy, Pharmaceutical Sciences, and Administration, Other	Radiologic Technology/Science - Radiographer
3	Medical Informatics	Health Services/Allied Health/Health Sciences, General	Pharmacy, Pharmaceutical Sciences, and Administration, Other
4	Adult Health Nurse/Nursing	Community Health and Preventive Medicine	Clinical Nutrition/Nutritionist
5	Dietetics and Clinical Nutrition Services, Other	International Public Health/International Health	Speech-Language Pathology/Pathologist
6	Pharmacy	Clinical Nutrition/Nutritionist	Music Therapy/Therapist
7	Public Health, General	Public Health, Other	Public Health, General
8	Respiratory Therapy Technician/Assistant	Radiologic Technology/Science - Radiographer	Health/Medical Preparatory Programs, Other
9	Nursing Administration	Communication Sciences and Disorders, General	Health Services/Allied Health/Health Sciences, General
10	Clinical/Medical Laboratory Technician	Emergency Medical Technology/Technician (EMT Paramedic)	Art Therapy/Therapist

Source: NCES

In Pennsylvania and the broader Mideast region, general health sciences programs have high conferral volume and strong compound annual growth rates, as shown in Figure 2.6. These programs, which provide basic instruction to prepare students for more specialized studies in allied health and other health services, had the highest number of regional and state conferrals in 2013. Speech and audiology programs, such as communication sciences and speech-language pathology, also saw relatively strong regional and state conferrals and CAGR over this period.

Figure 2.6: Fastest Growing Bachelor's Degrees in Health Sciences, Pennsylvania



Source: NCES

MASTER'S DEGREES

For master's degrees, nursing and mental health fields have experienced the strongest student demand based on conferral compound annual growth rates, as shown in Figure 2.7. Specifically, mental health counseling and mental health nursing ranked in the top 10 fastest-growing master's programs at the national, regional, and state levels. Nursing midwifery also showed strong growth at the national and regional levels, and family practice nursing has performed well regionally and within Pennsylvania.

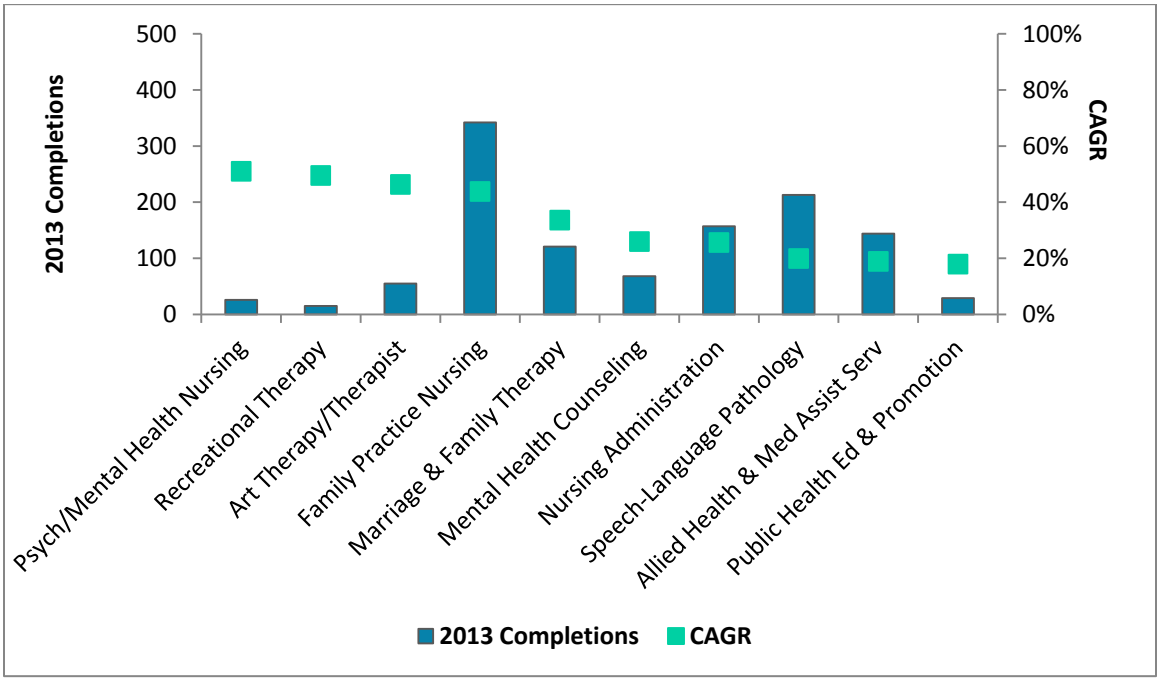
Figure 2.7: Fastest Growing Master's Degrees in Health Sciences, by Region, 2009-2013

RANK	UNITED STATES	MIDEAST REGION	PENNSYLVANIA
1	Pathology/Pathologist Assistant	Medicinal and Pharmaceutical Chemistry	Psychiatric/Mental Health Nurse/Nursing
2	Medical Radiologic Technology/ Science (Radiation Therapist)	Medical Informatics	Therapeutic Recreation/Recreational Therapy
3	Health Information/Medical Records Administration	Psychiatric/Mental Health Nurse/Nursing	Art Therapy/Therapist
4	Medical Informatics	Family Practice Nurse/Nursing	Family Practice Nurse/Nursing
5	Respiratory Care Therapy/Therapist	Communication Disorders Sciences and Services, Other	Marriage and Family Therapy/Counseling
6	Orthotist/Prosthetist	Nurse Midwife/Nursing Midwifery	Mental Health Counseling/Counselor
7	Psychoanalysis and Psychotherapy	Pathology/Pathologist Assistant	Nursing Administration
8	Nurse Midwife/Nursing Midwifery	Music Therapy/Therapist	Speech-Language Pathology/Pathologist
9	Mental Health Counseling/Counselor	Mental Health Counseling/Counselor	Allied Health and Medical Assisting Services, Other
10	Psychiatric/Mental Health Nurse/Nursing	Allied Health and Medical Assisting Services, Other	Public Health Education and Promotion

Source: NCES

In Pennsylvania, family practice nursing has demonstrated particularly strong student demand in terms of conferral volume and compound annual growth rate, as illustrated in Figure 2.8. Within the state, the greatest number of health science master's conferrals in 2013 was in family practice nursing, and the field had a strong five-year compound annual growth rate of 44 percent. Similar to national and regional trends, counseling and therapy programs also appeared in many of the top-ranking positions in terms of growth. These top-ranked master's programs included traditional mental health counseling as well as more specialized fields, such as recreational therapy, art therapy, and marriage and family therapy. Aside from nursing, few of the programs identified in this analysis align with Section I's high-growth and high-priority occupations requiring master's degrees, including the fields of social work, occupational therapy, and genetic counseling.

Figure 2.8: Fastest Growing Master's Degrees in Health Sciences, Pennsylvania



Source: NCES

APPENDIX A: METHODOLOGY

This appendix presents a detailed description of the methodology used to analyze labor market and student demand trends.

DATA SOURCES AND INTERPRETATION

This report relies largely on several official data sources to identify fast-growing health sciences fields. The table below indicates the types of data used in the report, their sources, and the scope of the analysis.

Figure A.1: Data Sources and Scope

INDICATOR	SOURCE	SCOPE
Occupational Projections	▪ Bureau of Labor Statistics ▪ Pennsylvania Department of Labor and Industry	The report considers all occupations within SOC categories 29-0000, Healthcare Practitioners and Technical Occupations and 31-0000, Healthcare Support Occupations, as well as additional health-related occupations from other SOC categories.[12]
Degree Completions	▪ National Center for Education Statistics	The report considers all completions from CIP category 51, Health Professions and Related Programs, as well as additional health-related CIPs from other two-digit categories.[13] The report considers only degree levels relevant to Clarion University's current award offerings; specifically, non-degree awards, associate's degree, bachelor's degrees, and master's degrees. When relevant, Hanover also considers the Doctor of Nursing Practice, as Clarion has recently added this degree.

To measure labor market demand, relevant occupations have been ranked by their projected growth during the time period 2012 to 2022. Section I of this report presents the top 20 occupations based on this measure for the United States and Pennsylvania.

To measure student demand, compound annual growth rates (CAGRs) for award completions in each field and at each award level were calculated for the period 2009 to 2013 (the most recent data available). In general, the CAGR provides the basis for the top 10 fastest-growing fields presented in this report. However, because CAGR can be an unstable measure, several additional steps were taken to produce more relevant and reliable results:

[12] Additional SOCs considered include: 11-9111 Medical and Health Services Managers; 21-1011 Substance Abuse and Behavioral Disorder Counselors; 21-1014 Mental Health Counselors; 21-1022 Healthcare Social Workers; and 21-1091 Health Educators.

[13] Additional CIPs considered include: 19.0501 Foods, Nutrition, and Wellness Studies, General; 19.0504 Human Nutrition; 19.0505 Foodservice Systems Administration/Management; 19.0599 Foods, Nutrition, and Related Services, Other; 26.0908 Exercise Physiology; 30.1901 Nutrition Sciences; 31.0501 Health and Physical Education/Fitness, General; 31.0504 Sport and Fitness Administration/Management; 31.0505 Kinesiology and Exercise Science; 31.0507 Physical Fitness Technician; 31.0508 Sports Studies; and 31.0599 Health and Physical Education/Fitness, Other.

- First, degree fields with no reported completions in the base year (2009) were excluded from consideration, as no CAGR could be calculated.
- Second, because changes in CAGR can be heavily influenced by small sample size, programs must report more than 20 conferrals in 2013 to be considered for analysis. All programs reporting 20 or fewer conferrals were removed from consideration.
- Finally, among the remaining degree fields, individual anomalies were removed from consideration. For instance, institutions sometimes switch the CIP code used to classify a program. When large individual programs do this during the reporting period, CIP code conferral counts changes dramatically, giving the impression of growth or decline in a field. Such fields were not included in the final ranking of fastest-growing programs.

APPENDIX B: SOC-TO-CIP CROSSWALKS

To determine relevant degree programs that provide training for high growth and high-priority health occupations, Hanover used a crosswalk developed by the BLS and the National Center for Education Statistics (NCES), which matches SOC occupational codes to corresponding CIP program codes. Figure B.1 lists relevant CIP categories for identified occupations as well as the education level typically required to obtain an entry-level position in these occupations. Several CIP categories can provide training for any given occupation, but the list in Figure B.1 is limited to the most common degree for each role.

Figure B.1: SOC-to-CIP Crosswalk for High Growth Occupations

SOC Code	SOC Title	CIP Code	CIP Title	Education*
29-1071	Physician Assistants	51.0912	Physician Assistant	Master
29-1122	Occupational Therapists	51.2306	Occupational Therapy/Therapist	Master
29-1123	Physical Therapists	51.2308	Physical Therapy/Therapist	Doctor
29-1129	Therapists, All Other	51.2399	Rehabilitation and Therapeutic Professions, Other	Bachelor
29-1161	Nurse Midwives	51.3807	Nurse Midwife/Nursing Midwifery	Master
29-1171	Nurse Practitioners	51.3818	Nursing Practice	Master
29-1181	Audiologists	51.0204	Audiology/Audiologist and Speech-Language Pathology/Pathologist	Doctor
29-2012	Medical and Clinical Laboratory Technicians	51.1004	Clinical/Medical Laboratory Technician	Associate
29-2021	Dental Hygienists	51.0602	Dental Hygiene/Hygienist	Associate
29-2031	Cardiovascular Technologists and Technicians	51.0901	Cardiovascular Technology/Technologist	Associate
29-2032	Diagnostic Medical Sonographers	51.0910	Diagnostic Medical Sonography/ Sonographer and Ultrasound Technician	Associate
29-2055	Surgical Technologists	51.0909	Surgical Technology/Technologist	Non-Degree Award
29-2057	Ophthalmic Medical Technicians	51.1802	Optometric Technician/Assistant	Non-Degree Award
29-2091	Orthotists and Prosthetists	51.2307	Orthotist/Prosthetist	Master
29-2092	Hearing Aid Specialists	51.0918	Hearing Instrument Specialist	High School Diploma
29-9092	Genetic Counselors	51.1509	Genetic Counseling/Counselor	Master
31-2011	Occupational Therapy Assistants	51.0803	Occupational Therapist Assistant	Associate
31-2021	Physical Therapist Assistants	51.0806	Physical Therapy Technician/Assistant	Master
31-9092	Medical Assistants	51.0801	Medical/Clinical Assistant	Non-Degree Award

Sources: IPEDS[14]; U.S. Bureau of Labor Statistics[15]
* This category represents the typical education required to enter a particular occupation, as defined by BLS.

[14] "2000-2010 CIP Conversion." IPEDS. http://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55
[15] "Education and Training Assignments by Detailed Occupation," Op. cit.

As with degree trends presented for high-growth occupations, Hanover found relevant programs of study that relate to Pennsylvania's high-priority occupations using the SOC-to-CIP crosswalk. While the analysis for high-growth occupations was limited to only one relevant degree field per occupation, the HPO analysis includes all related fields of study for each profession. Figure B.2 shows the CIP categories that correspond to each health profession and the typical educational attainment required for entry to the occupation.

Figure B.2: SOC-to-CIP Crosswalk and Typical Education for High Priority Occupations

SOC Code	Occupation	CIP Code	CIP Title	Education*
21-1011	Substance Abuse and Behavioral Disorder Counselors	51.1501	Substance Abuse/Addiction Counseling	High School Diploma
		51.1503	Clinical/Medical Social Work	
		51.1506	Clinical Pastoral Counseling/Patient Counseling	
21-1093	Social and Human Service Assistants	19.0710	Developmental Services Worker	High School Diploma
		44.0000	Human Services, General	
29-2081	Opticians, Dispensing	51.1801	Opticianry/Ophthalmic Dispensing Optician	High School Diploma
29-2041	Emergency Medical Technicians and Paramedics	51.0904	Emergency Medical Technology/ Technician (EMT Paramedic)	Non-Degree Award
31-1014	Nursing Assistants	51.2601	Health Aide	Non-Degree Award
		51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide	
29-2021	Dental Hygienists	51.0602	Dental Hygiene/Hygienist	Associate's Degree
21-1023	Mental Health and Substance Abuse Social Workers	44.0701	Social Work	Bachelor's Degree
		51.1503	Clinical/Medical Social Work	
29-2011	Medical and Clinical Laboratory Technologists	51.1002	Cytotechnology/Cytotechnologist	Bachelor's Degree
		51.1005	Clinical Laboratory Science/Medical Technology/Technologist	
		51.1007	Histologic Technology/Histotechnologist	
		51.1010	Cytogenetics/Genetics/Clinical Genetics Technology/Technologist	
21-1022	Healthcare Social Workers	44.0701	Social Work	Master's Degree
		51.1503	Clinical/Medical Social Work	
29-1171	Nurse Practitioners	51.3818	Nursing Practice	Master's Degree
29-1051	Pharmacists	51.2001	Pharmacy	Doctoral or Professional Degree

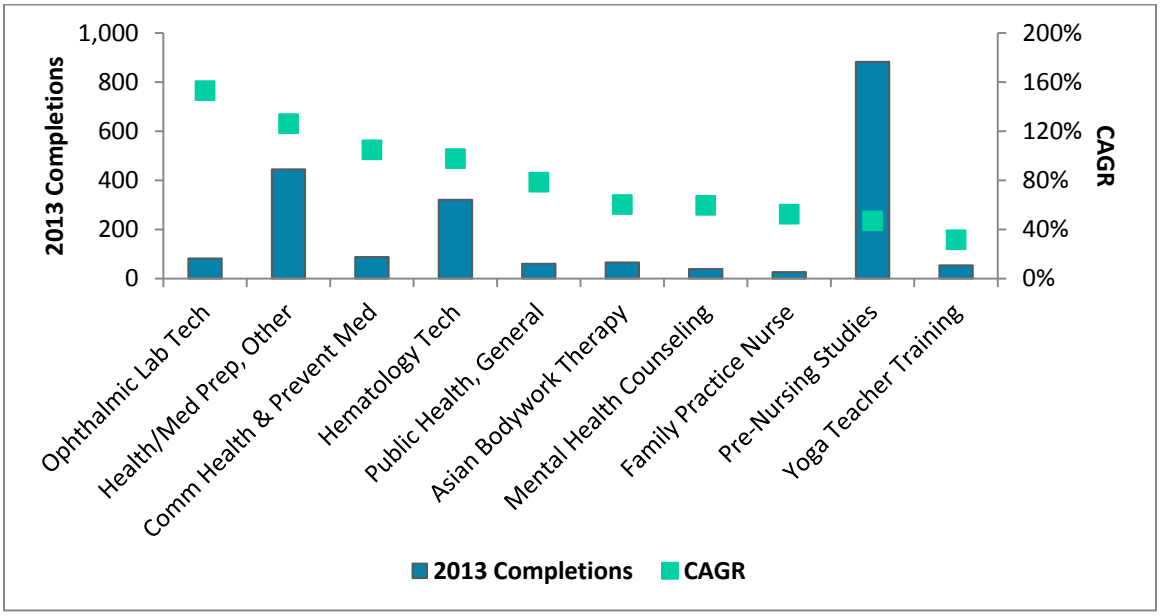
Sources: IPEDS[16]; U.S. Bureau of Labor Statistics[17]
* This category represents the typical education required to enter a particular occupation, as defined by BLS.

[16] "2000-2010 CIP Conversion." IPEDS. http://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55
[17] "Education and Training Assignments by Detailed Occupation," Op. cit.

APPENDIX C: STUDENT DEMAND TRENDS

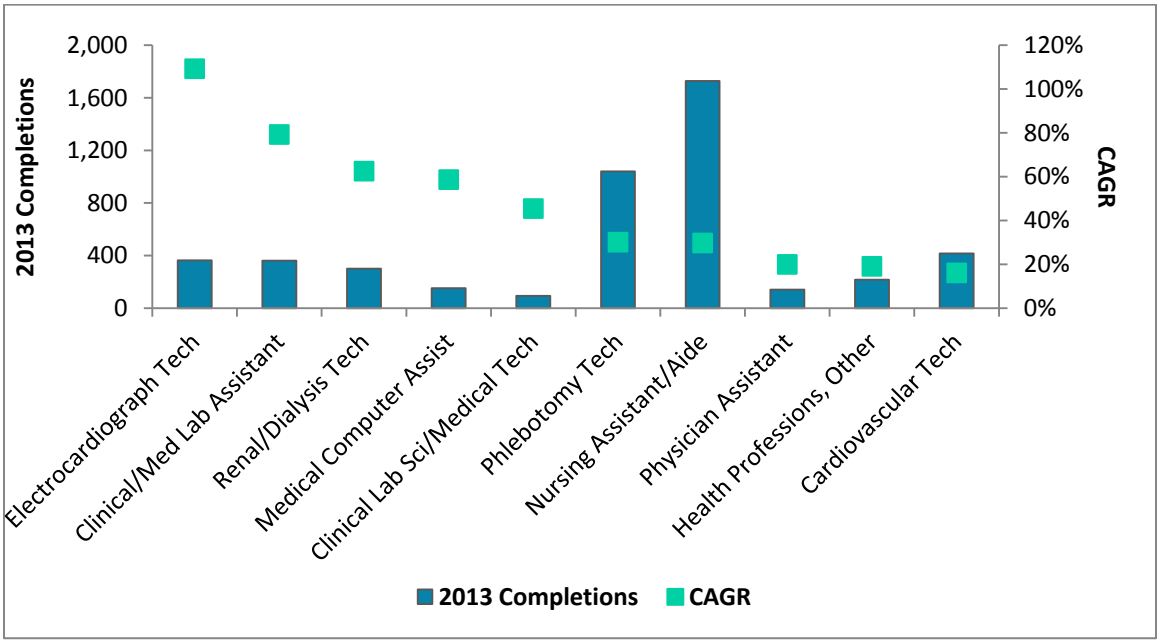
This appendix includes detailed graphs that depict national and regional completions trends for the top 10 health sciences programs of study, ranked by compound annual growth rate (CAGR).

Figure C.1: Fastest Growing Non-Degree Awards in Health Sciences, United States



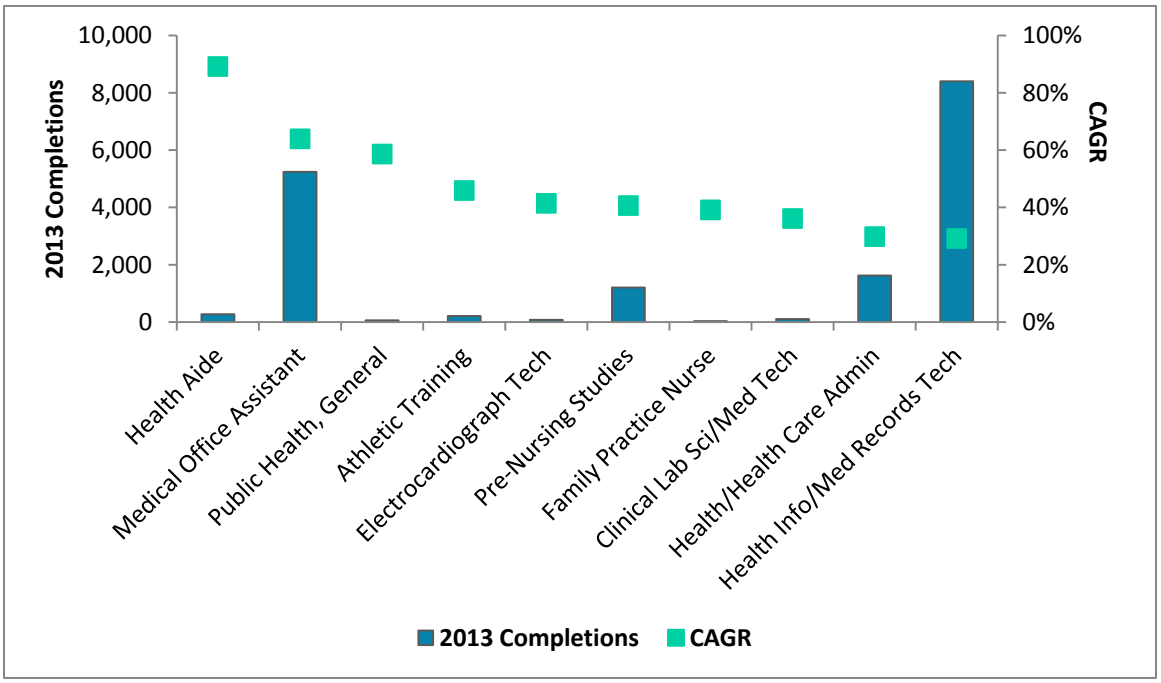
Source: NCES

Figure C.2: Fastest Growing Non-Degree Awards in Health Sciences, Mideast Region



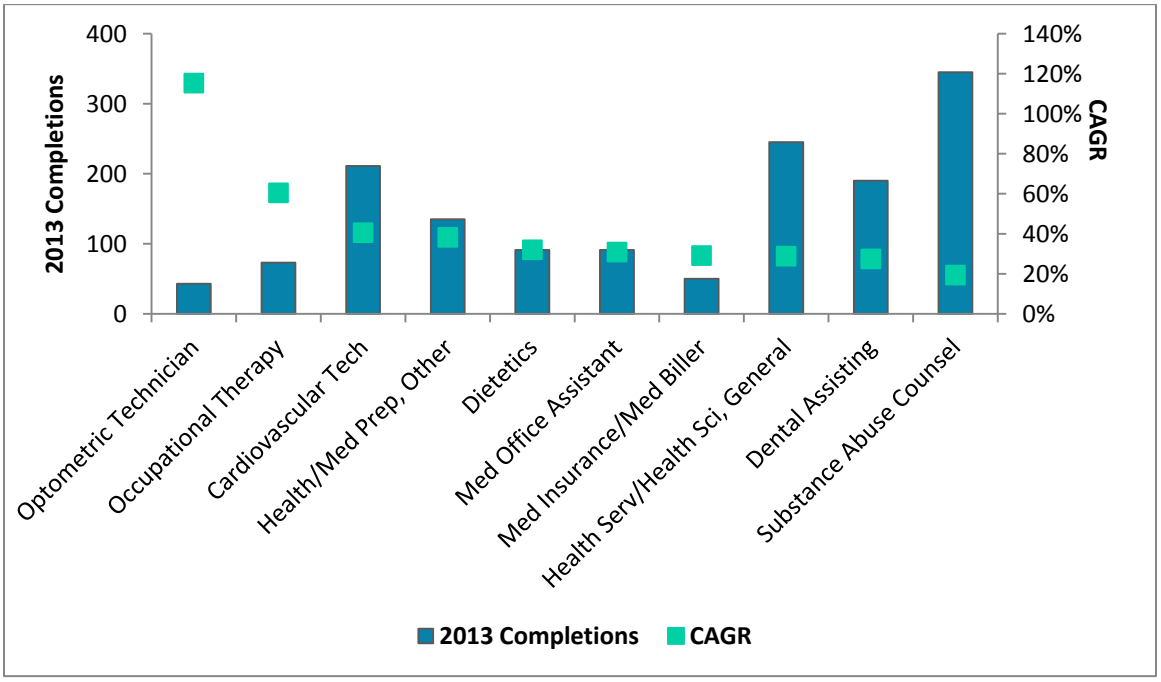
Source: NCES

Figure C.3: Fastest Growing Associate's Degrees in Health Sciences, United States



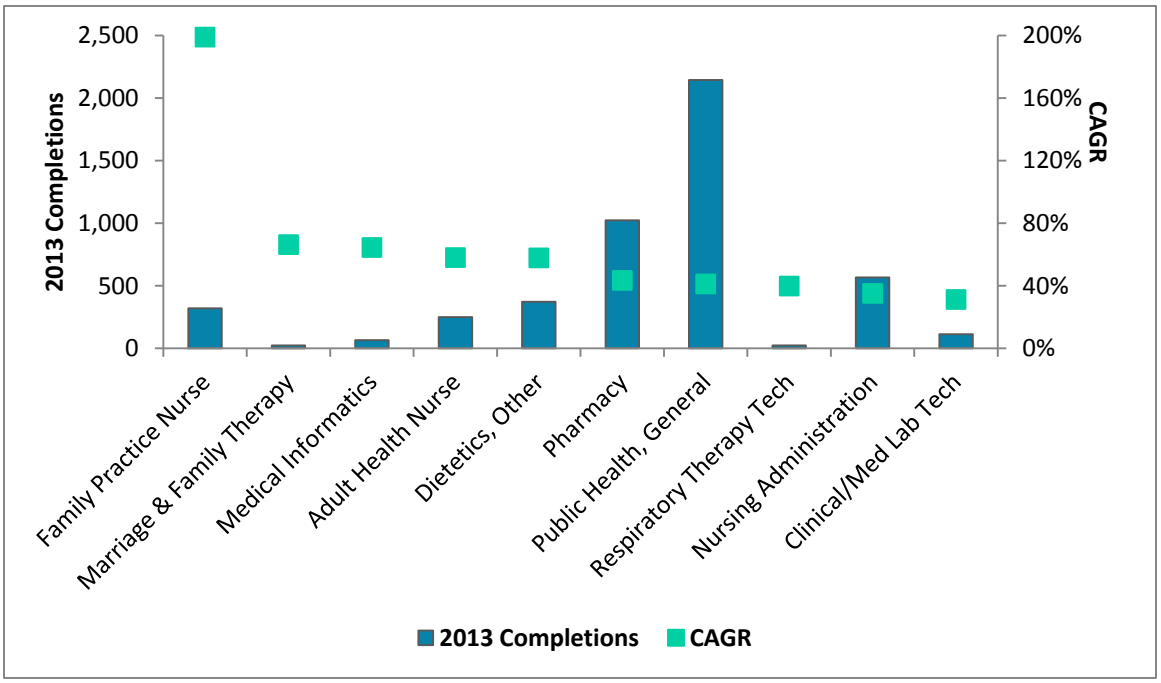
Source: NCES

Figure C.4: Fastest Growing Associate's Degrees in Health Sciences, Mideast Region



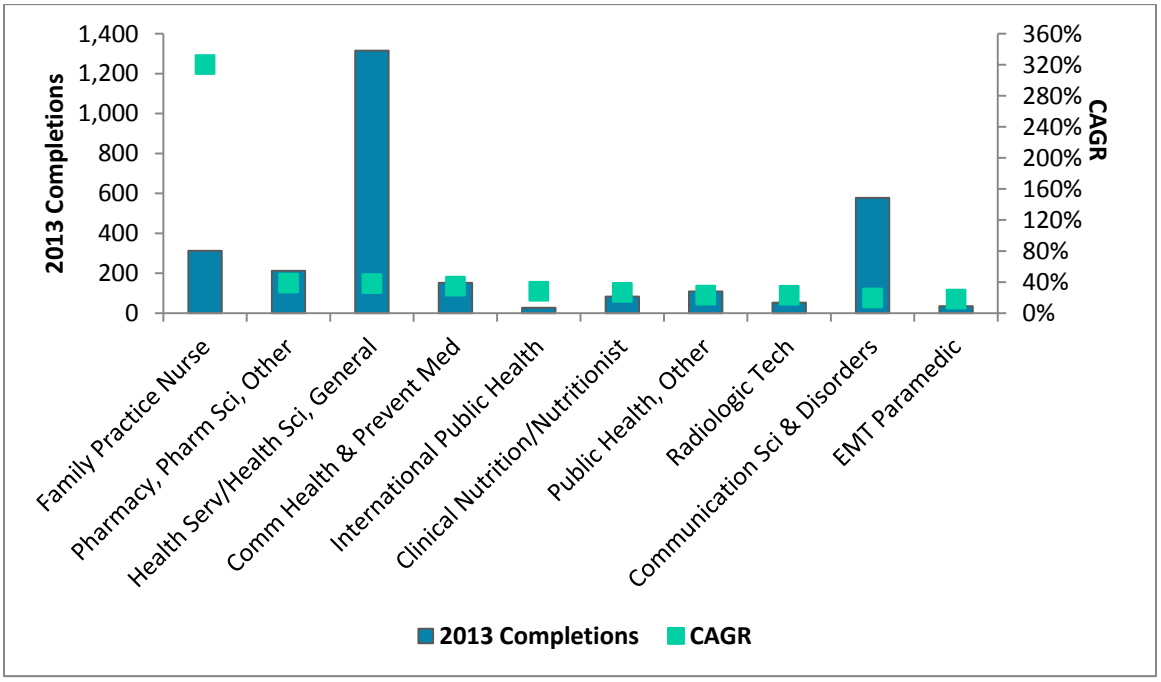
Source: NCES

Figure C.5: Fastest Growing Bachelor's Degrees in Health Sciences, United States



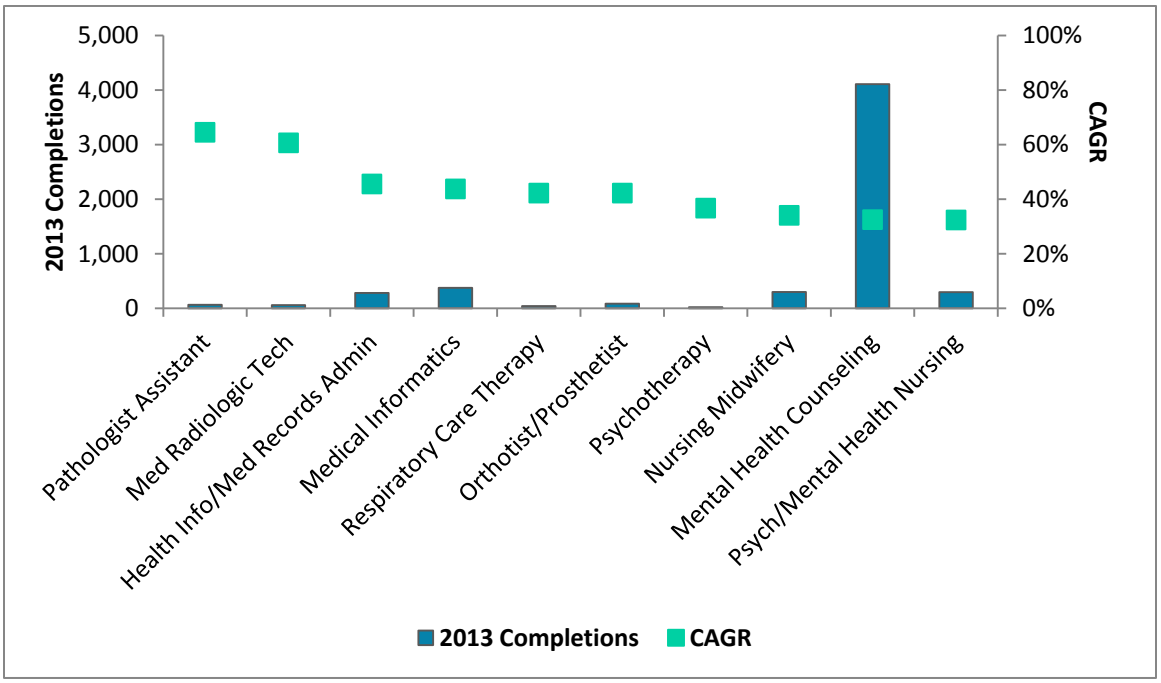
Source: NCES

Figure C.6: Fastest Growing Bachelor's Degrees in Health Sciences, Mideast Region



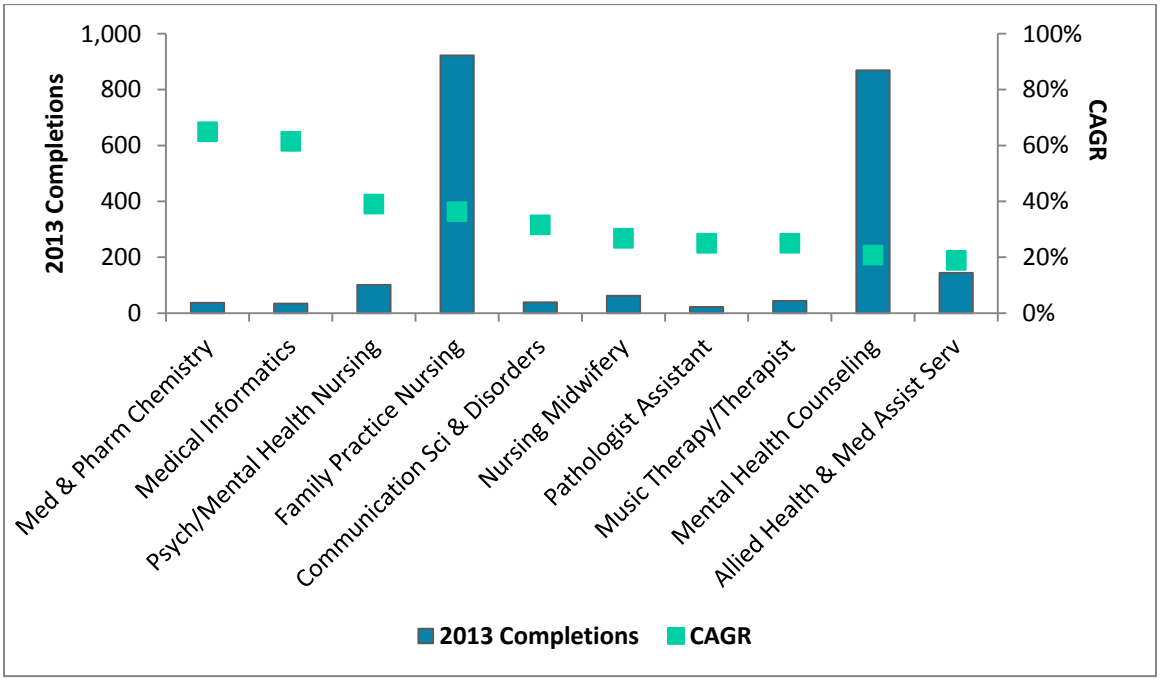
Source: NCES

Figure C.7: Fastest Growing Master's Degrees in Health Sciences, United States



Source: NCES

Figure C.8: Fastest Growing Master's Degrees in Health Sciences, Mideast Region



Source: NCES

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