



**Supply/Demand Workforce Gap Analysis
on Health-Related Programs
as Part of the Environmental Scan
of the Board of Governors Health Initiatives Committee**

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DRAFT

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Supply/Demand Workforce Gap Analysis on Health-Related Programs as Part of the Environmental Scan of the Board of Governors Health Initiatives Committee

BACKGROUND AND PURPOSE

The Board of Governors Health Initiatives Committee

In August 2013 the Board of Governors Health Initiatives Committee was established to provide leadership for the development of system-level policy for the twelve State University System institutions regarding health initiatives. The work of the Committee will guide the State University System in both the foreseeable future and the longer-term when Florida is expected to experience even more substantial stress on its health care delivery system.

Two products will result from the initial work of the Committee: an *Environmental Scan* and, subsequently, a *Health Initiatives Strategic Plan*. The environmental scan will identify emerging and evolving needs and assess the status of existing programs, research and delivery in health care. Based upon the findings in the environmental scan, the Board will develop a *Strategic Plan for Health Initiatives* to advance the quality, coordination, and, where appropriate, growth of educational programs, research and delivery across the State University System to better position Florida to respond to future health care needs.

This report provides the results of the environmental scan for educational programs in health. A companion report that provides the results of the environmental scan in health-related research is available at <http://www.flbog.edu> and a health care delivery report is forthcoming.

Environmental Scan Guiding Questions for Health Education

This report focuses on the health education component of the environmental scan and includes a review of health programs being offered by higher education institutions in Florida. The report also describes the methodology employed in the environmental scan to determine whether Florida's universities are on track to prepare enough graduates to meet the pending demand for healthcare workers.

The information gathered for this report and the analysis presented in the results section corresponds to the guiding questions upon which the environmental scan was based. Specifically, what are the programs and number of graduates that contribute to potential supply for the health workforce in Florida? What is the projected demand for healthcare workers, by occupation, in Florida? Are there gaps between the supply of graduates and demand for workers in specific health occupations? What

methodological or contextual factors can be accounted for and included to adjust the supply or demand projections for greater accuracy in the gap analysis?

A closer look at occupationally-specific methodological and contextual factors is provided in the results section of the report. The influences of these additional factors on the supply and demand estimates, as they affect individual occupations, are provided as part of the supply/demand gap analysis.

METHODS

Work of the Commission on Higher Education Access and Attainment

The gap analysis for health occupations follows closely the methods previously established by the Board of Governor's Commission on Higher Education Access and Attainment. The work of the Access and Attainment Commission began in 2012 and completed in 2013 with a report on workforce gaps at the baccalaureate level for all sectors of higher education in Florida. One of the Commission's main tasks was to develop a sustainable methodology for a gap analysis that would identify occupations requiring a bachelor's degree in which the projected annual under-supply exceeded 100 workers. Researchers participated from the Department of Economic Opportunity (DEO), the Florida Council of 100, the Florida College System (FCS), the Independent Colleges and Universities of Florida (ICUF), the Commission for Independent Education (CIE) and the State University System (SUS).

Appendix A of the Commission's report provides greater detail on the decision points and explanation of the final gap analysis method. The next few paragraphs highlight where the gap analysis for health occupations has followed those decisions and where it has departed.

As described in the Commission's report, the "gap" in Florida's future workforce needs includes two major components: 1) "demand" by occupation, and 2) "supply" by education program, defined as the number of graduates being produced by Florida postsecondary institutions. Like the Commission's analysis, supply for the health gap analysis is represented by the number of degrees awarded by Florida schools as reported to the National Center for Educational Statistics' Integrated Postsecondary Educational Data System (IPEDS). All educational institutions receiving Title IV Financial Aid (approximately 400 in Florida) are required to report these data to IPEDS, assigning a Classification of Instructional Programs (CIP) code to each educational program. Unlike the Commission's work, the health gap analysis goes beyond the baccalaureate level to also include the associate (for nursing), graduate, and professional degree levels.

The method for estimating demand follows the Commission's use of the Florida Department of Economic Opportunity's Long-term Employment Projections that are presented annually at the fall Workforce Estimating Conference of the Florida Legislature. The projections are prepared using a commonly accepted methodology developed by a consortium of labor market information offices across the country. Demand for labor is forecast by industry (for over 300 industries) and by sub-state region. Industry demand for labor is transformed to demand by occupation for approximately 800 occupations by applying a staffing pattern specific to each industry. The staffing pattern is produced by the annual Occupational Employment Statistics survey, which includes data from more than 55,000 employers representing more than 4.4 million employees each year. Additional adjustment factors by the U.S. Bureau of Labor Statistics are applied to account for expected occupational change and retirements. Annual demand for labor is based on total annual openings, which is comprised of new job growth (expected increase in demand for labor due to economic growth in the industry) and replacements (job openings due to workers retiring or leaving the labor force).

Each occupation is assigned a Standard Occupational Classification (SOC) code and an educational attainment level by the U.S. Department of Labor Bureau of Labor Statistics (BLS). The BLS taxonomy classifies occupations by the typical level of skills needed to enter an occupation. The health gap analysis follows the decision of the Commission to use the U.S. Bureau of Labor Statistics (BLS) taxonomy for education level. Appendix A of the Commission's report provides an explanation of different methodologies and a justification for choosing the BLS taxonomy.

The health gap analysis follows the Commission's work of using a national CIP-SOC crosswalk built by the BLS and the U.S. Department of Education's National Center for Education Statistics as the basis for linking occupations (the SOC code) with their correlated educational programs (the CIP code). Unfortunately, there is sometimes not a one-to-one correspondence between CIP and SOC codes because a given educational program can often lead to multiple occupations and a given occupation can often be supplied by many different educational programs. Further, the list of CIP codes are updated annually and can better capture emerging fields, whereas the SOC codes are only updated every ten years and so potentially miss new occupations and emerging industries.

The Commission's gap analysis was conducted at the baccalaureate level, that is, the intent was to determine whether four-year university programs needed to ramp up degree production in program areas that were considerably under-supplied. The health gap analysis presented in this report, however, includes a range of degree levels in the CIP-SOC crosswalk, which required several unique assumptions and decisions for data analysis. The match between degree completers and an occupation's typical education level was adjusted under the following assumption:

- Master's degree graduates are likely to take jobs that typically require either a master's or bachelor's for entry into the occupation, and doctorate degree graduates may take jobs that would typically require doctorate, master's, or bachelor's for entry into the occupation. The rationale for this assumption is that advanced degrees may give these graduates a hiring preference or higher starting pay, but they are still eligible for jobs where the typical entry is set at the bachelor's degree. A similar logic applies for nursing, where master's, bachelor's and associate's degree graduates could meet the demand for jobs that typically require an associate's degree for entry level (RNs), but doctorate level graduates are likely to take jobs where entry to the occupation is typically set at doctorate, masters, or bachelor's degree levels (nurse practitioners, nursing instructors, and management positions).

Like the Commission's work, the health gap analysis includes two supply adjustments in an effort to limit the problem of occupations linked to multiple academic disciplines and potentially overstating supply.

- After the initial SOC-to-CIP match to derive the total number of recent graduates qualified for a particular 'target' occupation, it is imperative to also look from CIP-to-SOC to get a sense of all the occupations competing for those graduates. Thus, the adjusted supply was derived by weighting the total supply of graduates linked to a target occupation. The weight was calculated as the target occupation's percentage of projected total openings as a portion of openings from all the competing occupations (excluding postsecondary health teachers). For an example of the Commission's de-duplication (weighting) adjustment, see Figure 1 on page 9.
- For the Commission's work, managerial occupations were excluded from analysis. However, for the health gap analysis the Medical and Health Services Managers occupation was included in the de-duplicating (weighting) process described above due to the advanced degree levels included in the analysis. The Health Teachers, Postsecondary occupation was excluded from the health gap weighting based on the grouping of all health-related teachers and the high demand associated with it. By including this occupation in the weighting process without pro-rating for each occupation's portion of health teachers, the results were skewed so that more than half of program completers were likely to go into post-secondary teaching rather than practice in the professions. This was particularly problematic for physicians, dentists, physical therapists and other programs at the professional doctorate level.

Other methodological considerations and contextual factors were also presented as part of the Commission's work. Contextual metrics for the Commission's work included

annual projected demand growth rates, short-term demand as indicated by Help Wanted Online data, the existence of a waiting labor force “warehoused” by the recession, and average entry wage rates. Additionally, factors that may affect the health workforce analysis include:

- out-migration of graduates, especially from programs with a high percentage of out-of-state students, from on-line programs, or in disciplines with a residency requirement that, for multiple reasons, may take them out of state after graduation;
- the number of post-professional degree-seekers who may graduate with a higher degree level, and are therefore included in the CIP supply counts, but who do not represent “new” supply;
- the ability of graduates to pass licensing exams for specific occupations and the ability to track practice patterns through licensing (ex. full or part-time workers, geographic distribution, ratio of practitioners to the population);
- health demand projections that incorporate changes in healthcare delivery, use and cost of medical services, and insurance coverage;
- costs and faculty limitations for growing some programs;
- the addition of new and planned programs to supply;
- and a difference between regional and state demand for occupations.

Consideration of these factors, as well as the methods described in this section of the report, is the next step of the Board of Governor’s Health Initiatives Committee and its Advisory Group and will be considered in the development of the *Strategic Plan for Health Initiatives*.

Example of Supply Adjustment Method

The figure below provides an example of how the supply of graduates can be adjusted based upon the proportion that is likely to go into various occupations. In the example using Accounting and Finance majors shown below, graduates can enter a number of different occupations. To read this table, the occupation listed to the far left, Financial Analyst, has 326 projected annual openings and crosswalks to the 3 CIPs, or program areas, listed to the immediate right. Programs in the 3 CIPs graduated a total of 3,093 bachelor’s degree graduates that could potentially fill the 326 Financial Analyst positions. However, the graduates of the 3 CIPs also have other occupations for which they would be qualified to fill (according to the CIP-SOC crosswalk). These SOC are listed to the right of the CIPs and the un-duplicated openings from these alternative occupations sum down the column to 4,641 openings. The 326 openings for the Financial Analyst occupation represent just 7% ($326/4,641$) of the openings available to the 3,093 graduates, so 7% becomes the adjusting weight for the supply of graduates. This calculation results in 217 graduates (7% of 3,093) as the adjusted, potential supply for the Financial Analyst occupation. What initially looked like an oversupply of 3,093

graduates for 326 openings was adjusted to an under-supply because of additional openings that graduates can fill in multiple, competing occupational pathways.

Figure 1. De-duplication of Potential Supply for the Financial Analyst Occupation in the CIP-SOC Crosswalk			
SOC		CIP	SOC
FINANCIAL ANALYST	Accounting and Finance	Financial Managers	530
		Accountants and Auditors	3,237
		Budget Analysts	104
		Financial Analysts	326
	Accounting and Business Management	Financial Managers	530
		Accountants and Auditors	3,237
		Financial Analysts	326
	Finance, General	Chief Executives	660
		Financial Managers	530
		Budget Analysts	104
		Credit Analysts	124
		Financial Analysts	326
		Personal Financial Advisors	575
		Financial Specialists, All Other	275
326 OPENINGS	3,093 BACHELOR'S	4,641 NON-MANAGER OPENINGS	
ADJUSTED SUPPLY			
In this example, only 7% of the total supply (3,093 graduates) is used in the gap analysis because the financial analysts only comprise 326, or 7%, of the 4,641 non-managerial jobs available to these graduates. So, the adjusted supply is $3,093 \times .07 = 217$.			

Each of the health occupations presented in the results section of this report have been analyzed by linking the SOC code to the CIP codes identified in the CIP-SOC crosswalk. Many of the CIPs and SOCs in this report have a one-to-one relationship and did not require an adjustment of the supply of graduates. However, for the health occupations that were linked to education programs whose graduates could supply more than one occupation, the supply was adjusted to be the percentage (by a weighted share of demand) of graduates likely to go into that specific occupation. The process followed the example calculation above. For a few occupations where licensing data indicated that the adjustment was likely excluding too many graduates as potential supply, the results section of this report provides several adjustment scenarios and a rational for the likeliest one.

New and Potential Health-Related Programs in the SUS

Figure 2 below provides a listing of new State University System programs in health that have been approved since last year, Spring 2014, as well as programs that universities are considering in the near future. These new programs will add future supply and are provided as contextual factors for this gap analysis.

Figure 2. New and Potential Health-Related Programs SUS Programs Approved Since Spring 2014*				
CIP Code	Institution	CIP Title	Degree Level	Proposed Implementation Date
30.1901	UF	Nutrition Sciences	Bachelors	FALL 2014
51.3101	UF	Dietetics/Dietitian	Bachelors	FALL 2014
51.0912	FIU	Physician Assistant	Masters	FALL 2015
51.0912	USF	Physician Assistant	Masters	TBD
51.0912	FSU	Physician Assistant	Masters	FALL 2015
51.2314	USF	Rehabilitation Science	Research Doctorate	FALL 2014
SUS Programs for Consideration in 2014-15				
51.1005	USF	Clinical Laboratory Science/Medical Tech.	Bachelors	
51.2305	FGCU	Music Therapy	Bachelors	
42.2806	UNF	Education Psychology	Masters	
51.3804	FSU	Nurse Anesthesia	Masters	
51.3804	USF	Nurse Anesthesia	Masters	
51.3818	FAMU	Nursing Practice	Practice Doctorate	
*Spring 2014 was selected because enrollment data through Fall 2013 is included in the report's results section and forms a list of programs up to that date.				

Source: Board of Governors, 2013-2014 System Summary of University Work Plans

Limitations and Restrictions

A complete gap analysis following the methods described above was done for 23 health-related occupations and is presented in the results section of this report. However, six additional occupations were originally included in the gap analysis, but a meaningful analysis was not possible due to limitations with the methodology. For each of these six occupations, either the classification of the occupation or classification of the academic programs was confounded with additional demand, graduates or work experience requirements that could not be meaningfully considered. Details of the limitations for each of the six occupations are briefly described below.

Medical and Health Services Managers

A full analysis of the Medical and Health Services Managers occupation was limited by the years of work experience typically required for entry into the occupation. The gap analysis methodology does not account for post-graduate work experience, which is particularly problematic for occupations where the BLS education includes bachelor's degrees and higher and where no licensure is required. For some of the other occupations requiring work experience prior to full licensure, the licensing data provided additional context to supply estimates and overcame this methodological limitation. However, for Medical and Health Services Managers, the gap analysis did not provide a good estimate of the number of bachelor's degree graduates qualified to fill management positions without post-graduate work experience.

Without compensating for the work experience requirement, but otherwise following the CIP-SOC methodology, the adjusted supply for Medical and Health Services Managers is 2,697 graduates for 501 projected annual openings. The adjusted supply includes 1,872 bachelor's degree graduates, 718 master's degree graduates, and 107 doctoral degree graduates from 8 CIP codes. The number of master's and doctoral graduates, who are more likely to have work experience or are able to offset the work experience requirement with advanced education, is still sufficient to meet the projected demand.

Health Specialties Teachers and Nursing Instructors

Both the Health Specialties Teachers and Nursing Instructors occupations were confounded by grouping the demand for clinical faculty and non-clinical faculty together. Many of the health-related academic programs follow accreditation guidelines for student to faculty ratios, which specify the number of clinical and non-clinical faculty necessary to train a specific number of students. An analysis following the CIP-SOC methodology cannot distinguish the demand for clinical faculty from non-clinical faculty and would include as supply the graduates from professional degree and research degree programs, equally, to meet the demand. However, in reality, the demand and supply is more nuanced and graduates of professional programs, who likely have clinical experience, are better qualified to meet the demand for clinical

faculty. Therefore, the methods of this gap analysis are limited by the broad occupational definition for Health Specialties Teachers and Nursing Instructors.

The Health Specialties Teachers occupation is particularly ill-defined because it combines the demand for many discrete health-related occupations' educators together. Without sub-dividing the demand according to the size of specific health academic programs, which is beyond the scope of this analysis, a meaningful supply-demand gap calculation is not possible.

Environmental Scientists and Specialists, Including Health

The Environmental Scientists and Specialists, Including Health occupation is confounded by the grouping of health-related and other environmental scientists together. The occupation is defined broadly and crosswalks to a number of health and non-health academic programs, which appear to have specific and un-related curricular focus. An analysis using the CIP-SOC methodology for Environmental Scientists, Including Health is limited because the occupational demand and projected job openings includes too many distinct types of jobs and all of the program graduates aren't equally qualified to fill each of those openings.

Medical Scientists

Much like the Environmental Scientist occupation, the Medical Scientist occupation is also too broadly defined for a meaningful gap analysis using the CIP-SOC methodology. The demand for many types of Medical Scientists, who in reality have very specialized training, is combined for the occupation and crosswalks to many discrete research-oriented PhD programs. At the bachelor's and master's degree level, the gained research skills and medical science knowledge is more generally applicable to a broader range of jobs. For this reason, an analysis of the Medical Technologist occupation, requiring a bachelor's degree or higher, is included in the results section and provides a meaningful supply-demand gap calculation. However, the BLS education typically required for the Medical Scientist occupation is a doctoral degree and is not nearly as transferrable to all types of Medical Scientist jobs. Therefore, a full analysis is limited because the occupational demand and projected job openings includes too many distinct types of jobs and all of the program graduates aren't equally qualified to fill each of those openings.

Occupational Health and Safety Specialists

A full analysis for Occupational Health and Safety Specialists was limited because only one academic program is included in the CIP-SOC crosswalk for the occupation. It is very likely that additional programs in each of the sectors offer Occupational Health and Safety as a specialization within a major, but identifying these programs was beyond the methods of this report. Occupational Health and Safety Specialist may be an emerging occupation that would benefit from elevating the academic specialization to a formal degree program in the 15.0701 Occupational Safety and Health Technology CIP. However, the DEO projects only 5.8% growth for the occupation and 82 annual

openings. The one program identified in the CIP-SOC crosswalk, at Embry-Riddle Aeronautical University, graduated 13 bachelor's degree students in 2012-2013. The occupation appears to be under-supplied when only considering this data, but without additional information on program graduates from Occupational Safety specializations or majors this analysis is incomplete.

RESULTS

Chapter Outline of the Gap Analysis

The individual chapters for the 21 occupational groups presented in this results section are principally organized in order of greatest demand (total annual openings) and not by the gap estimate. However, for simplifying the presentation of data, the three nursing occupations have been grouped together. Registered Nurses have the greatest number of projected annual openings from 2014-2022 and appear first in the following occupational chapters. Nurse Practitioners and Nurse Anesthetists have fewer projected openings than some of the other occupations, but these occupations are paired with the Registered Nurses section because of overlap for the Nursing programs. The Dentist and Physician chapters also include multiple SOC's, including Specialists, because these SOC's are supplied by the same source of graduates.

Each occupational chapter includes a Table A with occupational employment projections and wage data provided by the Florida Department of Economic Opportunity (DEO), as well as the education level for typical entry into the occupation and the occupational profile from the U.S. Bureau of Labor Statistics (BLS). Tables B and C provide greater detail on programs, graduates and enrollments for the CIP codes that align with the occupation in that chapter.

For some occupations, the enrollment "totals" in Table C do not equal the sum of the **listed** institutional enrollments for each of the five contributing years from 2009 through 2013. The reason for this discrepancy is that programs that closed before 2013 and didn't have graduates in 2012-2013 were excluded from the report. Institutions that had enrollments in any year from 2009-2013, but no graduates in 2012-2013, are **not listed** because they are no longer contributing graduates (supply) to the field. However, the "total" category includes the enrollments for programs that are both listed and not listed and is an accurate total of enrollments for the five years that are reported in this gap analysis.

Table D summarizes the demand and supply estimates from the previous tables and narrative sections of the occupational chapter and includes a calculation of over-supply or under-supply based on the number of Florida program graduates. For some occupations, several supply scenarios are included in Table D and a rationale for the likeliest scenario is provided in the narrative of that section. Tables E, F, and G include additional contextual factors that influence the estimated supply for the occupation.

Table E presents outcomes reported to the Florida Education and Training Placement Information Program (FETPIP) and summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. Table F includes a comparison of the DEO's estimated total

occupational employment for 2014 and projected total employment in 2022 to the current, total number of in-state active licenses most relevant to the occupation. The licensing data was accessed on April 1, 2015, from a publicly-available database maintained on the Department of Health's (DOH) Medical Quality Assurance website. Table G includes data from that same licensing database and shows the number of initial licenses issued in each of the years 2009-2014, as well as the number of in-state active licenses from those prior years that currently remain active and in-state. When considered together, Tables E, F, and G provide greater context on net migration and available supply for the workforce.

A few chapters cite additional resources to address special contextual factors. For example, the availability of residencies is a critical factor in determining how many physicians stay in Florida to practice. Similarly, the demand for nurses and physicians is nuanced and information from recent workforce reports is provided as additional context to the Florida DEO's estimate of demand.

Summary Gap Analysis

Figure 3 below summarizes the findings for the 21 occupational groups presented as chapters in this section (including 33 SOC codes). Each occupation is identified by its chapter number for this report, SOC code, and the occupation title. The total 2014 workforce is represented by the Florida DEO's estimate of current employment for the occupation, as well as the DOH's total number of in-state active licenses for the occupation (most relevant license). Some occupations in the gap analysis do not have a Florida license for practice and are denoted as NA in these columns. In the next column is the DEO's projected annual demand for each occupation, which is a sum of the number of annual openings from replacement and growth.

The annual supply columns include an unadjusted and adjusted estimate of the supply of Florida graduates from 2012-2013 (year with the latest available data). The unadjusted supply figure has not been weighted for multiple occupational pathways for the graduates according to the CIP-SOC methodology. This is what distinguishes it from the adjusted supply estimate. However, both the unadjusted and adjusted number have been modified for accuracy when (1) it became obvious that relevant programs were missing from the CIP-SOC crosswalk, based on correspondence with university staff or after a review of program websites – this modification increased the number of graduates – or (2) a significant portion of the graduates were in a post-professional track and already held a license and likely worked in the occupation already – this modification reduced the number of graduates. The occupational chapters provide greater detail on these modifications, as well as the adjustments for multiple occupational pathways.

The annual supply columns also include data on new licenses issued in 2014. The number of new licenses includes those issued to Florida graduates and to individuals who migrate into Florida. The number still in-state and active as of April 1, 2015 is the remaining sub-set of the licenses newly issued in 2014. For some occupations, a significant portion of individuals obtain licenses in the state of Florida and then either (1) leave the state within a year or (2) fail to move into the state and establish a Florida practice address. Based on the high in- and out- migration for some occupations, the still active license number is used in the gap analysis calculation on the far right of Figure 3. Two gap analysis calculations are included. The first subtracts the projected annual demand from the adjusted supply of graduates and the second subtracts the projected annual demand from the still active number of licenses. For some occupations, concluding whether an occupation is sufficiently supplied or under-supplied requires a reconciliation of these two results. For other occupations, both calculations indicate the demand is sufficiently supplied by the graduates and license-holders.

Refer to FIGURE 3 from Excel File

Nurses

Summary Observations

- The Florida Department of Economic Opportunity projects 6,979 annual openings for Registered Nurses, 357 annual openings for Nurse Practitioners, and 140 annual openings for Nurse Anesthetists from 2014 to 2022*.
- Florida produced roughly 8,600 new Registered Nursing graduates, 580 new Nurse Practitioner graduates, and 140 new Nurse Anesthetist graduates in 2012-2013* (those not previously licensed for the specific occupation).
- Meaningful post-graduation employment data for nursing graduates was not available at the time of analysis due to confounding factors in the reporting by CIP code. However, data from the Florida Center for Nursing on nursing employment may provide this additional context going forward.
- Florida issued 22,965 new Registered Nurse licenses, 523 new Nurse Practitioner licenses and 165 new Nurse Anesthetist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 14,256 with an in-state active Registered Nurse license, 256 with an in-state active Nurse Practitioner license, and 44 with an active in-state Nurse Anesthetist license remain in Florida the following year.
- **A final supply-demand gap analysis for the nursing occupations is not available at the time of print for this report.** The analysis requires consideration of additional contextual factors and several Florida-based reports on nursing will become available as the Health Initiatives Committee moves into its strategic planning and implementation year. The Florida Center for Nursing, in conjunction with health industry leaders, will evaluate the current and future needs in nursing and is expected to produce a report in early 2016. Several of the critical contextual factors that should be considered for a thorough analysis include: shortages that may currently exist but are not captured in the baseline data of the DEO's projections, increasing demand for nurses with a bachelor's degree due to more complex care and hospitals seeking Magnet status, nuanced demand where some positions require advanced training and are not actually available to new nursing graduates, changes in health care delivery that impact the demand for registered nurses and advanced practice nurses, and factors that impact the growth of nursing programs and education pathways for nursing.
- The data provided in the tables below are current estimates of supply and demand, but further data collection and analysis is required to determine the true estimate of gaps in the nursing workforce. The Health Initiatives Committee will continue to review the nursing occupations as part of its work in 2015-2016.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 1A.

Table 1A.
DEO 2014-2022 Projected Demand and CIP Supply

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	Annual Demand	Adjusted Graduates*	Adj. Graduates - Demand
			Growth	Replacement	Total				
291141	Registered Nurses	19.5	4,071	2,908	6,979	30.38	6,979	8,653	1,674
291171	Nurse Practitioners	30.2	244	113	357	44.59	357	580	223
291151	Nurse Anesthetists	32.8	98	42	140	66.54	140	140	0

*The number of adjusted graduates included in the table above has been adjusted to only include graduates of pre-licensure nursing programs.

Source: FDEO 2014-2022 Employment Projections

Supply

Estimates of potential supply are included in Table 1B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 1B.

Table 1B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions						
	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
'51.3801'	7963	5027	988	3		13981
Registered Nursing/Registered Nurse						
SUS		2247	806			3053
Florida Agricultural and Mechanical University		85	10			95
Florida Atlantic University		260	148			408
Florida Gulf Coast University		66	29			95
Florida International University		241	164			405
Florida State University		119	4			123
The University of West Florida		100	1			101
University of Central Florida		671	96			767
University of Florida		195	79			274
University of North Florida		162	49			211
University of South Florida-Main Campus		348	226			574
Non-SUS	7963	2780	182	3		10928
Academy for Nursing and Health Occupations	134					134
Adventist University of Health Sciences	173	186				359
Barry University		112				112
Bethune-Cookman University		55				55
Broward College	326	52				378
Brown Mackie College-Miami	41					41
Chamberlain College of Nursing-Florida		75				75
Chipola College	68	17				85
City College-Fort Lauderdale	93					93
City College-Miami	31					31
College of Central Florida	100					100
Concorde Career Institute-Orlando	17					17
Dade Medical College-Hollywood	126					126
Dade Medical College-Homestead	35					35
Dade Medical College-Miami	109	0				109
Dade Medical College-Miami Lakes	42					42
Daytona State College	228					228
Eastern Florida State College	124					124
Edison State College	231	81				312
Florida Career College-Miami	76					76
Florida Gateway College	67	0				67
Florida Keys Community College	44					44
Florida National University-Main Campus	154	0				154
Florida Southern College		46	0			46

Table 1B. Continued 2012-2013 Graduates	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
Florida State College at Jacksonville	332	25				357
Fortis College-Largo	235					235
Fortis College-Tampa	70					70
Fortis Institute-Pensacola	47					47
Galen College of Nursing-Tampa Bay	163					163
Gulf Coast State College	109	0				109
Herzing University-Winter Park	82					82
Hillsborough Community College	294					294
Indian River State College	108	44				152
ITT Technical Institute-Jacksonville	23					23
ITT Technical Institute-Lake Mary	46					46
ITT Technical Institute-Tallahassee	21					21
ITT Technical Institute-Tampa	88					88
Jacksonville University		487	41			528
Kaplan College-Jacksonville	34					34
Keiser University-Ft Lauderdale	476	28	13			517
Lake-Sumter State College	77					77
Management Resources Institute	59					59
Miami Dade College	598	184				782
North Florida Community College	24					24
Northwest Florida State College	69	28				97
Nova Southeastern University		419	34	3		456
Palm Beach Atlantic University		42				42
Palm Beach State College	173	3				176
Pasco-Hernando Community College	177					177
Pensacola State College	304	9				313
Polk State College	159	15				174
Rasmussen College-Florida	331	34				365
Remington College of Nursing Orlando		76				76
SABER College	157					157
Saint Johns River State College	90					90
Sanford-Brown Institute-Jacksonville	30					30
Santa Fe College	126	0				126
Seminole State College of Florida	158					158
South Florida State College	57					57
South University-Tampa		90	63			153
South University-West Palm Beach		74	16			90
Southeastern College-Greenacres	45					45
St Petersburg College	334	265				599

Table 1B. Continued 2012-2013 Graduates	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
State College of Florida-Manatee-Sarasota	148	45				193
Tallahassee Community College	88					88
Taylor College	63					63
The University of Tampa		44				44
Ultimate Medical Academy-Tampa	16					16
University of Miami		189	15			204
University of Phoenix-Central Florida Campus		10				10
University of Phoenix-South Florida Campus		42				42
University of Phoenix-West Florida Campus		3				3
Valencia College	259					259
Virginia College-Jacksonville	37					37
'51.3802'		2	40	21		63
Nursing Administration						
Non-SUS		2	40	21		63
Barry University			7	21		28
City College-Fort Lauderdale		2				2
Jacksonville University			12			12
Nova Southeastern University			0			0
University of Phoenix-South Florida Campus			21			21
'51.3803'			16			16
Adult Health Nurse/Nursing						
The University of Tampa			16			16
'51.3804'			230		3	233
Nurse Anesthetist						
Non-SUS			230		3	233
Adventist University of Health Sciences			17			17
Barry University			73			73
Gooding Institute of Nurse Anesthesia			17			17
University of Miami			28			28
Wolford College			95		3	98
'51.3805'			99			99
Family Practice Nurse/Nursing						
Non-SUS			99			99
Barry University			26			26
Jacksonville University			23			23
The University of Tampa			20			20
University of Miami			30			30

Table 1B. Continued 2012-2013 Graduates		Associate's degree	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
'51.3808'					24		24
Nursing Science							
SUS					21		21
Florida Atlantic University					2		2
Florida International University					2		2
University of Central Florida					8		8
University of Florida					5		5
University of South Florida-Main Campus					4		4
Non-SUS					3		3
University of Miami					3		3
'51.3813'				1			1
Clinical Nurse Specialist							
Non-SUS				1			1
Florida Southern College				0			0
Jacksonville University				1			1
'51.3814'				19			19
Critical Care Nursing							
Non-SUS				19			19
Barry University				12			12
University of Miami				7			7
'51.3817'			0*	55			55
Nursing Education							
Non-SUS			0	55			55
Barry University			0	6			6
Florida Southern College				0			0
Jacksonville University				0			0
The University of Tampa				0			0
University of Phoenix-Central Florida Campus				8			8
University of Phoenix-South Florida Campus				41			41
'51.3818'		27		31	0*	108	166
Nursing Practice							
SUS						67	67
Florida Atlantic University						13	13
Florida International University						0	0
Florida State University						15	15
University of Central Florida						4	4

Table 1B. Continued 2012-2013 Graduates	Associate's degree	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
University of Florida					26	26
University of North Florida					4	4
University of South Florida-Main Campus					5	5
Non-SUS	27		31	0	41	99
Barry University				0		0
Everest University-Brandon	27					27
Florida Southern College			31			31
Jacksonville University					0	0
University of Miami					41	41
'51.3899'	84	0*				84
Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing						
Non-SUS	84	0				84
Concorde Career Institute-Jacksonville	22					22
Concorde Career Institute-Tampa	27					27
Fortis College-Largo		0				0
Professional Training Centers	35	0				35
Grand Total	8074	5029	1479	48	111	14741

*Programs included in IPEDS but showing zero total graduates for 2012-2013 may have current enrollments and were therefore included in Table 1B.

Source: IPEDS with additional data and clarification provided by some universities

Table 1C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 1C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.3801					
Registered Nursing					
FAMU					
Bachelor's degree	0	751	771	608	544
Master's degree	0	10	21	29	20
FAU					
Bachelor's degree	0	961	1077	1124	1246
Master's degree	0	278	308	439	435
FGCU					
Bachelor's degree	0	142	141	142	173
Master's degree	0	59	80	55	52
FIU					
Bachelor's degree	0	1296	1430	1071	926
Master's degree	0	385	350	344	346
FSU					
Bachelor's degree	0	234	291	347	320
Master's degree	0	50	20	21	21
UCF					
Bachelor's degree	0	1976	2274	2404	2444
Master's degree	0	385	284	171	167
UF					
Bachelor's degree	0	711	719	694	625
Master's degree	0	92	112	120	93
UNF					
Bachelor's degree	0	628	516	508	540
Master's degree	0	159	143	145	141
USF					
Bachelor's degree	0	1303	1172	1298	1405
Master's degree	0	634	548	661	793
UWF					
Bachelor's degree	0	431	427	524	563
Master's degree	0	8	7	16	26
Total					
Bachelor's degree	0	8433	8818	8720	8786
Master's degree	0	2060	1873	2001	2094

Table 1C. Continued SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.3808	(Doctor's degree – research)				
Nursing Science.					
FAU	0	44	41	45	49
FIU	0	18	16	23	24
UCF	0	45	42	37	26
UF	0	30	34	39	33
USF	0	44	48	48	41
Total	0	181	181	192	173
51.3818	(Doctor's degree – professional)				
Nursing Practice.					
FAU	0	39	40	52	63
FIU	0	0	0	11	29
FSU	0	53	69	67	64
UCF	0	64	99	131	125
UF	0	173	174	173	203
UNF	0	20	23	23	26
USF	0	32	27	30	43
Total	0	381	432	487	553

Source: Board of Governors, State University Data System (SUDS)

Unlike the other occupational chapters of this report, Tables 1D and 1E are not provided for the nursing occupations. Table 1D could not be completed without further consideration of contextual factors that will be part of the Committee's work in 2015-2016 as additional nursing reports become available. In the other occupational chapters Table 1E includes data on post-graduation outcomes but the reporting to FETPIP on nursing graduates, by CIP, is confounded. A review of FETPIP data on employment outcomes by CIP for nursing would be misleading due to the grouping of different nursing specializations under the same CIP.

Contextual Factors

Licensing

Tables 1F to 1I include data collected by the Florida Department of Health from the professional licensing boards. Table 1F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in Registered Nursing. Table 1H provides similar information for Nurse Practitioners and Nurse Anesthetist employment and licensing;

the Nurse Practitioner and Nurse Anesthetist figures have been combined in the table due to the overlap for some professionals who are licensed as both NPs and CRNAs. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Registered Nurse Licensure Data

Table 1F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure for Registered Nurses	
FL Department of Economic Opportunity	
2014 Total Employment	167,360
2022 Projected Total Employment	199,927
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	201,318

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Table 1G includes data on the number of new licenses issued each year, for the past six years, for Registered Nurses. Table 1I includes data on the number of new licenses issued each year, for the past six years, for Nurse Practitioners and Nurse Anesthetists. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; it was not that their license status changed.

Table 1G. DOH Initial Licenses Issued, by year, and Retention for Registered Nurses			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	14,450	8,618	60%
2010	15,275	9,036	59%
2011	16,780	10,593	63%
2012	18,127	12,410	68%
2013	19,789	13,418	68%
2014	22,965	14,256	62%
Percent Change from 2009-2014	59%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Advanced Registered Nurse Practitioner Licensure Data

Table 1H. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure for Advanced Registered Nurse Practitioners (includes Nurse Anesthetists)	
FL Department of Economic Opportunity	
2014 Total Employment	8,878
2022 Projected Total Employment	11,617
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	17,330

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Table 1I. DOH Initial Licenses Issued, by year, and Retention for Advanced Registered Nurse Practitioners (includes Nurse Anesthetists)			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	876	622	71%
2010	742	518	70%
2011	634	416	66%
2012	578	395	68%
2013	599	372	62%
2014	688	300	44%
Percent Change from 2009-2014	-21%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Additional Resources

The supply totals for nursing have been adjusted to include graduates of pre-licensure programs only. The adjusted number is based on 2012-2013 data from the Florida Center for Nursing, as well as data from the mandatory reporting on first time nurse licensing test-takers and pass rates to the Florida Legislature's Office of Program Policy Analysis and Government Accountability. The use of additional data is necessary because institutions reporting to IPEDS by CIP codes do not identify programs targeted to post-professional registered nurses (RNs) or nurse practitioners (NPs). Licensed professionals (RNs or NPs) may already be practicing in the field of nursing and complete programs to transition to a new degree level. The graduates of RN to BSN programs, as well as licensed advanced practice nurses increasing their educational attainment from the MSN to the DNP, may never leave or significantly change their role in the nursing workforce. Therefore, including them as new supply in the totals would have had the effect of significantly over-estimating the potential supply of registered nurses and nurse practitioners. Adjustments to the demand estimate are still necessary.

Reports on nursing from the Health Resources and Services Administration, the Florida Center for Nursing, the Florida Legislature's Office of Program Policy Analysis and Government Accountability, and the American Association of Colleges of Nursing can provide information on state-level program capacity, workforce projections, and practice patterns. Nursing programs from the SUS have provided the number of graduates in specific tracks to help adjust for post-professional graduates and provide greater detail on program capacity. **A review of the demand and supply of graduates for registered nursing and advanced practice registered nursing is ongoing.**

DRAFT

May 18, 2015

Physicians

Summary Observations

- Florida projects 1,934 annual openings for Physicians from 2014 to 2022*.
- Florida produced 975 new Medical School graduates in 2012-2013*.
- Thirty-four percent of the past five years of Medical School graduates were found employed in Florida within a year of graduation (likely employed and training as Medical Residents).
- Florida issued 4,119 new Medical Doctor licenses and 608 new Osteopathic Physician licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 2,127 with an in-state active Medical Doctor license and 415 with an in-state active Osteopathic Physician license remain in Florida the following year.
- Additional data on Graduate Medical Education and results from a recent Florida-based supply-demand gap analysis for Physician specialties is included in this section. These additional contextual factors highlight current and projected shortage areas for Physicians, both geographically and in specialty areas.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 2A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

**Table 2A.
Florida DEO 2014-2022 Projected Demand**

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291069	Physicians and Surgeons, All Other	19.4	411	330	741	\$210,766	\$121,597	Doctoral degree
291062	Family and General Practitioners	21.9	341	243	584	\$191,506	\$100,901	Doctoral degree
291063	Internists, General	24.1	125	80	205	\$210,704	\$118,518	Doctoral degree
291067	Surgeons	24.0	88	57	145	\$244,442	\$194,230	Doctoral degree
291061	Anesthesiologists	25.2	69	43	112	\$263,240	Not reported	Doctoral degree
291065	Pediatricians, General	23.4	39	26	65	\$165,610	\$90,626	Doctoral degree
291064	Obstetricians and Gynecologists	24.7	34	21	55	\$224,765	\$147,243	Doctoral degree
291066	Psychiatrists	14.5	13	14	27	\$181,168	\$106,038	Doctoral degree
BLS Occupational Profile		Physicians and surgeons diagnose and treat injuries or illnesses. Physicians examine patients; take medical histories; prescribe medications; and order, perform, and interpret diagnostic tests. They counsel patients on diet, hygiene, and preventive healthcare. Surgeons operate on patients to treat injuries, such as broken bones; diseases, such as cancerous tumors; and deformities, such as cleft palates.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Physicians overall is greater than the average growth rate for all jobs in Florida (12%), with roughly 20% or higher growth projected for each of the DEO's Physician specialty areas, except Psychiatrists which has 15% projected growth in Florida. The national projected growth rate for Physicians and Surgeons is 18%. The entry wage for Physicians is much higher than the entry wage for all jobs, and the average wage is four to five times the average for all jobs. The education required for licensure as a Physician in Florida is the professional doctorate, which can be the Doctor of Medicine (M.D.) or the Doctor of Osteopathic Medicine (D.O.) degree. Additional training in a U.S. residency program after graduating with the M.D. or D.O. degree is required for licensure. The Florida Department of Economic Opportunity projects a

total of 1,934 annual openings for all of the Physician specialty areas from 2014 to 2022 to meet the projected demand for Physicians. The 814 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

In addition to the DEO's demand projections for Florida Physicians, a 2015 report from IHS Global Inc. that was prepared on behalf of the Safety Net Hospital Alliance of Florida includes forecasts of supply and demand for the Physician workforce at the statewide and regional level. The report concludes that:

"Overall, demand for physicians in Florida exceeds supply for many medical specialties. The statewide shortfall of primary care physicians is small, and if current trends continue this shortfall will disappear within the next decade. However, there is substantial variation in adequacy of primary care supply across regions as evidenced by the large number of areas and communities designated as Health Profession Shortage Areas. The state-wide shortfall of specialists is projected to persist for the foreseeable future, with large variation in magnitude of the shortfall across regions." (p. vii)¹

Supply

Estimates of potential supply are included in Table 2B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 2B.

¹ IHS Global Inc. Florida Statewide and Regional Physician Workforce Analysis: Estimating Current and Forecasting Future Supply and Demand. Prepared for the Safety Net Hospital Alliance of Florida. January, 28, 2015. Accessed at <http://safetynetsflorida.org/wp-content/uploads/Jan-28-IHS-Report-PDF.pdf> on March 1, 2015.

Table 2B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Doctor's degree - professional
51.1201 Medicine	605
SUS	418
Florida International University	33
Florida State University	112
University of Central Florida	36
University of Florida	131
University of South Florida-Main Campus	106
Non-SUS	187
University of Miami	187
51.1901 Osteopathic Medicine/Osteopathy	370
Non-SUS	370
Nova Southeastern University	215
Lake Erie College of Osteopathic Medicine	155
Grand Total	975

Source: IPEDS with additional data and clarification provided by some universities

The supply of graduates from the six allopathic medical schools was 605 graduates in 2012-2013. The two osteopathic medical schools graduated 370 students in 2012-2013.

Table 2C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 2C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.1201 Medicine	(Doctor's degree - professional)				
FAU	0	0	64	127	187
FIU	43	85	167	281	368
FSU	450	475	476	476	481
UCF	41	100	179	277	351
UF	528	535	546	545	542
USF	482	473	502	549	620
Total	1544	1668	1934	2255	2549

Source: Board of Governors, State University Data System (SUDS)

Annual enrollments in the SUS medical schools have grown by just over 1,000 students from 2009 to 2013. Based on projections from the university Work Plans, the medical school enrollments will continue to grow to about 2,900 students in 2017-2018, with about 920 graduates that year.

Basing supply estimates on the graduates of Undergraduate Medical Education (medical school) alone is not sufficient. The requirement for Physicians to complete a U.S. medical residency, or Graduate Medical Education (GME), means that the supply of Physicians to the workforce is ultimately tied to the availability of this training. The size and make-up of the pipeline of graduates from pre-medical programs and medical schools is a significant factor for determining the Physician workforce; but the number, location, and specialty mix of residency positions is more closely linked to supply outcomes for the state.

A 2014 report from Florida's Office of Program Policy Analysis and Government Accountability (OPPAGA) reviewed Florida's GME System and found 407 residency programs being administered by 44 accredited GME institutions, with a total of 5,157 approved positions (includes all cohorts of the residency program).² The report notes that 11% of the residency positions were unfilled in 2013-2014, but the report did not distinguish between osteopathic and allopathic residencies and the count likely includes residency positions that programs did not intend to fill. Therefore, the 5,157 positions would be an over-estimate of the number of positions truly available for a growing number of allopathic medical school graduates.

The report also notes that 1,081 GME positions were available for residents starting primary care and non-primary care specialty programs in 2012-2013, but again it does not distinguish between allopathic and osteopathic residencies. It is likely that fewer than 1,000 openings would have been available for the 980 allopathic medical school graduates in 2012-2013.

There were significant changes and recommendations for reform for U.S. Graduate Medical Education in 2014. The accrediting bodies for osteopathic and allopathic medical residency programs agreed to merge, which could lead to a greater number of D.O. graduates pursuing allopathic residencies and possibly allopathic graduates being eligible for osteopathic residencies. Also in 2014, the Institute of Medicine (IOM)³ issued a report outlining several strategies to change the federal support for Graduate Medical Education and doing away with a long-standing cap on the number of Medicare-financed residency positions. The federal distribution of funds to states for GME is determined by a formula that dates back to 1997 and makes it difficult for Florida to create or grow residency programs in a way that matches the workforce needs or accommodates the increasing number of medical school graduates. Legislation has been introduced by the U.S. Congress and by the Florida Legislature in 2015 to increase the number of GME residency slots for Physician specialties and locations with shortages. In addition to government support for GME, hospitals are funding GME programs and positions above the number set by Medicare.

² The Florida Legislature Office of Program Analysis and Government Accountability. Florida's Graduate Medical Education System., February 2014.

³ IOM (Institute of Medicine). 2014. Graduate Medical Education that Meets the Nation's Health Needs. Washington, DC: The National Academies Press.

Gap Analysis

Table 2D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 2D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291069	Physicians and Surgeons, All Other	741		
291062	Family and General Practitioners	584		
291063	Internists, General	205		
291067	Surgeons	145		
291061	Anesthesiologists	112		
291065	Pediatricians, General	65		
291064	Obstetricians and Gynecologists	55		
291066	Psychiatrists	27		
Total for all 8 SOC*s		1,934	975	-959

By summing the annual demand of Physician-related SOC codes at the 5-digit level (29106x), the calculated gap is expressed generally for Physicians overall. However, it would be incorrect to assume that each of the specialties at the 6-digit level show a gap or have claim to a portion of the overall gap, especially as other sources point to shortages in some specialties and not others. The reason for displaying the data in this way is an acknowledgement that medical school graduates (one way of representing Physician supply) are qualified for any of the eight specialties above. However, due to the requirements for graduate medical education for licensure as a Physician, the number of GME graduates and new license-holders is a truer estimate of potential supply.

The IHS report on the Physician workforce found approximately 42,610 full time equivalent (FTE) physicians actively practicing in Florida in 2013, with roughly 2,230 new physicians entering the workforce each year. The report also concludes that supply to 2025 is projected to be 12,360 FTEs while demand is projected to be 11,430 FTEs in 2025. This would calculate as a future over-supply of 930 Physicians if the current supply and demand were balanced. However, an existing shortage of roughly 4,500 Physicians around the state (measured as the number of Physicians required to provide a national average level of care), means that additional growth is necessary to meet current and future demand.

Contextual Factors

Out-Migration of Graduates

Table 2E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes reporting to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes.

Table 2E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.1201 Medicine (Doctor's degree - professional)				
SUS	37%	36%	\$50,720	0%
ICUF	27%	27%	\$60,112	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

The post-graduation outcomes data from FETPIP is consistent with figures from the Association of American Medical Colleges and the OPPAGA report on the out-of-state matching of Florida's medical school graduates. Thirty-six percent of the SUS graduates were found employed full-time in Florida within a year of graduation. Twenty-seven percent of ICUF graduates were found employed full-time in Florida within a year of graduation. Based on the earnings data and requirements for residency training after Undergraduate Medical Education, the graduates are likely employed and training in GME positions. This data is consistent with the findings in the OPPAGA report that of the medical school graduates from 2000 to 2013 "38% (3,073) matched to a residency program in Florida and 62% (5,094) matched to a residency program out-of-state" (p.9). Several of the SUS medical schools have implemented recruitment and retention strategies to increase the number of graduates who remain in Florida.

Tables 2F, 2G, and 2H include data collected by the Florida Department of Health from the professional licensing boards. Table 2F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 2F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment (all 8 SOC's)	41,838
2022 Projected Total Employment (all 8 SOC's)	50,789
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015) for Medical Doctor	47,390
Total In-State Active Licenses (as of April 1, 2015) for Osteopathic Physician	5,144

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Table 2G includes data on the number of new licenses issued each year, for the past six years, for Medical Doctors. Table 2H includes data on the number of new licenses issued each year, for the past six years, for Osteopathic Physicians. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 2G. DOH Initial Licenses Issued, by year, and Retention for <u>Medical Doctors</u>			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3 / Column 2 * 100)
2009	2,639	1,375	52%
2010	2,730	1,570	58%
2011	2,981	1,674	56%
2012	3,024	1,811	60%
2013	3,563	2,070	58%
2014	4,119	2,127	52%
Percent Change from 2009-2014	56%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Table 2H. DOH Initial Licenses Issued, by year, and Retention for Osteopathic Physicians			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	291	161	55%
2010	346	203	59%
2011	352	217	62%
2012	445	306	69%
2013	470	332	71%
2014	608	415	68%
Percent Change from 2009-2014	109%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Pharmacists

Summary Observations

- Florida projects 844 annual openings for Pharmacists from 2014 to 2022*.
- Florida produced 828 new graduates in Pharmacy in 2012-2013*.
- Fifty-eight percent of the past five years of Pharmacy graduates were found employed in Florida within a year of graduation.
- Florida issued 1,471 new Pharmacist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 1,071 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 3A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 3A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291051	Pharmacists	15.2	363	481	844	\$115,669	\$93,766	Doctoral degree
BLS Occupational Profile		Dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. May advise physicians and other health practitioners on the selection, dosage, interactions, and side effects of medications.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Pharmacists is slightly greater than the average growth rate for all jobs in Florida (12%), with 15.2% growth projected for Pharmacists in Florida and 14% for Pharmacists nationally. The entry wage for Pharmacists is much higher than the entry wage for all jobs, and the average wage is roughly three times the average for all

jobs. The education required for licensure as a Pharmacist in Florida is the professional doctorate, or Pharm.D. degree. The Florida Department of Economic Opportunity projects 844 annual openings from 2014 to 2022 to meet the projected demand for Pharmacists. The 481 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 3B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 3B.

Table 3B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Doctor's degree - professional
51.2001 Pharmacy		828
SUS		418
Florida A&M University		131
University of Florida		287
Non-SUS		410
Lake Erie College of Medicine, Bradenton		104
Nova Southeastern University		237
Palm Beach Atlantic University		69

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 418 students in 2012-2013. The CIE and ICUF programs graduated 410 students in 2012-2013. The supply of graduates is from the 51.2001 CIP and is a one-to-one correspondence for the occupation. This requires no weighting adjustment for multiple occupational paths if the Health Specialties Teacher, Postsecondary occupation is excluded. A small portion of the Pharmacy graduates may go into management or teaching positions.

The supply in Table 3B has been adjusted by removing 140 post-professionals from the University of Florida's program. These graduates were already licensed Pharmacists upon entry into the program, returning to school to obtain a higher degree level, and therefore should not be included as new potential supply for the occupation. The supply was also adjusted by adding 104 graduates from the Pharmacy program at the Lake Erie College of Medicine, Bradenton campus. A count of these graduates was previously missing due to the bundled reporting to IPEDS for some universities with a Florida branch campus and a main campus located in another state. The number of graduates from LECOM's Florida-based Pharmacy program was provided by the

Florida Commission for Independent Education, but an estimate of post-professional students (if any) was not available.

Table 3C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 3C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.2001 Pharmacy	(Doctor's degree – professional)				
FAMU	341	327	314	331	366
UF	1876	1735	1674	1572	1537
USF	0	0	53	119	225
Total	2217	2062	2041	2022	2128

Source: Board of Governors, State University Data System (SUDS)

The University of Florida program, the largest of the three SUS programs, has had a decline in enrollments over the past five years. The University of South Florida's program had enrollments starting in 2011 but did not have graduates for 2012-2013. Graduates of USF's program in the near future will increase the potential supply of Pharmacists.

Gap Analysis

Table 3D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 3D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291051	Pharmacists	844	828	-16

When considered alone, the supply of 828 graduates is a slight undersupply for the 844 projected annual openings. A gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 1,471 Pharmacists were newly licensed in 2014 (with 1,071 remaining with a Florida address) compared to the supply estimate of 828, suggesting large in-migration. Based on slight growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 3E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 3E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.2001 Pharmacy		(Doctor's degree – professional)		
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	55%	53%	\$104,156	2%
ICUF	63%	60%	\$106,906	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

More than half of the Pharmacy graduates are found working full-time in Florida within a year of graduation and with high earnings.

Licensing

Tables 3F and 3G include data collected by the Florida Department of Health from the professional licensing boards. Table 3F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 3F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	19,171
2022 Projected Total Employment	22,076
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	20,947

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Pharmacist licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 3G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 3G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State and Active (Column 3/ Column 2 * 100)
2009	1,300	854	66%
2010	1,392	918	66%
2011	1,410	961	68%
2012	1,382	966	70%
2013	1,419	1,031	73%
2014	1,471	1,071	73%
Percent Change from 2009-2014	13%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

Roughly 400 license-holders leave the state each year, leaving about 1,000 net licenses per year. The occupation could become undersupplied if the DEO's demand estimate is revised from 844 to more than 1,000 openings per year.

Physical Therapists

Summary Observations

- Florida projects 527 annual openings for Physical Therapists from 2014 to 2022*.
- Florida produced 417 new graduates in Physical Therapy in 2012-2013*.
- Sixty-two percent of the past five years of Physical Therapy graduates were found employed in Florida within a year of graduation.
- Florida issued 1,066 new Physical Therapist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 676 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. However, the supply-demand gap analysis for Physical Therapists should be reviewed again in the coming years, as the impacts of an aging workforce and the shift to the doctoral level could disrupt the current balance.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 4A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 4A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291123	Physical Therapists	24.9	387	140	527	\$85,259	\$60,133	Doctoral degree
BLS Occupational Profile		Assess, plan, organize, and participate in rehabilitative programs that improve mobility, relieve pain, increase strength, and improve or correct disabling conditions resulting from disease or injury.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Physical Therapists is greater than the average growth rate for all jobs in Florida (12%), with 24.9% growth projected in Florida and 36% nationally.

The entry wage for Physical Therapists is much higher than the entry wage for all jobs, and the average wage is a little more than double the average for all jobs. The education required for licensure as a Physical Therapist in Florida is the professional doctorate, or DPT degree. The Florida Department of Economic Opportunity projects 527 annual openings from 2014 to 2022 to meet the projected demand. The 140 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 4B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 4B.

Table 4B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Doctor's degree - professional
51.2308 Physical Therapy		417
SUS		220
Florida A&M University		22
Florida Gulf Coast University		22
Florida International University		50
University of Central Florida		2
University of Florida		54
University of North Florida		28
University of South Florida-Main Campus		29
Non-SUS		197
Nova Southeastern University		60
University of Miami		53
University of St. Augustine		84

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 220 students in 2012-2013. The CIE and ICUF programs graduated 197 students in 2012-2013. The supply of graduates is from the 51.2308 CIP and is a one-to-one for the occupation. This requires no weighting adjustment for multiple occupational paths if the Health Specialties Teacher, Postsecondary occupation is excluded. A small portion of the graduates may go into management or teaching positions.

Thirteen post-professional graduates, who were already licensed upon entry into the program, were removed from the University of South Florida total based on university

feedback about the transitional DPT program. None of Florida Gulf Coast University's graduates were post-professionals in 2012-2013, but a newly implemented transitional DPT program will lead to post-professionals being included in the enrollment and graduate figures going forward. Based on a review of the Nova Southeastern University website, that program's seven PhD students were likely licensed professionals who will pursue academic or research careers. Therefore, these graduates were also backed out of the supply. The supply of 84 pre-professional graduates from the University of St. Augustine was added based on communication with university staff.

Table 4C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 4C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.2308 Physical Therapy	(Doctor's degree - professional)				
FAMU	75	82	96	109	117
FGCU	67	72	74	80	76
FIU	148	152	157	157	163
UCF	91	92	69	87	115
UF	163	164	166	165	178
UNF	84	85	87	85	88
USF	74	99	94	207	332
Total	702	746	743	890	1069

Source: Florida Education and Training Placement Information Program (FETPIP)

Seven of the SUS universities offer the professional doctorate, and enrollments for Physical Therapy programs in the SUS were increasing overall. The large increases in enrollment at USF for 2012 and 2013 were due to expansion of the transitional DPT program, which caters to licensed Physical Therapists seeking to obtain a higher degree level.

Gap Analysis

Table 4D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 4D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings

291123	Physical Therapists	527	417	-110
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When considered alone, the supply of 417 graduates is an undersupply of 110 for the 527 projected annual openings. A gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 1,066 Physical Therapists were newly licensed in 2014 (with 676 remaining with a Florida address) compared to the supply estimate of 417, suggesting large in-migration. Based on slight growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied or nearly balanced.

Contextual Factors

Out-Migration of Graduates

Table 4E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 4E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.2308 Physical Therapy		(Doctor's degree – professional)		
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	71%	67%	\$63,572	1%
ICUF	49%	46%	\$66,776	1%

Source: Florida Education and Training Placement Information Program (FETPIP)

A smaller percentage of the ICUF graduates are found employed in Florida within a year of graduation. Just under a half of ICUF graduates and two-thirds of SUS graduates are found working full-time in Florida within a year of graduation and earning just above the average entry wage for Physical Therapists.

Licensing

Tables 4F and 4G include data collected by the Florida Department of Health from the professional licensing boards. Table 4F is a comparison between the Florida Department

of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 4F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	12,462
2022 Projected Total Employment	15,559
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	12,348

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The DEO's estimate of total employment for 2014 is slightly higher than the number of total in-state, active licenses for Physical Therapists.

Table 4G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 4G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	718	433	60%
2010	854	513	60%
2011	950	587	62%
2012	908	579	64%
2013	889	613	69%
2014	1,066	676	63%
Percent Change from 2009-2014	48%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of licenses issued each year has been approaching 1,000, with roughly 600 remaining in the state per year. In 2014, 1,066 licenses were issued and 676 remain active, clear and with a Florida practice address. The number retained is moderately above the DEO's projected annual openings of 527. The number of Florida graduates from 2012-2013 (417) is not even half of the number licensed in 2014, which suggests a large amount of in-migration.

Dentists

Summary Observations

- Florida projects 411 annual openings for General Dentists and another 100 annual openings for Dental Specialists from 2014 to 2022*.
- Florida produced 205 new graduates in Dentistry in 2012-2013*.
- Thirty-nine percent of the past five years of Dentistry graduates were found employed in Florida within a year of graduation.
- Florida issued 569 new Dentistry licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 443 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. In addition to a significant amount of in-migration for the occupation, the new supply of roughly 100 graduates per year from the Lake Erie College of Medicine Dental School will increase the number of Dentists in Florida and fill annual demand over the projected period.

* Most recently available data. **Demand**

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 5A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 5A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291021	Dentists, General	16.3	167	244	411	\$157,477	\$79,539	Doctoral degree
291022	Oral and Maxillofacial Surgeons	16.7	24	35	59	\$233,002	\$156,582	Doctoral degree
291023	Orthodontists	17.9	12	16	28	\$179,546	\$90,896	Doctoral degree
291029	Dentists, All Other Specialists	6.9	3	10	13	\$173,846	\$80,142	Doctoral degree
BLS Occupational Profile		Examine, diagnose, and treat diseases, injuries, and malformations of teeth and gums. May treat diseases of nerve, pulp, and other dental tissues affecting oral hygiene and retention of teeth. May fit dental appliances or provide preventive care.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for General Dentists, Oral and Maxillofacial Surgeons, and Orthodontists is slightly greater than the average growth rate for all jobs in Florida (12%), with roughly 17% growth projected in Florida and 16% nationally. The entry wage for Dentists is much higher than the entry wage for all jobs, and the average wage is roughly four times the average for all jobs. The education required for licensure as a Dentist in Florida is the professional doctorate, or Doctor of Dental Medicine (D.M.D.). The Florida Department of Economic Opportunity projects 411 annual openings from 2014 to 2022 to meet the projected demand for General Dentists and another 100 openings for Dental Specialists. The positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 5B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 5B.

Table 5B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Doctor's degree - professional
51.0401 Dentistry		205
SUS		
University of Florida		79
Non-SUS		
Nova Southeastern University		126

Source: IPEDS with additional data and clarification provided by some universities

The SUS program at the University of Florida graduated 79 students in 2012-2013. The ICUF program at Nova Southeastern University graduated 126 students in 2012-2013. The supply of graduates is from the 51.0401 Dentistry CIP and is a one-to-one for the occupation. This requires no weighting adjustment for multiple occupational paths if the Health Specialties Teacher, Postsecondary occupation is excluded. A small portion of the graduates may go into teaching positions. The Lake Erie College of Medicine at Bradenton implemented a new program in Dentistry in July 2012, with three cohorts of roughly 100 students each currently enrolled. The graduates from the Lake Erie Dental program will add to the potential supply of Dentists in the near future.

Table 5C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 5C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.0401 Dentistry	(Doctor's degree – professional)				
UF	330	330	331	327	341

Source: Board of Governors, State University Data System (SUDS)

The University of Florida program has had steady enrollments over the past five years, with a small increase in 2013.

Gap Analysis

Table 5D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 5D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291021	Dentists, General			
291023	Orthodontists			
291022	Oral and Maxillofacial Surgeons			
291029	Dentists, All Other Specialists			
Total for all 4 SOC's		511	205	-306

By summing the annual demand of Dentistry-related SOC codes at the 5-digit level (29102x), the calculated gap is expressed generally for Dentists overall. However, it would be incorrect to assume that each of the specialties at the 6-digit level show a gap or have claim to a portion of the overall gap. The reason for displaying the data in this way is an acknowledgement that Dental school graduates (representing the supply of Dentists) are qualified to pursue any of the four occupations above.

When considered alone, the supply of 205 graduates is a significant undersupply for the 511 projected annual openings. A large gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 569 Dentists were newly licensed in 2014 compared to the supply estimate of 205, suggesting a large amount of in-migration. The retained number of 2014 license-holders in Florida yields just 443 current in-state active Dentists and would be an under-supply for the projected openings. Even with recent growth in licensing and roughly 80% of licensees remaining in FL each year, the occupation appears to be under-supplied or closely balanced. However, the new supply of 100 graduates per year from the Lake Erie College of Medicine Dental program could bring the annual number of newly licensed Dentists above the projected annual demand, yielding a sufficient supply of Dentists.

Contextual Factors

Out-Migration of Graduates

Table 5E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes reporting to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on the self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 5E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.0401 Dentistry		(Doctor's degree – professional)		
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	58%	50%	\$102,804	8%
ICUF	28%	26%	\$93,900	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Half of the University of Florida Dentistry graduates are found working full-time in Florida within a year of graduation and with high earnings. Twenty-six percent of the Nova Southeastern University Dentistry graduates are found working full-time in Florida within a year of graduation and with slightly less earnings. Eight percent of the University of Florida graduates are found continuing their education and are likely training as specialists.

Licensing

Tables 5F and 5G include data collected by the Florida Department of Health from the professional licensing boards. Table 5F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 5F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment (all 4 SOC's)	10,188
2022 Projected Total Employment (all 4 SOC's)	11,834

FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	10,449

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Dentistry licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 5G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 5G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	362	278	77%
2010	346	260	75%
2011	367	283	77%
2012	414	325	79%
2013	440	360	82%
2014	569	443	78%
Percent Change from 2009-2014	57%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Dentist licenses issued each year has been increasing since 2011, with a large increase 2014. In 2014, 569 licenses were issued and 443 remain in the state. Even with the growth in licensing and the retention of license-holders in Florida, the demand of 411 projected openings for General Dentists and another 100 projected openings for Dentistry Specialists is likely under-supplied or barely met. A significant gap could be created if the demand increases, net migration decreases, and a large number of the graduates from the new Lake Erie College of Medicine Dental program go out-of-state to practice.

DRAFT

May 18, 2015

Occupational Therapists

Summary Observations

- Florida projects 320 annual openings for Occupational Therapists from 2014 to 2022*.
- Florida produced 242 new graduates in Occupational Therapy in 2012-2013*.
- Sixty-one percent of the past five years of Occupational Therapy graduates were found employed in Florida within a year of graduation.
- Florida issued 664 new Occupational Therapist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 442 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. However, the supply-demand gap analysis for Occupational Therapists should be reviewed again in the coming years, as the impacts of an aging workforce and any increases in out-migration could disrupt the current balance.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 6A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 6A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291122	Occupational Therapists	25.3	202	118	320	\$83,054	\$58,573	Master's degree
BLS Occupational Profile		Assess, plan, organize, and participate in rehabilitative programs that help build or restore vocational, homemaking, and daily living skills, as well as general independence, to persons with disabilities or developmental delays.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Occupational Therapists is almost double the average growth rate for all jobs in Florida (12%), with 25.3% growth projected in Florida and 29% nationally. The entry wage for Occupational Therapists is much higher than the entry wage for all jobs, and the average wage is roughly double the average for all jobs. The education required for licensure as an Occupational Therapist in Florida is graduation from an accredited program, which is now required at the master's level. The Florida Department of Economic Opportunity projects 320 annual openings from 2014 to 2022 to meet the projected demand. The 118 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 6B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 6B.

Table 6B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Master's degree
51.2306 Occupational Therapy		242
SUS		131
Florida A&M University		10
Florida Gulf Coast University		30
Florida International University		48
University of Florida		43
Non-SUS		111
Adventist University of Health Sciences		0
Barry University		36
Nova Southeastern University		45
University of St. Augustine for Health Sciences		30

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 131 students in 2012-2013. The CIE and ICUF programs graduated 111 students in 2012-2013. The supply of graduates is from the 51.2306 CIP and is a one-to-one correspondence for the occupation. This requires no weighting adjustment for multiple occupational paths. Three post-professional graduates from Florida International University's MSOT program were taken out of the supply. These graduates were already licensed upon entry into the program and therefore would not be considered as new potential supply. The supply was also adjusted to include the University of St. Augustine's 30 pre-professional master's graduates.

Table 6C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 6C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.2306 Occupational Therapy	(Master's degree)				
FAMU	35	34	44	65	63
FGCU	45	57	55	60	60
FIU	148	167	155	175	168
UF	118	113	108	111	113
Total	346	371	362	411	404

Source: Board of Governors, State University Data System (SUDS)

Overall, the enrollments for Occupational Therapy programs in the SUS increased from 2009 to 2013. The University of Florida's program had a slight decline in enrollments, but it remains the second largest program after FIU.

Gap Analysis

Table 6D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 6D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291122	Occupational Therapists	320	242	-78

When considered alone, the supply of 242 graduates is an undersupply of 78 for the 320 projected annual openings. A gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 664 Occupational Therapists were newly licensed in 2014 (with 442 remaining with a Florida address) compared to the supply estimate of 242, suggesting large in-migration. While there has been growth in licensing over the past five years, 50-60% of the new licensees appear to out-migrate within a couple of years of licensure. The balance of in- and out-migration could lead to an undersupply of Occupational Therapists, especially if the DEO's projection of 320 openings is a conservative estimate.

Contextual Factors

Out-Migration of Graduates

Table 6E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 6E.				
FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.2306		(Master's degree)		
Occupational Therapy				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	64%	57%	\$56,504	2%
ICUF	53%	44%	\$58,384	2%

Source: Florida Education and Training Placement Information Program (FETPIP)

Similar to Physical Therapy programs, a lower percentage of ICUF students are found employed in Florida within a year of graduation. Forty-four percent of ICUF graduates and 57% of SUS graduates are found working full-time in Florida within a year of graduation and are earning the average entry wage for Occupational Therapists.

Licensing

Tables 6F and 6G include data collected by the Florida Department of Health from the professional licensing boards. Table 6F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 6F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	6,402
2022 Projected Total Employment	8,021
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	6,537

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Occupational Therapy licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 6G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 6G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	483	236	49%
2010	500	266	53%
2011	528	285	54%
2012	549	287	52%
2013	549	336	61%
2014	664	442	67%
Percent Change from 2009-2014	37%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of licenses issued each year has been growing steadily, with a larger change from 2013 to 2014. In 2014, 664 licenses were issued and 442 remain active, clear

and with a Florida practice address. The number retained is moderately above the DEO's projected annual openings of 320. However, the 242 graduates from 2012-2013 is not even half the 2013 or 2014 licensing number, which suggests a large amount of in-migration. There is also the possibility of a large amount of out-migration, considering that only about 50% of those licensed a few years ago remain in Florida.

Speech and Language Pathologists

Summary Observations

- Florida projects 306 annual openings for Speech and Language Pathologists from 2014 to 2022*.
- Florida produced 518 new graduates in Speech and Language Pathology in 2012-2013*.
- Fifty-three percent of the past five years of Speech and Language Pathology graduates were found employed in Florida within a year of graduation.
- Florida issued 738 new Speech and Language Pathologist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 562 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 7A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 7A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291127	Speech and Language Pathologists	18.8	172	134	306	\$75,962	\$52,104	Master's degree
BLS Occupational Profile		Assess and treat persons with speech, language, voice, and fluency disorders. May select alternative communication systems and teach their use. May perform research related to speech and language problems.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Speech and Language Pathologists is moderately higher than the average growth rate for all jobs in Florida (12%), with 18.8% growth projected in Florida and 19% nationally. The entry wage for Speech and Language Pathologists is significantly higher than the entry wage for all jobs, and the average wage is a little less than double the average for all jobs. The education set by the BLS and required for licensure as a Speech and Language Pathologist in Florida is a master's degree. Licensing requires nine months of post-graduate professional employment, which can be done under a Provisional Speech-Language Pathologist license after graduation.

The Florida Department of Economic Opportunity projects 306 annual openings from 2014 to 2022 to meet the projected demand for Speech and Language Pathologists. The 134 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 7B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 7B.

Table 7B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Master's degree	Doctor's degree - research	Total
51.0203 Speech-Language Pathology	219		219
Non-SUS	219		219
Nova Southeastern University	219		219
51.0204 Audiology and Speech-Language Pathology	291	8	299
SUS	291	8	299
Florida Atlantic University	15		15
Florida International University	31		31
Florida State University	62	5	67
University of Central Florida	88		88
University of Florida	30	2	32
University of South Florida	65	1	66
Grand Total	510	8	518

Source: IPEDS with additional data and clarification provided by some universities

Programs for Speech and Language Pathology fall under two CIPs, 51.0203 and 51.0204. The SUS programs graduated 299 students in 2012-2013. The ICUF program, at Nova Southeastern University, graduated 219 students in 2012-2013. There were eight PhD graduates and five professional degree graduates in the relevant CIPs. After a review of program admission requirements, the five professional degree graduates from Nova were removed from supply as already-licensed professionals. A portion of the PhD

graduates may also be licensed professionals, but because they do not significantly influence the gap calculation, they were left in the supply.

Table 7C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 7C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.0204 Audiology and Speech-Language Pathology					
FAU					
Master's degree	59	52	55	58	52
FIU					
Master's degree	71	67	70	75	78
FSU					
Master's degree	125	130	146	139	146
Doctor's degree – research	25	21	19	13	9
UCF					
Master's degree	208	223	199	195	191
UF					
Master's degree	65	62	59	67	65
Doctor's degree – research	19	17	20	24	21
USF					
Master's degree	144	151	159	160	153
Doctor's degree – research	12	13	12	15	15
Total					
Master's degree	672	685	688	694	685
Doctor's degree – research	56	51	51	52	45

Source: Board of Governors, State University Data System (SUDS)

Overall, enrollments in the SUS master's programs have remained steady. Enrollments in the SUS doctoral programs have declined slightly, mostly attributable to declines in FSU's doctoral program.

Gap Analysis

Table 7D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 7D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291127	Speech and Language Pathologists	306	517	211

When considered alone, the supply of 517 graduates exceeds the 306 projected annual openings by 211. In addition, 738 Speech and Language Pathologists were newly licensed in 2014 (with 562 remaining with a Florida address) compared to the supply estimate of 517, suggesting some in-migration. Based on moderate growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 7E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 7E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.0203 Speech-Language Pathology				
ICUF (Master's)	28%	27%	\$53,692	0%
51.0204 Audiology and Speech-Language Pathology				
SUS (Master's)	69%	66%	\$54,996	3%
SUS (Doctoral – research)	29%	23%	\$42,208	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Sixty-six percent of the SUS master's graduates are found working full-time in Florida within a year of graduation and with high earnings. The percent of graduates found employed in Florida for ICUF is less than the SUS programs, with only 27% of the ICUF master's graduates found employed full-time in Florida with a year of graduation. The earnings for the ICUF graduates are comparable to the earnings of the SUS graduates at roughly \$54,000 per year. Fewer graduates of the doctoral programs are found employed in Florida and with lower earnings, suggesting that graduates were employed in research careers rather than professional practice in Speech and Language Pathology. The majority of the supply is from the master's programs.

Licensing

Tables 7F and 7G include data collected by the Florida Department of Health from the professional licensing boards. Table 7F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 7F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	7,295
2022 Projected Total Employment	8,667
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	7,624

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Speech and Language Pathology licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 7G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear

license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 7G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	505	342	68%
2010	505	335	66%
2011	577	422	73%
2012	638	467	73%
2013	734	568	77%
2014	738	562	76%
Percent Change from 2009-2014	46%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of licenses issued each year has been growing steadily. In 2014, 738 licenses were issued and 562 remain active, clear and with a Florida practice address. The number retained is moderately above the DEO's projected annual openings of 306. Based on the supply of graduates and licensing data, the DEO would have to almost double the demand estimate for a gap to appear.

Medical and Clinical Laboratory Technologists

Summary Observations

- Florida projects 303 annual openings for Medical and Clinical Laboratory Technologists from 2014 to 2022*.
- Florida produced 1,208 new graduates in Biomedical Sciences, Biochemistry, Microbiology, and Clinical Laboratory Sciences in 2012-2013.
- Forty-four percent of the past five years of Biomedical Sciences, Biochemistry, and Microbiology graduates and 80% of the past five years of Clinical Laboratory Sciences graduates were found employed in Florida within a year of graduation.
- Florida issued 940 new Clinical Laboratory Personnel licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 638 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 8A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 8A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
292011	Medical and Clinical Laboratory Technologists	9.1	114	189	303	\$58,282	\$47,112	Bachelor's degree
BLS Occupational Profile		Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Medical and Clinical Laboratory Technologists is lower than the average growth rate for all jobs in Florida (12%), with 9.1% growth projected in Florida and 14% nationally. The entry wage for Medical and Clinical Laboratory Technologists is higher than the entry wage for all jobs, and the average wage is roughly \$20,000 higher than the average for all jobs. Licensure for Clinical Laboratory Personnel in Florida has varying levels of education and experience requirements depending on the type of lab professional. Most lab personnel can obtain a license with a bachelor's degree and a few can obtain a license with an associate's degree plus experience. The Florida Department of Economic Opportunity projects 303 annual openings from 2014 to 2022 to meet the projected demand. The 189 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 8B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 8B.

Table 8B.			
2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Bachelor's degree	Master's degree	Total
26.0102 Biomedical Sciences, General	492	51	543
SUS	447	51	498
Florida Atlantic University		29	29
Florida State University		13	13
University of Central Florida	34	9	43
University of South Florida	413		413
Non-SUS	45		45
Adventist University of Health Sciences	25		25
Eckerd College	1		1
Florida Institute of Technology	13		13
Florida State College at Jacksonville	6		6
26.0202 Biochemistry	93	2	95
SUS	38		38
Florida State University	38		38
Non-SUS	55	2	57
Ave Maria University	1		1
Eckerd College	4		4
Florida Institute of Technology	6	1	7
Rollins College	11		11
Stetson University	7		7

Table 8B. Continued 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Bachelor's degree	Master's degree	Total
University of Tampa	7		7
University of Miami	19	1	20
26.0204 Molecular Biology	17		17
Non-SUS	17		17
Eckerd College	0		0
Florida Institute of Technology	13		13
Stetson University	4		4
26.0503 Medical Microbiology and Bacteriology	466	13	479
SUS	466	13	479
University of Central Florida	265	3	268
University of Florida	160	3	163
University of South Florida	41	7	48
51.1005 Clinical Laboratory Science	74		74
SUS	66		66
Florida Gulf Coast University	6		6
University of West Florida	31		31
University of Central Florida	22		22
University of South Florida	7		7
Non-SUS	8		8
Saint Leo University	1		1
Santa Fe College	7		7
Grand Total	1142	66	1208

Source: IPEDS with additional data and clarification provided by some universities

Based on the limited supply from the programs in CIP 51.1005, the only CIP included in the CIP-SOC crosswalk, the Technologist occupation appeared to be vastly undersupplied. However, a review of licensing requirements for Clinical Laboratory Personnel led to the inclusion of graduates from additional, relevant programs in the supply total. The supply of graduates was expanded to include CIPs 26.0102, 26.0202, 26.0204, 26.0401, 26.0503 and 26.0806, and produced a new total of 1,208 bachelor's and master's graduates. It is unlikely that a downward, weighted adjustment for alternative occupational paths for these graduates would reduce the supply enough to create a gap for the 303 openings. The additional number of graduates more closely aligns with the licensing for Clinical Laboratory Personnel.

Table 8C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 8C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
26.0102 Biomedical Sciences, General					
FAU					
Master's degree	43	43	36	53	49
FSU					
Master's degree	21	21	23	22	12
UCF					
Bachelor's degree	0	0	872	1634	2074
Master's degree	0	13	13	17	12
USF					
Bachelor's degree	2585	2417	2325	2445	2617
Total					
Bachelor's degree	2585	2417	3197	4079	4691
Master's degree	64	77	72	92	73
26.0202 Biochemistry					
FSU					
Bachelor's degree	230	236	235	263	164
26.0503 Medical Microbiology and Bacteriology					
UCF					
Bachelor's degree	1995	2114	1320	705	362
Master's degree	26	21	15	7	1
UF					
Bachelor's degree	626	609	615	648	651
Master's degree	17	22	17	11	13
USF					
Bachelor's degree	185	233	208	226	230
Master's degree	4	6	5	5	3
Total					
Bachelor's degree	2806	2956	2143	1579	1243
Master's degree	47	49	37	23	17
51.1005 Clinical Laboratory Science/Medical Technology/Technologist					
FGCU					
Bachelor's degree	7	7	15	27	24
UCF					
Bachelor's degree	74	88	104	107	105
USF					
Bachelor's degree	138	106	103	117	100

Table 8C. Continued SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
UWF					
Bachelor's degree	79	79	89	87	97
Total					
Bachelor's degree	298	280	311	338	326

Source: Board of Governors, State University Data System (SUDS)

The SUS institutions have large programs in CIPs 26.0102, 26.0202, and 26.0503. Overall, the enrollments at the bachelor's and master's levels have been steady. A decline in UCF's program in CIP 26.0503 was offset by increased enrollments in other programs in CIP 26.0102. The 51.1005 CIP, which is included in the CIP-SOC crosswalk for the occupation, has had a small increase in enrollments in the past five years.

Gap Analysis

Table 8D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 8D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
292011	Medical and Clinical Laboratory Technologists	303	1,208	905

The supply was initially calculated using the graduates from a single CIP code, which yielded a supply of 78 and a shortage of 229 for the demand. However, a new supply estimate of 1,208 is more accurate since it captures graduates of additional, relevant programs. The supply of 1,208 graduates far exceeds the 303 projected annual openings by 905. Based on the number of qualified graduates and the licensing information below, it would be difficult to suggest a gap for Laboratory Technologists. However, the occupation includes a variety of laboratory specialists (ex. histologists) who may need specific education and work experience. Gaps may exist for more narrowly defined types of technologists, but demand estimates are not available for this level of analysis.

Contextual Factors

Out-Migration of Graduates

Table 8E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 8E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
26.0102 Biomedical Sciences, General				
SUS (Bachelor's)	49%	29%	\$29,252	35%
ICUF (Bachelor's)	56%	28%	\$33,584	20%
SUS (Master's)	26%	15%	\$37,248	45%
26.0202 Biochemistry				
SUS (Bachelor's)	35%	24%	\$26,268	25%
26.0503 Medical Microbiology and Bacteriology				
SUS (Bachelor's)	42%	23%	\$27,616	33%
SUS (Master's)	32%	26%	\$44,668	40%
51.1005 Clinical Laboratory Sciences/Medical Technology				
SUS (Bachelor's)	80%	75%	\$48,280	7%
ICUF (Bachelor's)	75%	75%	***	0%
*** Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

Fewer than half of the general science graduates (CIPs 26.0102, 26.0202, 26.0503) are found working full-time in Florida within a year of graduation. For those that are found, the earnings are slightly below the average entry wage for the occupation. A relatively high percentage of the graduates are found continuing their education. The 51.1005 CIP shows a higher percentage of graduates found working full-time in Florida within a year of graduation and with higher earnings.

Licensing

Tables 8F and 8G include data collected by the Florida Department of Health from the professional licensing boards. Table 8F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 8F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure (Clinical Laboratory Personnel)	
FL Department of Economic Opportunity	
2014 Total Employment	10,040
2022 Projected Total Employment	10,950
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	12,493

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Clinical Laboratory Personnel licenses is higher than the DEO's 2014 total employment figure and the projection for 2022. This may be partially explained by a lack of adjustment in the DOH numbers for license-holders who are not currently working in the field. Also, the DEO separates Medical Scientists from Technologists in a different occupation code, but the licensing includes both levels of laboratory professionals.

Table 8G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 8G. DOH Initial Licenses Issued, by year, and Retention for Clinical Laboratory Personnel			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	607	389	64%
2010	616	411	67%
2011	800	525	66%
2012	827	583	70%
2013	831	610	73%
2014	940	638	68%
Percent Change from 2009-2014	55%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The new supply number (1,208 versus 78 previously) more closely aligns with the licensing for Clinical Laboratory Personnel. In 2014, 940 licenses were issued and 638 remained clear, active, with a Florida practice address. The number of newly licensed Clinical Laboratory Personnel retained in 2014 is more than double the 306 projected annual openings.

Medical and Public Health Social Workers

Summary Observations

- Florida projects 302 annual openings for Medical and Public Health Social Workers from 2014 to 2022*.
- Florida produced 925 new masters and doctoral graduates in Social Work in 2012-2013*.
- Seventy percent of the past five years of masters and doctoral Social Work graduates were found employed in Florida within a year of graduation.
- Florida issued 706 new Clinical Social Worker licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 589 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 9A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 9A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211022	Medical and Public Health Social Workers	24.7	172	130	302	\$47,590	\$30,451	Master's degree
BLS Occupational Profile		Provide individuals, families, and groups with the psychosocial support needed to cope with chronic, acute, or terminal illnesses. Services include advising family care givers, providing patient education and counseling, and making referrals for other services. May also provide care and case management or interventions designed to promote health, prevent disease, and address barriers to access to healthcare.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Medical and Public Health Social Workers is greater than the average growth rate for all jobs in Florida (12%), with 24.7% growth projected for Florida and 27% growth nationally. The entry wage for Healthcare Social Workers is roughly \$10,000 higher than the entry wage for all jobs, and the average wage is just above the average for all jobs. The education required for licensure as a Clinical Social Worker in Florida is the master's degree, or M.S.W. Two years of post-master's supervised experience is also required and can be done with registration as a Clinical Social Worker Intern. The Florida Department of Economic Opportunity projects 302 annual openings from 2014 to 2022 to meet the projected demand for Healthcare Social Workers. The 130 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 9B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 9B.

Table 9B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions			
	Master's degree	Doctor's degree - research	Total
44.0701 Social Work	920	5	925
SUS	724	5	729
Florida A&M University	22		22
Florida Atlantic University	98		98
Florida Gulf Coast University	17		17
Florida International University	113	2	115
Florida State University	240	1	241
University of Central Florida	143		143
University of South Florida	48	2	50
University of West Florida	43		43
Non-SUS	196	0	196
Barry University	182	0	182
Saint Leo University	14		14

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 729 students in 2012-2013. The ICUF programs graduated 182 students in 2012-2013. The supply of graduates is from the 44.0701 Social Work CIP and primarily includes graduates of master's programs. Five PhD students are also included in the supply total.

The 44.0701 CIP aligns (crosswalks) with multiple social work occupations besides Healthcare Social Worker. Only 20% of the master's and doctoral graduates are included in the supply when (1) adjusting the supply for multiple occupational pathways and (2) assuming that graduates may fill jobs with a lower education requirement for entry. The potential supply for the Healthcare Social Worker occupation under this calculation is 184 graduates (only 1 doctoral graduate) and leads to a gap in meeting demand. However, this adjusted supply figure of 184 is significantly less than the 706 new Clinical Social Worker licenses issued in Florida in 2014. If the adjustment is done by only including the other occupations requiring a master's degree or higher (excluding bachelor's degree entry occupations) then the supply would be 475, or 50% of the 44.0701 graduates.

Table 9C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 9C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
44.0701 Social Work					
FAMU					
Master's degree	58	64	65	58	46
FAU					
Master's degree	160	181	216	241	267
FGCU					
Master's degree	50	59	58	42	38
FIU					
Master's degree	172	207	225	233	201
Doctor's degree - research	10	11	15	17	16
FSU					
Master's degree	368	433	465	522	495
Doctor's degree - research	27	28	24	22	26
UCF					
Master's degree	267	359	340	347	340
USF					
Master's degree	204	138	164	145	144
Doctor's degree - research	17	17	21	19	16
UWF					
Master's degree	47	89	63	82	85
Total					
Master's degree	1326	1530	1596	1670	1616
Doctor's degree - research	54	56	60	58	58

Source: Board of Governors, State University Data System (SUDS)

Overall, the enrollments for the Social Work master's programs have increased, primarily due to increased enrollments in the Florida Atlantic University and Florida State University programs. Enrollments in the doctoral programs have remained steady.

Gap Analysis

Table 9D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 9D. DEO 2014-2022 Projected Demand and CIP Supply					
SOC	Occupation Title	Annual Openings	Adjusted Supply (20% of graduates)	Adjusted Supply (50% of graduates)	Supply (without adjustment)
211022	Medical and Public Health Social Workers	302	184	475	925
Supply Scenario – Annual Openings			-118	173	623

Three scenarios are presented in Table 9D, incorporating the different supply estimates from the previous section. If a full adjustment is made to the supply, then 184 graduates (20% of the program totals) are included as potential supply and will undersupply the 302 projected annual openings by 118. If the supply is adjusted for only those occupations requiring a master's or higher, then 475 (50%) of the graduates are counted in the supply and exceed the projected annual openings by 173. If no adjustment is made and all of the Social Work graduates are included as potential supply, then the supply exceeds the projected annual openings by 623.

Based on licensing data for Clinical Social Workers, the 50% estimate or unadjusted supply totals are probably more accurate than a full adjustment using only 20% of the program graduates. As shown in the tables below, 706 Clinical Social Workers were newly licensed in 2014 (with 589 remaining with a Florida address) compared to the supply estimates of 184, 475, and 925, respectively. Based on growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 9E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 9E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
44.0701 Social Work				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS (Master's)	72%	65%	\$37,140	5%
ICUF (Master's)	67%	60%	\$39,716	2%
SUS (Doctoral)	38%	32%	\$87,448	3%

Source: Florida Education and Training Placement Information Program (FETPIP)

More than half of the master's Social Work graduates are found working full-time in Florida within a year of graduation and with higher earnings than the average entry wage for the occupation. Only 32% of doctoral graduates are found working full-time in Florida within a year of graduation, but those found have significantly higher earnings.

Licensing

Tables 9F and 9G include data collected by the Florida Department of Health from the professional licensing boards. Table 9F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 9F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure for Clinical Social Workers	
FL Department of Economic Opportunity	
2014 Total Employment	5,553
2022 Projected Total Employment	6,925
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	7,638

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Clinical Social Worker licenses is greater than the DEO 2014 total employment and the 2022 projected total employment. This suggests that the demand estimate may be overly conservative. Alternatively, the number of license-holders not currently in practice, or practicing part-time, may be larger compared to some of the other health occupations.

Table 9G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 9G. DOH Initial Licenses Issued, by year, and Retention for Clinical Social Workers			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	463	353	76%
2010	416	340	82%
2011	514	405	79%
2012	505	407	81%
2013	585	492	84%
2014	706	589	83%
Percent Change from 2009-2014	52%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Clinical Social Worker licenses issued each year has been increasing, with a larger increase in 2014. In 2014, 706 licenses were issued and 589 remain in the state. Based on the growth in licensing and the retention of license-holders in Florida, the demand estimate of 302 projected openings would have to almost double to become a gap.

Physician Assistants

Summary Observations

- Florida projects 250 annual openings for Physician Assistants from 2014 to 2022*.
- Florida produced 464 new Physician Assistant graduates in 2012-2013*.
- Sixty-four percent of the past five years of Physician Assistant graduates were found employed in Florida within a year of graduation.
- Florida issued 740 new Physician Assistant licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 583 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 10A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 10A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291071	Physician Assistants	26.5	161	89	250	\$99,341	\$73,528	Master's degree*
BLS Occupational Profile		Provide healthcare services typically performed by a physician, under the supervision of a physician. Conduct complete physicals, provide treatment, and counsel patients. May, in some cases, prescribe medication. Must graduate from an accredited educational program for physician assistants. Excludes "Emergency Medical Technicians and Paramedics" (29-2041), "Medical Assistants" (31-9092), "Registered Nurses" (29-1141), "Nurse Anesthetists" (29-1151), "Nurse Midwives" (29-1161), and "Nurse Practitioners" (29-1171).						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Physician Assistants is greater than the average growth rate for all jobs in Florida (12%), with 26.5% growth projected for Physician Assistants in Florida and 38% nationally. The entry wage for Physician Assistants is much higher than the entry wage for all jobs, and the average wage is roughly more than double the average for all jobs. Licensure as a Physician Assistant in Florida requires graduation from an accredited training program and passing a proficiency exam administered by the National Commission on Certification of Physician Assistants. The Florida Department of Economic Opportunity projects 250 annual openings from 2014 to 2022 to meet the projected demand for Physician Assistants. The 89 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 10B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 10B.

Table 10B.			
2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions			
	Associate's degree	Master's degree	Total
51.0912 Physician Assistant	44	420	464
SUS		59	59
University of Florida		59	
Non-SUS	44	361	405
Barry University		74	
Keiser University-Ft Lauderdale		24	
Miami Dade College	44		
Nova Southeastern University		235	
South University-Tampa		28	

Source: IPEDS with additional data and clarification provided by some universities

The supply of graduates is from the 51.0912 CIP and is a one-to-one for the occupation, and therefore requires no weighting adjustment for multiple occupational paths. The SUS program graduated 59 students in 2012-2013. The ICUF programs graduated 361 students in 2012-2013. Additionally, Miami Dade College in the Florida College System offers an accredited Physician Assistant training program that had 44 graduates in 2012-2013. The total supply of 405 graduates from the non-SUS institutions is much larger than current SUS supply of 59 graduates. However, three new programs have been approved for SUS institutions (USF, FSU, and FIU) and implementation of these

programs over the next couple of years will increase the supply of Physician Assistants in the near future (3-5 years).

Table 10C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 10C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.0912 Physician Assistant	(Master's degree)				
UF	119	119	119	119	121

Source: Board of Governors, State University Data System (SUDS)

The Physician Assistant program at the University of Florida has had steady enrollments for the past five years.

Gap Analysis

Table 10D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 10D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291071	Physician Assistants	250	464	214

When considered alone, the supply of 464 graduates exceeds the 250 projected annual openings by 214. In addition, 740 Physician Assistants were newly licensed in 2014 (with 583 remaining with a Florida address) compared to the supply estimate of 464, suggesting large in-migration. Based on significant growth in licensing over the past five years and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 10E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates

for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 10E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.0912 Physician Assistant		(Master's degree)		
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	75%	75%	\$90,720	0%
ICUF	62%	60%	\$84,992	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Nearly three-quarters of SUS Physician Assistant graduates are found working full-time in Florida within a year of graduation and with high earnings. Fewer of the ICUF graduates are found working in Florida, which translates to a more significant source of out-migration because of the large number of ICUF graduates. However, sixty percent of ICUF graduates are found working full-time in Florida and with high earnings.

Licensing

Tables 10F and 10G include data collected by the Florida Department of Health from the professional licensing boards. Table 10F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 10F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	4,846
2022 Projected Total Employment	6,131
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	6,355

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Physician Assistants licenses is greater than the DEO total employment figure and the DEO projected employment for 2022. This suggests that the demand estimate may be overly conservative. Alternatively, the number of license-holders not currently in practice, or practicing part-time, may be larger compared to some of the other health occupations.

Table 10G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 10G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	432	299	69%
2010	515	369	72%
2011	530	402	76%
2012	646	517	80%
2013	703	573	82%
2014	740	583	79%
Percent Change from 2009-2014	71%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of licenses issued each year has been steadily increasing, with a 71% change over six years. The number licensed in 2014 is three times the projected demand of 250 annual openings. In 2014, 740 licenses were issued and 583 remain in the state. Based on the growth in licensing and the retention of license-holders in Florida, the demand estimate would have to increase by more than double to become a gap.

Mental Health Counselors

Summary Observations

- Florida projects 245 annual openings for Mental Health Counselors from 2014 to 2022*.
- Florida produced 1,150 new graduates in Mental Health Counseling in 2012-2013*.
- Fifty-three percent of the past five years of Mental Health Counseling graduates were found employed in Florida within a year of graduation.
- Florida issued 799 new Mental Health Counselor licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 730 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 11A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 11A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211014	Mental Health Counselors	20.9	135	110	245	\$42,328	\$28,038	Master's degree
BLS Occupational Profile		Counsel with emphasis on prevention. Work with individuals and groups to promote optimum mental and emotional health. May help individuals deal with issues associated with addictions and substance abuse; family, parenting, and marital problems; stress management; self-esteem; and aging. Excludes "Social Workers" (21-1021 through 21-1029), "Psychiatrists" (29-1066), and "Psychologists" (19-3031 through 19-3039).						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Mental Health Counselors is greater than the average growth rate for all jobs in Florida (12%), with 21% growth projected for Florida and 29% nationally. The entry wage for Mental Health Counselors is almost \$10,000 greater than the entry wage for all jobs, and the average wage is roughly equivalent to the average for all Florida jobs. The education required for licensure as a Mental Health Counselor in Florida is a master's degree. The Florida Department of Economic Opportunity projects 245 annual openings from 2014 to 2022 to meet the projected demand for Mental Health Counselors. The 110 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 11B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 11B.

Table 11B.			
2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Master's degree	Doctor's degree - research
			Total
42.0101 Psychology, General		129	129
SUS		75	75
Florida International University		36	36
University of West Florida		39	39
Non-SUS			
Carlos Albizu University - Miami		54	54
42.2801 Clinical Psychology		24	24
SUS			
University of Central Florida		19	19
Non-SUS			
Barry University		5	5
42.2803 Counseling Psychology		727	727
Non-SUS		727	727
Barry University		29	29
Nova Southeastern University		291	291
Palm Beach Atlantic University		96	96
Reformed Theological Seminary of FL		18	18
Southeastern University		5	5
Trinity International University - FL		19	19
Troy University - Florida campuses		83	83
Webster University - Florida campuses		186	186

Table 11B. Continued 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions			
	Master's degree	Doctor's degree - research	Total
51.1501 Substance Abuse/Addiction Counseling	5		5
Non-SUS			
Palm Beach Atlantic University	5		5
51.1506 Clinical Pastoral Counseling/Patient Counseling	1	12	13
Non-SUS	1	12	13
Argosy University-Sarasota		12	12
S. FL Bible College and Theological Seminary	1		1
51.1508 Mental Health Counseling	246	6	252
SUS	61	6	67
University of Florida	40	6	46
University of North Florida	21		21
Non-SUS	185		185
Argosy University-Sarasota	51		51
Argosy University-Tampa	13		13
Asbury Theological Seminary	3		3
Capella University	22		22
Rollins College	22		22
South University-West Palm Beach	14		14
St Thomas University	2		2
Stetson University	14		14
University of Miami	13		13
Walden University	31		31
Grand Total	1,132	18	1,150

Source: IPEDS with additional data and clarification provided by some universities

The CIP-SOC crosswalk for Mental Health Counselors includes three CIPs: 51.1501, 51.1506, and 51.1508. However, after communication with universities and a review of program websites, it became clear that additional CIPs and relevant programs were missing from the crosswalk. For a more accurate estimate of supply, the master's degree graduates from General, Clinical, and Counseling Psychology programs with a concentration in Mental Health Counseling were added to the supply totals. A few Counseling Education programs in CIP 13.1101 also offer Mental Health Counseling as a specialization for the master's degree (at FAMU, FAU, FGCU, FIU, and FSU), but pulling out the Mental Health Counseling graduates from the overall master's program total wasn't possible. A review of program websites confirmed that graduates of these additional programs are able to seek licensure and fill demand for the occupation. The inclusion of additional programs significantly increased the total supply. The supply

from programs in the original three CIPs was 270 graduates and addition of the Psychology programs brings the total supply to 1,150 graduates.

Based on the revised supply estimate, the SUS programs graduated at least 161 Mental Health Counseling students in 2012-2013. The CIE and ICUF programs graduated 989 students in 2012-2013, with Nova Southeastern University having a notably large program. There is potential for the supply of graduates included in Table 11B to fill demand in several related occupations, namely Rehabilitation Counseling, Marriage and Family Therapy, Substance Abuse and Mental Health Social Work, and Clergy (for CIP 51.1506). In addition, a portion of the graduates may go into management or teaching positions. Even with an adjustment for other occupational paths, the large number of graduates and the number of licenses issued in recent years suggests the potential supply remains large.

Table 11C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 11C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
42.0101 Psychology, General					
FIU					
Master's degree	69	57	83	99	98
UWF					
Master's degree	114	106	121	98	84
Total					
Master's degree	183	163	204	197	182
42.2801 Clinical Psychology					
UCF					
Master's degree	32	31	30	31	33
51.1508 Mental Health Counseling					
UF					
Master's degree	25	27	32	0	0
Doctor's degree - research	43	38	31	51	68
UNF					
Master's degree	70	94	67	53	50
Total					
Master's degree	95	121	99	53	50
Doctor's degree - research	43	38	31	51	68

Source: Board of Governors, State University Data System (SUDS)

The master's and specialist-degree Psychology programs with a Mental Health Counseling concentration (at FIU, UWF, and UCF) have had fairly steady enrollments from 2009 to 2013. The master's program in Mental Health Counseling at the University of North Florida has had a small decline in enrollments. The master's and doctoral programs in Mental Health Counseling at the University of Florida have recently moved from the 51.1508 CIP to 13.1101, where the program is a concentration of the Counseling program in the Education department.

Gap Analysis

Table 11D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 11D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
211014	Mental Health Counselors	245	1,150	905

The initial calculation of supply using the CIP-SOC crosswalk methodology yielded 260 graduates and a small oversupply for the 245 projected openings. However, a closer review of relevant programs brought the supply total to 1,150 graduates, which exceeds the 245 projected annual openings by 905. The significant increase to the supply estimate is supported by the licensing information presented in the tables below. In 2014, 799 Mental Health Counselors were newly licensed (with 703 remaining with a Florida address) compared to the revised supply estimate of 1,150 graduates. Based on significant growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 11E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 11E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
42.0101 Psychology, General				
SUS (Master's)	48%	41%	\$35,532	21%
42.2801 Clinical Psychology				
SUS (Master's)	54%	37%	\$34,780	25%
42.2803 Counseling Psychology				
ICUF (Master's)	64%	56%	\$39,348	2%
51.1508 Mental Health Counseling				
SUS (Master's)	70%	60%	\$35,776	8%
ICUF (Master's)	51%	46%	\$39,308	8%
SUS (Specialist)	65%	48%	\$37,980	9%
SUS (Doctoral)	47%	38%	\$57,060	3%

Source: Florida Education and Training Placement Information Program (FETPIP)

The percent of master's and specialist degree graduates found working full-time in Florida within a year of graduation ranges from 37 to 60 percent, depending on the program's CIP and sector. On average, roughly half of the graduates are found working full-time, earning between the entry and average wage. Thirty-eight percent of the doctoral graduates are found working full-time within a year of graduation and with higher earnings. The percent continuing education is relatively high for the General and Clinical Psychology programs. However, the ICUF Counseling Psychology programs, which are contributing a large portion of the potential supply, have only 2% continuing education and 56% found working full-time.

Licensing

Tables 11F and 11G include data collected by the Florida Department of Health from the professional licensing boards. Table 11F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 11F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	5,182
2022 Projected Total Employment	6,264
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	8,681

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Mental Health Counselor licenses exceeds the DEO's 2014 total employment figure and the projected total employment for 2022. This suggests that the demand estimate may be overly conservative. Alternatively, the number of license-holders not currently in practice, or practicing part-time, may be larger compared to some of the other health occupations.

Table 11G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 11G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	446	371	83%
2010	415	331	80%
2011	482	413	86%
2012	511	455	89%
2013	682	614	90%
2014	799	730	91%
Percent Change from 2009-2014	79%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Mental Health Counselor licenses issued each year has been increasing, with larger increases in 2013 and 2014. In 2014, 799 licenses were issued and 730 remain in the state. Another 1,133 Mental Health Counselor Intern licenses were issued in 2014 to graduates fulfilling training and exam requirements prior to full licensure. Based on the growth in licensing and the retention of license-holders in Florida, the demand estimate of 245 projected openings would have to triple to become a gap.

Clinical, Counseling, and School Psychologists

Summary Observations

- Florida projects 239 annual openings for Clinical, Counseling, and School Psychologists from 2014 to 2022*.
- Florida produced 405 new graduates in Psychology (doctoral degrees) and School Psychology (masters and specialist degrees) in 2012-2013*.
- Twenty-seven percent of the past five years of Psychology graduates and 69% of the past five years of School Psychologist graduates were found employed in Florida within a year of graduation.
- Florida issued 319 new Psychologist and School Psychologist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 274 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 12A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 12A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
193031	Clinical, Counseling, and School Psychologists	16.3	93	146	239	\$70,907	\$46,883	Doctoral degree
BLS Occupational Profile		Diagnose and treat mental disorders; learning disabilities; and cognitive, behavioral, and emotional problems, using individual, child, family, and group therapies. May design and implement behavior modification programs.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Clinical, Counseling, and School Psychologists is slightly greater than the average growth rate for all jobs in Florida (12%), with 16.3% growth projected for Florida and 11% projected nationally. The entry wage for Psychologists is a little more than double the entry wage for all jobs, and the average wage is about \$30,000 more than the average for all jobs. The Florida Department of Economic Opportunity projects 239 annual openings from 2014 to 2022 to meet the projected demand for Clinical, Counseling, and School Psychologists. The 146 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

The BLS degree level set for Psychologists is a doctorate. The education for licensing of Psychologists in Florida is a practice or research doctorate, including the Psy.D., Ed.D. in Psychology, or a Ph.D. in Psychology. Prior to full licensure, a Provisional Psychologist license is issued for a supervisory training period. The licensing for School Psychologists in Florida requires completion of a graduate-level School Psychology program and 3 years of experience. Graduates with relevant specialist and master's degrees in School Psychology were originally missing from the supply estimates due to the focus on the doctoral degree level set by the BLS. The analysis below has been adjusted to include the additional program graduates.

Supply

Estimates of potential supply are included in Table 12B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 12B.

Table 12B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Master's and Specialist	Doctor's degree - research	Doctor's degree - professional	Total
42.0101 Psychology, General		111		111
SUS		84		84
Florida International University		8		8
Florida State University		16		16
University of Central Florida		15		15
University of Florida		27		27
University of South Florida		18		18
Non-SUS		27		27
Capella University		9		9
University of Miami		15		15
Walden University		3		3
42.2801 Clinical Psychology		50	108	158
Non-SUS		50	108	158
Argosy University-Tampa			30	30
Carlos Albizu University-Miami		37		37
Florida Institute of Technology			18	18
Nova Southeastern University		13	60	73
42.2803 Counseling Psychology		45		45
SUS		1		1
University of Florida		1		1
Non-SUS		44		44
Argosy University-Sarasota		35		35
Barry University		5		5
Capella University		1		1
University of Miami		3		3
42.2805 School Psychology	68	21	0	89
SUS	42	21		63
Florida A&M University	3			3
Florida International University	7			7
University of Central Florida	14			14
University of Florida	11	10		21
University of South Florida	7	11		18
Non-SUS	26		0	26
Argosy University-Sarasota	5		0	5
Barry University	5			5
Nova Southeastern University	16			16

Table 12B. Continued 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Master's and Specialist	Doctor's degree - research	Doctor's degree - professional	Total
42.2814 Applied Behavior Analysis		2		2
Non-SUS		2		2
Florida Institute of Technology		2		2
Grand Total	68	229	108	405

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated a total of 148 Psychology (doctorate) and School Psychology (master's and above) students in 2012-2013. The CIE and ICUF programs graduated 257 students in 2012-2013. The supply of graduates is from multiple CIPs: 42.0101, 42.2801, 42.2803, 42.2805, and 42.2814. The supply has been adjusted to include 68 master's and specialist degrees in CIP 42.2805 School Psychology. Based on correspondence with Nova Southeastern University, the supply of graduates with specialist degrees was revised from 49 to 16, as only a smaller portion of the students completed the full program that leads to licensure as a School Psychologist.

The CIP-SOC crosswalk for Clinical, Counseling, and School Psychologists includes multiple CIPs aligned to multiple SOC. A weighting adjustment that factors in the occupational demand for two additional occupational paths (Other Psychologists and Psychology Teachers, Postsecondary) for the graduates of four of the CIPs reduces the supply to 292. An adjustment that only includes Other Psychologists as an alternative occupational path would bring the supply estimate down to 362 (based on an adjustment for CIP 42.0101 from 111 to 62 graduates). The supply with no adjustment, or an assumption that all graduates would be available to fill the demand for Clinical, Counseling and School Psychologists, is 405 graduates. Three supply scenarios using these weighting alternatives are included in the gap analysis section below.

Table 12C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 12C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
42.0101 Psychology, General	(Doctor's degree)				
FIU	58	84	88	89	91
FSU	92	81	87	91	55
UCF	102	101	121	121	116
UF	105	98	111	146	146
USF	89	124	121	116	113
Total	446	488	528	563	521
42.2803 Counseling Psychology					
UF	28	21	19	35	31
42.2805 School Psychology	(Specialist and Doctor's degrees)				
FAMU	21	19	12	3	0
FIU	48	42	30	24	21
UCF	41	42	42	43	46
UF	62	63	64	59	53
USF	36	38	38	38	35
Total	208	204	186	167	155

Source: Board of Governors, State University Data System (SUDS)

Overall, enrollments in the General Psychology doctorate programs have increased over the past five years. The lower enrollment of 55 students for FSU's program in 2013 has since increased to 107 in 2014. The General Psychology programs at FIU, UF, and USF account for most of the growth in enrollment. The Counseling Psychology program at the University of Florida has had a small increase in enrollments over the past five years. Overall, enrollments in the School Psychology programs have declined from 2009 to 2013. Contributing to the decline is the termination of the program at FAMU in Spring 2011 and decreased enrollments in the FIU and UF programs.

Gap Analysis

Table 12D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 12D. DEO 2014-2022 Projected Demand and CIP Supply					
SOC	Occupation Title	Annual Openings	Adjusted Supply (2 occupation alternatives)	Adjusted Supply (1 occupation alternative)	Supply (without adjustment)
193031	Clinical, Counseling, and School Psychologists	239	292	362	405
Supply Scenario - Annual Openings			53	123	166

Three scenarios are presented in Table 12D, incorporating the different supply estimates from the previous section. If a full adjustment is made to the supply, then 292 graduates are included as potential supply and will slightly exceed the 239 projected annual openings by 53. If the supply is adjusted to include only one alternative occupational pathway, then 362 of the graduates are counted in the supply and exceed the projected annual openings by 123. If no adjustment is made and all of the graduates are included as potential supply, then the supply of 405 exceeds the projected annual openings by 166.

Based on licensing data for Psychologists and School Psychologists, the supply of graduates for the occupation likely falls within the range presented and meets the demand. As shown in the tables below, 319 Psychologists and School Psychologists were newly licensed in 2014 (with 274 remaining with a Florida address) compared to the supply estimates of 292, 362, and 405. The 319 licenses is the sum of licenses issued for Psychologists (282 issued in 2014 with 238 remaining in Florida) and School Psychologists (37 issued in 2014 with 36 remaining in Florida). However, the number of projected annual openings combines Psychologists and School Psychologists so an analysis on a gap for either of these alone is not possible.

The slight growth in licensing and the number of licensees remaining in Florida each year for Psychologists and School Psychologists combined suggests the supply is sufficient to meet the demand for the broadly-defined occupation. However, the supply may not meet demand if licensing decreases from the 2014 level or if demand is revised upward by 50-100 openings.

Contextual Factors

Out-Migration of Graduates

Table 12E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not

included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 12E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
42.0101 Psychology, General				
SUS (Doctoral)	20%	19%	\$63,960	1%
ICUF (Doctoral)	14%	14%	\$40,008	0%
42.2801 Clinical Psychology				
ICUF (Doctoral)	36%	27%	\$44,296	1%
42.2803 Counseling Psychology				
SUS (Doctoral)	18%	18%	***	0%
ICUF (Doctoral)	46%	46%	\$53,304	0%
42.2805 School Psychology				
SUS (Master's)	32%	24%	***	84%
ICUF (Master's)	73%	65%	\$41,272	2%
SUS (Specialist)	75%	71%	\$56,688	0%
ICUF (Specialist)	76%	74%	\$53,556	3%
SUS (Doctoral)	49%	46%	\$57,160	5%
***Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

With the exception of the ICUF Counseling Psychology programs, a quarter or less of the graduates of the General, Clinical and Counseling Psychology programs were found employed full-time in Florida within a year of graduation. The ICUF Counseling Psychology programs had 46% of graduates found employed full-time in Florida within a year of graduation. The Psychology graduates found working full-time were earning within a range fairly above and slightly below the entry wage for the occupation. Nearly three-quarters of the specialist-degree graduates and almost half of the doctoral-degree graduates from the School Psychology programs were found working full-time in Florida within a year of graduation. The School Psychology specialist and doctoral graduates found working full-time were earning above the entry wage for the occupation.

Licensing

Tables 12F and 12G include data collected by the Florida Department of Health from the professional licensing boards. Table 12F is a comparison between the Florida

Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 12F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure for Psychologists and School Psychologists (combined)	
FL Department of Economic Opportunity	
2014 Total Employment	4,556
2022 Projected Total Employment	5,298
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	4,867

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Psychologist and School Psychologist licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 12G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 12G. DOH Initial Licenses Issued, by year, and Retention for Psychologists and School Psychologists (combined)			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	222	179	81%
2010	209	167	80%
2011	305	232	76%
2012	258	205	79%
2013	299	252	84%
2014	319	274	86%
Percent Change from 2009-2014	44%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Psychologist and School Psychologist licenses issued each year has increased overall from 2009 to 2014, but with some fluctuation. In 2014, 319 licenses were issued and 274 remain in the state. Based on the licensing trend and the retention of license-holders in Florida, a moderate increase to the current demand estimate of 239 projected openings could create a gap.

Mental Health and Substance Abuse Social Workers

Summary Observations

- Florida projects 186 annual openings for Mental Health and Substance Abuse Social Workers from 2014 to 2022*.
- Florida produced 1,779 new graduates from all degree levels in Social Work in 2012-2013*.
- Sixty-seven percent of the past five years of Social Work graduates were found employed in Florida within a year of graduation.
- There is no Florida licensure for Mental Health and Substance Abuse Social Workers, although licensed Clinical Social Workers and Florida Certified Addiction Professionals could fill the demand.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 13A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 13A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211023	Mental Health and Substance Abuse Social Workers	16.8	88	98	186	\$40,726	\$27,123	Bachelor's degree
BLS Occupational Profile		Assess and treat individuals with mental, emotional, or substance abuse problems, including abuse of alcohol, tobacco, and/or other drugs. Activities may include individual and group therapy, crisis intervention, case management, client advocacy, prevention, and education.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Mental Health and Substance Abuse Social Workers is greater than the average growth rate for all jobs in Florida (12%), with 16.8% growth projected for Florida and 23% nationally. The entry wage for Mental Health and Substance Abuse Social Workers is about \$8,000 higher than the entry wage for all jobs, and the average wage is roughly the same as the average for all jobs. The education set by the BLS for this group of social workers is a bachelor's degree, whereas the education for Medical and Public Health Social Workers is set at the master's degree. Because the occupational demand for Mental Health and Substance Abuse Social Workers can be met by bachelor's or higher degree graduates, a portion of the supply may hold Florida licensure as Clinical Social Workers (master's and doctoral degree-holders only) and some may seek certification in Florida as Certified Addiction Professionals (bachelor's degree or higher).

The Florida Department of Economic Opportunity projects 186 annual openings from 2014 to 2022 to meet the projected demand. The 98 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 13B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 13B.

Table 13B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions					
	Bachelor's degree	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
44.0701 Social Work	853	920	5	1	1779
SUS	719	724	5		1448
Florida A&M University	74	22			96
Florida Atlantic University	139	98			237
Florida Gulf Coast University	41	17			58
Florida International University	101	113	2		216
Florida State University	111	240	1		352
University of Central Florida	111	143			254
University of South Florida	65	48	2		115
University of West Florida	77	43			120
Non-SUS	134	196	1		331
Barry University	22	182	0		204
Capella University				1	1
Florida Memorial University	10				10
Saint Leo University	56	14			70
Southeastern University	19				19
Thomas University	12				12
Union Institute & University	10				10
Warner University	5				5

Source: IPEDS with additional data and clarification provided by some universities

The supply totals in Table 13B are similar to that provided for Medical and Public Health Social Workers, except the bachelor's degree graduates have been included to match the education level set by BLS for Mental Health and Substance Abuse Social Workers. The inclusion of the additional graduates brings the total supply from all degree levels to 1,779. The supply of graduates includes bachelor's, master's and PhD graduates from the 44.0701 Social Work CIP. The SUS programs graduated 1,448 students in 2012-2013. The CIE and ICUF programs graduated 331 students in 2012-2013. The CIP-SOC methodology yields significant adjustments to the supply based on multiple occupational paths available to the Social Work graduates. Specifically, the adjusted supply includes only 20% of bachelor's graduates (168 of 853 graduates), 12% of master's graduates (113 of 920 graduates), and 12% of doctoral graduates (1 of 6 graduates) from the Social Work CIP. Graduates can work in other areas of social work and a portion of the graduates may go into management or teaching positions.

Table 13C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 13C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
44.0701 Social Work					
FAMU					
Bachelor's degree	132	204	283	298	264
Master's degree	58	64	65	58	46
FAU					
Bachelor's degree	321	358	409	446	512
Master's degree	160	181	216	241	267
FGCU					
Bachelor's degree	71	83	134	134	156
Master's degree	50	59	58	42	38
FIU					
Bachelor's degree	226	258	281	282	299
Master's degree	172	207	225	233	201
Doctor's degree - research	10	11	15	17	16
FSU					
Bachelor's degree	291	287	329	363	335
Master's degree	368	433	465	522	495
Doctor's degree - research	27	28	24	22	26
UCF					
Bachelor's degree	233	306	363	362	391
Master's degree	267	359	340	347	340
UNF					
Bachelor's degree	0	0	0	0	31
USF					
Bachelor's degree	430	336	233	182	208
Master's degree	204	138	164	145	144
Doctor's degree - research	17	17	21	19	16
UWF					
Bachelor's degree	150	173	193	203	193
Master's degree	47	89	63	82	85
Total					
Bachelor's degree	1854	2005	2225	2270	2389
Master's degree	1326	1530	1596	1670	1616
Doctor's degree - research	54	56	60	58	58

Source: Board of Governors, State University Data System (SUDS)

Overall, the enrollments for the bachelor's degree programs have increased. The University of South Florida's program is the only bachelor's degree program showing a decline in enrollments from 2009 to 2013. The overall enrollments for the Social Work master's programs have also increased, primarily due to increased enrollments in the Florida Atlantic University and Florida State University programs. Enrollments in the doctoral programs have remained steady.

Gap Analysis

Table 13D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 13D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Adjusted Supply (% of graduates)	Supply (without adjustment)
211023	Mental Health and Substance Abuse Social Workers	186	282	1,779
Supply Scenario – Annual Openings			96	1,593

Two scenarios are presented in Table 13D, incorporating the adjusted and unadjusted supply estimates from the previous section. If an adjustment for multiple occupational paths is made to the supply, then 282 graduates are included as potential supply and exceed the 186 projected annual openings by 96. If no adjustment is made and all of the Social Work graduates are included as potential supply, then the supply exceeds the projected annual openings by 1,593. The lower, adjusted supply number is likely a better estimate than the unadjusted total. The reasoning is that only a subset of graduates are available for the Mental Health and Substance Abuse Social Work occupation because it competes with the other social work occupations, including those requiring higher degree levels and licensure as Clinical Social Workers.

Unlike some of the other occupations in this report, Mental Health and Substance Abuse Social Workers are not required to license and so an annual licensure figure is not available for comparison. A portion of the occupation's supply may be licensed Clinical Social Workers, but the bachelor's degree-holders would not be eligible for this license. However, they would be able to certify in Florida as Certified Addiction Professionals. A database maintained by the Certification Board for Addictions Professionals shows roughly 3,000 individuals are currently certified (an annual certification estimate is not available). The DEO estimates 4,165 workers for the 2014 total employment for Mental Health and Substance Abuse Social Workers and projects that to grow to 4,865 for 2022. Based on these figures, it is likely that a combination of

certified bachelor's graduates and licensed master's graduates work in the occupation and satisfy the demand.

Even with the significant adjustment, the inclusion of the bachelor's degree graduates in the supply totals makes the occupation sufficiently supplied. The 186 projected annual openings of are fully met by the 281 adjusted bachelor's and master's totals.

Contextual Factors

Out-Migration of Graduates

Table 13E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 13E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
44.0701 Social Work				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS (Bachelor's)	65%	46%	\$30,660	39%
ICUF (Bachelor's)	54%	32%	\$27,808	14%
SUS (Master's)	72%	65%	\$37,140	5%
ICUF (Master's)	67%	60%	\$39,716	2%
SUS (Doctoral)	38%	32%	\$87,448	3%

Source: Florida Education and Training Placement Information Program (FETPIP)

Less than half of the Social Work bachelor's graduates are found working full-time in Florida within a year of graduation and a relatively high percentage continue their education. Sixty to 65% of master's graduates are found working full-time in Florida within a year of graduation and earning close to the average wage for the occupation. Only 32% of the doctoral graduates are found working full-time, but with significantly higher earnings.

Health Educators

Summary Observations

- Florida projects 177 annual openings for Health Educators from 2014 to 2022*.
- Florida produced 850 Health Educator graduates in 2012-2013*.
- Fifty-one percent of the past five years of Health Educator graduates were found employed in Florida within a year of graduation.
- Florida does not currently require a license for Health Educators.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 14A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 14A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211091	Health Educators	26.0	107	70	177	\$44,824	\$28,309	Bachelor's degree
BLS Occupational Profile		Provide and manage health education programs that help individuals, families, and their communities maximize and maintain healthy lifestyles. Collect and analyze data to identify community needs prior to planning, implementing, monitoring, and evaluating programs designed to encourage healthy lifestyles, policies, and environments. May serve as resource to assist individuals, other health professionals, or the community, and may administer fiscal resources for health education programs. Excludes "Community Health Workers" (21-1094).						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Health Educators is greater than the average growth rate for all jobs in Florida (12%), with 26% growth projected in Florida and 19% nationally. The

entry wage for Health Educators is roughly \$10,000 higher than the entry wage for all jobs, and the average wage is roughly equal to the average for all jobs. The education set by the BLS as the typical education for entry into the occupation is a bachelor's degree. No licensure is currently required to work as a Health Educator in Florida. The Florida Department of Economic Opportunity projects 177 annual openings from 2014 to 2022 to meet the projected demand for Health Educators. The 70 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 14B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 14B.

Table 14B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions				
	Bachelor's degree	Master's degree	Doctor's degree - research	Total
51.1504 Community Health Services	19	5		24
SUS	19	5		24
University of West Florida	19	5		24
51.2201 Public Health, General	251	552	23	826
SUS	230	491	23	744
Florida International University		142	5	147
Florida State University		23		23
University of West Florida		22		22
University of Florida		85	1	86
University of South Florida	230	197	15	442
Florida A&M University		22	2	24
Non-SUS	21	61		82
Barry University		10		10
Nova Southeastern University		51		51
University of Tampa	21			21
Grand Total	270	557	23	850

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 768 students in 2012-2013. The ICUF programs graduated 82 students in 2012-2013. The supply of graduates is from the 51.1504 and 51.2201 CIPs and requires no weighting adjustment for multiple occupational paths if the Medical and Health Services Managers occupation is excluded. A small portion of the graduates may go into management positions, but a sufficient number of graduates remain available to meet the demand.

Table 14C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 14C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.1504 Community Health Services/Liaison/Counseling					
UWF					
Bachelor's degree	54	46	42	50	41
Master's degree	14	15	17	13	16
51.2201 Public Health, General					
FAMU					
Master's degree	62	54	82	68	61
Doctor's degree - research	0	0	0	14	22
FIU					
Master's degree	390	397	313	211	169
Doctor's degree - research	44	57	51	56	66
FSU					
Master's degree	39	42	57	38	32
UF					
Master's degree	103	132	156	159	154
Doctor's degree - research	0	0	15	26	34
USF					
Bachelor's degree	0	0	427	690	819
Master's degree	465	520	508	554	609
Doctor's degree - research	113	120	118	122	119
UWF					
Master's degree	34	60	91	107	124
Total					
Bachelor's degree	0	0	427	690	819
Master's degree	1093	1205	1207	1137	1149
Doctor's degree - research	157	177	184	218	241

Source: Board of Governors, State University Data System (SUDS)

Overall, enrollments in the SUS Public Health programs at the bachelor's and doctoral level have increased. The master's programs have remained steady over the past five years.

Gap Analysis

Table 14D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 14D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
211091	Health Educators	177	850	673

The supply of 850 graduates exceeds the 177 projected annual openings by 673. Much like Epidemiologists, changes in health care practice around disease prevention and the maintenance of chronic health conditions could increase the demand for Health Educators in the coming years. However, even if the demand is revised upward, the supply of 850 potential Health Educator graduates should be adequate to fill the demand.

Contextual Factors

Out-Migration of Graduates

Table 14E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 14E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.1504 Community Health Services				
SUS (Bachelor's)	54%	36%	\$30,992	32%
SUS (Master's)	65%	55%	\$37,644	5%
51.2201 Public Health, General				
SUS (Bachelor's)	69%	47%	\$29,772	35%
ICUF (Bachelor's)	43%	17%	***	12%
SUS (Master's)	48%	41%	\$48,512	12%
ICUF (Master's)	49%	46%	\$59,712	4%
SUS (Doctoral – research)	43%	39%	\$66,140	1%
***Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

With the exception of the SUS master's graduates, fewer than half of the potential Health Educator graduates are found working full-time in Florida within a year of graduation. There is no licensure for Health Educators in Florida so a good estimate of net migration is not available.

Dietitians and Nutritionists

Summary Observations

- Florida projects 175 annual openings for Dietitians and Nutritionists from 2014 to 2022*.
- Florida produced 375 new Dietitian and Nutritionist graduates in 2012-2013*.
- Sixty-one percent of the past five years of Dietitian and Nutritionist graduates were found employed in Florida within a year of graduation.
- Florida issued 388 new Dietitian and Nutritionist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 324 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 15A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 15A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291031	Dietitians and Nutritionists	13.2	56	119	175	\$55,474	\$38,501	Bachelor's degree
BLS Occupational Profile		Plan and conduct food service or nutritional programs to assist in the promotion of health and control of disease. May supervise activities of a department providing quantity food services, counsel individuals, or conduct nutritional research.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Dietitians and Nutritionists is slightly greater than the average growth rate for all jobs in Florida (12%), with 13.2% growth projected in Florida. The

national projected growth is larger at 21%. The entry wage for Dietitians and Nutritionists is double the entry wage for all jobs, and the average wage is moderately higher than the average for all jobs. Licensure as a Dietitian and Nutritionist in Florida requires a bachelor's degree, 900 hours of pre-professional supervised practice in dietetics or nutrition, and passage of the dietitian exam of the Commission on Dietetic Registration. The Florida Department of Economic Opportunity projects 175 annual openings from 2014 to 2022 to meet the projected demand for Dietitians and Nutritionists. The 119 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 15B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 15B.

Table 15B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions				
	Bachelor's degree	Master's degree	Doctor's degree - research	Total
30.1901 Nutrition Sciences	40		7	47
SUS				
University of Florida (Bachelor's from 01.1001)	40		7	47
51.3101 Dietetics/Dietitian	256	69	0	325
SUS	242	69	0	311
Florida International University	48	40	0	88
Florida State University	86	17		103
University of Florida (from 01.1001)	30			30
University of North Florida	78	12		90
Non-SUS	14			14
Keiser University-Ft Lauderdale	14			14
51.3102 Clinical Nutrition/Nutritionist	3			3
SUS				
Florida State University	3			3
Grand Total	299	69	7	375

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 361 students in 2012-2013. The ICUF program, at Keiser University, graduated 14 students in 2012-2013. The supply of graduates is from three CIPs – 30.1901, 51.3101, and 51.3102 – and a weighting for multiple occupational paths was applied to CIP 30.1901. The adjustment to CIP 30.1901 reduced the supply of graduates by 20, with sixty percent of the graduates included as potential supply. The

other two CIPs did not require adjusting and 100% of the graduates are included as supply in the gap analysis.

The supply was also adjusted to remove 107 bachelor's graduates from a Johnson and Wales program, CIP 19.0505, for poor fit with the occupation. A portion of relevant graduates (40 from Nutrition and 30 from Dietetics) from a University of Florida program in CIP 01.1001 was included after review of the program. Students in this program will be moved to CIPs 30.1901 and 51.3101 starting in Fall 2014 and will be captured in the CIP-SOC crosswalk going forward.

The education for entry into the occupation and licensing are set at the bachelor's degree, so the impact of including the higher degree levels was considered. Removal of the seven PhDs from the supply estimate will not significantly change the gap calculation. Likewise, the removal of the master's graduates from supply would leave 283 bachelor's graduates to meet the 175 projected annual openings. The supply of PhD and master's graduates likely includes a portion of pre-professionals who would be eligible for licensure upon graduation, and were therefore left in the supply totals.

Table 15C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 15C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
30.1901 Nutrition Sciences					
UF					
Doctor's degree – research	9	13	13	23	25
51.3101 Dietetics/Dietitian					
FIU					
Bachelor's degree	281	341	419	475	498
Master's degree	119	123	137	113	101
Doctor's degree – research	10	14	14	16	17
FSU					
Bachelor's degree	370	343	327	248	84
Master's degree	64	63	57	52	39
UNF					
Bachelor's degree	0	0	259	340	373
Master's degree	0	0	31	37	43
Total					
Bachelor's degree	651	684	1005	1063	955
Master's degree	183	186	225	202	183
Doctor's degree – research	10	14	14	16	17
51.3102 Clinical Nutrition/Nutritionist					
FSU					
Bachelor's degree	0	0	0	38	188

Source: Board of Governors, State University Data System (SUDS)

Florida International University's baccalaureate program had a significant increase in enrollments over the past five years. The programs at University of North Florida also had increasing enrollments. Florida State University's programs in CIP 51.3101 had declining enrollments, but the baccalaureate program had growth in CIP 51.3102.

Gap Analysis

Table 15D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 15D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Adjusted Supply	Supply - Annual Openings
291031	Dietitians and Nutritionists	175	355	180

The supply of 355 graduates, adjusted slightly for multiple occupational paths, exceeds the 175 projected annual openings by 180. Additionally, 388 Dietitians and Nutritionists were newly licensed in 2014 (with 324 remaining with a Florida address) compared to the supply estimate of 355, suggesting a small amount of in-migration. Based on significant growth in licensing over the past six years and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 15E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 15E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
30.1901 Nutrition Sciences				
SUS (Doctoral - research)	31%	31%	***	0%
51.3101 Dietetics/Dietitian				
SUS (Bachelor's)	63%	42%	\$30,980	31%
ICUF (Bachelor's)	71%	67%	\$45,988	5%
SUS (Master's)	57%	51%	\$42,328	7%
51.3102 Clinical Nutrition/Nutritionist				
SUS (Bachelor's)	67%	67%	***	0%
***Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

Forty-two percent of the SUS bachelor's graduates are found working full-time within a year of graduation and have less than average entry wages for the occupation. A significant portion of these graduates are continuing education. A higher percentage of the ICUF bachelor's graduates (67%) and SUS master's graduates (51%) are found employed full-time in Florida and earning a higher than average entry wage.

Licensing

Tables 15F and 15G include data collected by the Florida Department of Health from the professional licensing boards. Table 15F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 15F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	3,429
2022 Projected Total Employment	3,880
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	3,708

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Dietitian and Nutritionist licenses is close to the DEO total employment figure, especially considering no adjustment has been made to subtract the license-holders who are not currently practicing.

Table 15G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 15G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	219	145	66%
2010	235	150	64%
2011	259	179	69%
2012	275	216	79%
2013	330	274	83%
2014	388	324	84%
Percent Change from 2009-2014	77%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Dietitian and Nutritionist licenses issued each year has been increasing, with larger increases in 2013 and 2014. In 2014, 388 licenses were issued and 324 remain in the state. Based on the growth in licensing and the retention of license-holders in Florida, the demand estimate of 175 projected openings would have to almost double to become a gap.

Veterinarians

Summary Observations

- Florida projects 162 annual openings for Veterinarians from 2014 to 2022*.
- Florida produced 86 new Veterinary graduates in 2012-2013*.
- Fifty-one percent of the past five years of Veterinary graduates were found employed in Florida within a year of graduation.
- Florida issued 467 new Veterinarian licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 341 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 16A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 16A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291131	Veterinarians	19.5	90	72	162	\$102,710	\$64,917	Doctoral degree
BLS Occupational Profile		Diagnose, treat, or research diseases and injuries of animals. Includes veterinarians who conduct research and development, inspect livestock, or care for pets and companion animals.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Veterinarians is greater than the average growth rate for all jobs in Florida (12%), with 19.5% growth projected for Florida and only 12% nationally. The entry wage for Veterinarians is much higher than the entry wage for all jobs, and the average wage is almost three times the average for all jobs. The education required

for licensure as a Veterinarian in Florida is the professional doctorate, or D.V.M. degree. The Florida Department of Economic Opportunity projects 162 annual openings from 2014 to 2022 to meet the projected demand for Veterinarians. The 72 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 16B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 16B.

Table 16B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions		Doctor's degree - professional
51.2401 Veterinary Medicine		86
SUS		
University of Florida		86

Source: IPEDS with additional data and clarification provided by some universities

The University of Florida has the only D.V.M. professional doctorate program in the state, under CIP 51.2401. The UF program had 86 professional degree graduates in 12-13. The CIP-SOC crosswalk also includes CIP 51.2501 for Veterinary Medical Sciences, which had 8 PhD graduates at UF in 12-13. However, a review of the program's website shows the Veterinary Medical Sciences pathway is focused on research and not preparing students as practicing Veterinarians. Therefore, the 8 PhD graduates are likely to work as researchers and match to a different occupational code, or already hold D.V.M. licenses, and have been backed out of the supply.

Table 16C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 16C. SUS Fall Enrollments by CIP		2009	2010	2011	2012	2013
51.2401 Veterinary Medicine		(Doctor's degree - professional)				
UF		348	360	371	402	426

Source: Board of Governors, State University Data System (SUDS)

The University of Florida's professional Veterinary program has had an increase in enrollments over the past five years.

Gap Analysis

Table 16D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 16D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291131	Veterinarians	162	86	-76

When considered alone, the supply of 86 graduates is a significant undersupply for the 162 projected annual openings. A large gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 467 Veterinarians were newly licensed in 2014 (with 341 remaining with a Florida address) compared to the supply estimate of 86, suggesting large in-migration. Based on significant growth in licensing and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 16E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 16E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
51.2401 Veterinary Medicine		(Doctor's degree - professional)		
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
SUS	51%	48%	\$61,712	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Roughly half of the Veterinarian graduates are found working full-time in Florida within a year of graduation and with earnings close to the average entry wage for the occupation.

Licensing

Tables 16F and 16G include data collected by the Florida Department of Business and Professional Regulation (DBPR). Table 16F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 16F. Comparison of DEO 2014-2022 Total Employment and Current DBPR Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	3,683
2022 Projected Total Employment	4,401
FL Department of Business and Professional Regulation	
Total In-State Active Licenses (as of April 1, 2015)	5,657

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Veterinarian licenses is greater than the DEO 2014 total employment and the 2022 projected total employment. This suggests that the demand estimate may be overly conservative. Alternatively, the number of license-holders not currently in practice, or practicing part-time, may be larger compared to some of the other health occupations.

Table 16G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 16G. DBPR Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	242	178	74%
2010	272	200	74%
2011	301	219	73%
2012	365	281	77%
2013	406	329	81%
2014	467	341	73%
Percent Change from 2009-2014	93%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Veterinarian licenses issued each year has been increasing, with an almost doubling of the licenses issued from 2009-2014. In 2014, 467 licenses were issued and 341 remain in the state. Based on the growth in licensing and the retention of license-holders in Florida, the demand estimate of 162 projected openings would have to more than double to become a gap.

Marriage and Family Therapists

Summary Observations

- Florida projects 142 annual openings for Marriage and Family Therapists from 2014 to 2022*.
- Florida produced 171 new graduates in Marriage and Family Therapy in 2012-2013*.
- Sixty-three percent of the past five years of Marriage and Family Therapy graduates were found employed in Florida within a year of graduation.
- Florida issued 108 new Marriage and Family Therapist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 100 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. The adequate supply of graduates and license-holders in closely related occupations could fill any unmet demand for Marriage and Family Therapists. At the 5-digit SOC, where related occupations can be grouped together, the supply of therapists and counselors far exceeds the projected number of openings.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 17A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 17A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211013	Marriage and Family Therapists	27.7	88	54	142	\$45,219	\$31,637	Master's degree
BLS Occupational Profile		Diagnose and treat mental and emotional disorders, whether cognitive, affective, or behavioral, within the context of marriage and family systems. Apply psychotherapeutic and family systems theories and techniques in the delivery of services to individuals, couples, and families for the purpose of treating such diagnosed nervous and mental disorders. Excludes "Social Workers" (21-1021 through 21-1029) and "Psychologists" of all types (19-3031 through 19-3039).						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Marriage and Family Therapists is significantly greater than the average growth rate for all jobs in Florida (12%), with 27.7% growth projected for Florida and 31% nationally. The entry wage for Marriage and Family Therapists is about \$10,000 higher than the entry wage for all jobs, and the average wage is roughly \$5,000 higher than the average for all jobs. The education required for licensure as a Marriage and Family Therapist in Florida is the master's degree. The Florida Department of Economic Opportunity projects 142 annual openings from 2014 to 2022 to meet the projected demand for Marriage and Family Therapists. The 54 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 17B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 17B.

Table 17B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions				
	Master's degree	Doctor's degree - research	Doctor's degree - professional	Total
44.0701 Social Work	920	5	1	926
SUS	724	5		729
Florida A&M University	22			22
Florida Atlantic University	98			98
Florida Gulf Coast University	17			17
Florida International University	113	2		115
Florida State University	240	1		241
University of Central Florida	143			143
University of South Florida	48	2		50
University of West Florida	43			43
Non-SUS	196	0	1	197
Barry University	182	0		182
Capella University			1	1
Saint Leo University	14			14
51.1505 Marriage and Family Therapy	150	20	1	171
SUS	45	11		56
Florida State University		8		8
University of Central Florida	21			21
University of Florida	24	3		27
Non-SUS	105	9	1	115
Argosy University-Sarasota	4			4
Argosy University-Tampa	6			6
Nova Southeastern University	55	9	1	65
Palm Beach Atlantic University	15			15
St Thomas University	8			8
Stetson University	11			11
University of Miami	6			6
51.1506 Clinical Pastoral Counseling/Patient Counseling	1	12		13
Non-SUS	1	12		13
Argosy University-Sarasota		12		12
S. FL Bible College and Theological Seminary	1			1
Grand Total	1071	37	2	1110

Source: IPEDS with additional data and clarification provided by some universities

According to the CIP-SOC crosswalk, the supply of graduates is from the 44.0701 Social Work CIP, the 51.1505 Marriage and Family Therapy CIP, and the 51.1506 Patient Counseling CIP. The total number of graduates from all three CIPs is 1,110, but an adjustment for multiple occupational paths yields 252 graduates as potential supply

(includes just 9% of the Social Worker master's graduates). However, a review of the Florida licensing requirements and program descriptions for Marriage and Family Therapy suggests a closer alignment with Mental Health Counseling than the Social Work curriculum. It is more likely that the supply from Mental Health Counseling overlaps with Marriage and Family Therapy, and it is less likely that the occupation is filled by Social Workers.

When just the CIP 51.1505 Marriage and Family Therapy programs are considered, the SUS programs graduated 56 students in 2012-2013. The CIE and ICUF programs graduated 115 students in 2012-2013. A portion of the graduates may go into management or teaching positions, which is particularly likely for the 21 doctoral graduates.

A few additional programs offer specializations in Marriage and Family Therapy outside of the 51.1505 CIP, but it is unclear how many of the graduates specialize in Marriage and Family Therapy compared with the other specializations of Mental Health Counseling and Rehabilitation Counseling. The supply estimates would increase by a small amount by including the Marriage and Family Therapy portion of the Counselor Education program graduates at FAMU and the Rehabilitation Counseling program graduates at USF. Going forward, UF's programs will also move from the 51.1505 CIP to 13.1101 in Education and will not be captured in the CIP-SOC crosswalk.

Table 17C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 17C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
44.0701 Social Work					
FAMU					
Master's degree	58	64	65	58	46
FAU					
Master's degree	160	181	216	241	267
FGCU					
Master's degree	50	59	58	42	38
FIU					
Master's degree	172	207	225	233	201
Doctor's degree - research	10	11	15	17	16
FSU					
Master's degree	368	433	465	522	495
Doctor's degree - research	27	28	24	22	26
UCF					
Master's degree	267	359	340	347	340
USF					
Master's degree	204	138	164	145	144
Doctor's degree - research	17	17	21	19	16
UWF					
Master's degree	47	89	63	82	85
Total					
Master's degree	1326	1530	1596	1670	1616
Doctor's degree - research	54	56	60	58	58
51.1505 Marriage and Family Therapy					
FSU					
Doctor's degree - research	28	28	29	28	24
UCF					
Master's degree	57	69	69	66	66
UF					
Master's degree	28	21	22	0	0
Doctor's degree - research	31	37	32	31	47
Total					
Master's degree	85	90	91	66	66
Doctor's degree - research	59	65	61	59	71

Source: Board of Governors, State University Data System (SUDS)

Overall, the enrollments for the Social Work master's programs have increased, primarily due to increased enrollments in the Florida Atlantic University and Florida State University programs. Enrollments in the Social Work doctoral programs have remained steady. Enrollment in the Marriage and Family Therapy master's program at the University of Central Florida has increased slightly, but enrollment at the University of Florida slightly decreased through 2011 and was then reported under a different CIP code.

Gap Analysis

Table 17D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 17D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Adjusted Supply (Includes Social Workers)	Supply (Marriage and Family Therapy Only)
211013	Marriage and Family Therapists	142	252	171
Supply Scenario - Annual Openings			110	29

Two scenarios are presented in Table 17D, with the first including Social Work graduates in the supply total and the second not including them. If Social Work graduates are included and an adjustment for multiple occupational paths is made, then 252 graduates are included as potential supply and exceed the 142 projected annual openings by 110. If only the Marriage and Family Therapy graduates are included in the total supply, then the 171 graduates exceeds the projected annual openings by only 29. Based on a review of the licensing requirements and program descriptions, the lower supply number is likely a better estimate than the larger, adjusted total that includes Social Work graduates.

The licensing numbers for Marriage and Family Therapists provide additional support to the nearly balanced demand-supply calculation. As shown in the tables below, 108 Marriage and Family Therapists were newly licensed in 2014 (with 100 remaining with a Florida address) compared to the lower supply estimate of 171. In addition, 195 intern licenses were issued in 2014 to new graduates fulfilling the 2 year supervisory experience and exam requirements for full licensure. Based on the number of annual licenses falling short of the 142 projected annual openings and only small growth in licensing, the occupation appears to be undersupplied or near balance.

Contextual Factors

Out-Migration of Graduates

Table 17E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 17E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
44.0701 Social Work				
SUS (Master's)	72%	65%	\$37,140	5%
ICUF (Master's)	67%	60%	\$39,716	2%
SUS (Doctoral)	38%	32%	\$87,448	3%
51.1505 Marriage and Family Therapy/Counseling				
SUS (Master's)	71%	58%	\$34,016	8%
ICUF (Master's)	64%	53%	\$39,816	1%
SUS (Specialist)	60%	47%	\$36,660	14%
SUS (Doctoral)	44%	32%	\$62,308	0%
ICUF (Doctoral)	47%	38%	\$44,024	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

More than half of the master's Social Work graduates are found working full-time in Florida within a year of graduation and with higher earnings than the average entry wage for the occupation. Only 32% of doctoral graduates are found working full-time in Florida within a year of graduation, but those found have significantly higher earnings. Roughly half of the Marriage and Family Therapy master's and specialist graduates are found working full-time in Florida within a year of graduation and with higher earnings than the average entry wage for the occupation. Much like the Social Work doctoral graduates, about 35% of the Marriage and Family Therapy doctoral graduates were found working full-time in Florida within a year of graduation and with higher earnings than the master's and specialist graduates.

Licensing

Tables 17F and 17G include data collected by the Florida Department of Health from the professional licensing boards. Table 17F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 17F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	2,539
2022 Projected Total Employment	3,241
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	1,633

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Marriage and Family Therapy licenses is almost 1,000 less than the DEO's estimate of 2014 total employment. This is unlike most other comparisons of licensing and DEO total employment in this report, where licensing has exceeded the 2014 employment estimates. One possible reason for the full licensure shortfall is the need for 2 years of supervised work experience post-graduation and the requirement to license as an intern during this period. In addition to the 1,633 in-state, active full licenses, there were also 867 registered interns in the DOH database.

Table 17G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 17G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	96	70	73%
2010	88	66	75%
2011	90	75	83%
2012	115	110	96%
2013	125	112	90%
2014	108	100	93%
Percent Change from 2009-2014	13%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Marriage and Family Therapy licenses issued each year has been slowly increasing. In 2014, 108 licenses were issued and 100 remain in the state. Even with a high retention of license-holders in Florida, the number of full licenses issued each year does not meet the 142 projected openings and leaves a gap of roughly 40 professionals. However, another 197 intern licenses were issued in 2014, with 192 remaining in Florida. If both the full and intern license-holders are considered as supply for the occupation, then more than 300 Marriage and Family Therapists and Interns sufficiently supply the demand.

Rehabilitation Counselors

Summary Observations

- Florida projects 108 annual openings for Rehabilitation Counselors from 2014 to 2022*.
- Florida produced 72 new graduates in Rehabilitation Counseling in 2012-2013*.
- Seventy-four percent of the past five years of Rehabilitation Counseling graduates were found employed in Florida within a year of graduation.
- There is no Florida licensure for Rehabilitation Counselors.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. The adequate supply of graduates and license-holders in closely related occupations could fill any unmet demand for Rehabilitation Counselors. At the 5-digit SOC, where related occupations can be grouped together, the supply of therapists and counselors far exceeds the projected number of openings.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 18A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 18A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
211015	Rehabilitation Counselors	9.5	39	69	108	\$35,630	\$25,459	Master's degree
BLS Occupational Profile		Counsel individuals to maximize the independence and employability of persons coping with personal, social, and vocational difficulties that result from birth defects, illness, disease, accidents, or the stress of daily life. Coordinate activities for residents of care and treatment facilities. Assess client needs and design and implement rehabilitation programs that may include personal and vocational counseling, training, and job placement.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Rehabilitation Counselors is less than the average growth rate for all jobs in Florida (12%), with only 9.5% growth projected for Florida. However, a 20% growth rate is projected nationally. The entry wage for Rehabilitation Counselors is about \$5,000 higher than the entry wage for all jobs, and the average wage is roughly \$5,000 less than the average for all jobs. The education set by the BLS as typical for entry into the occupation is a master's degree. Florida does not currently license Rehabilitation Counselors, but graduates may become nationally certified by passing an exam from the Commission on Rehabilitation Counselor Certification. It is likely that some individuals who obtain a license as a Mental Health Counselor, Marriage and Family Therapist, or Clinical Social Worker also become a Certified Rehabilitation Counselor.

The Florida Department of Economic Opportunity projects 108 annual openings from 2014 to 2022 to meet the projected demand for Rehabilitation Counselors. The 69 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 18B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 18B.

Table 18B.			
2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Master's degree	Doctor's degree - research	Total
13.1101 Counselor Education	9		9
SUS			
Florida Atlantic University	7		7
Florida International University	2		2
51.2310 Vocational Rehabilitation Counseling	57	0	57
SUS	57	0	57
Florida State University	4	0	4
University of South Florida	53		53
51.2314 Rehabilitation Science		6	6
SUS			
University of Florida		6	6
Grand Total	66	6	72

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 70 students in 2012-2013 and accounted for the total supply from Rehabilitation Counselor CIPs. According to the CIP-SOC crosswalk, the supply of graduates is from CIPs 51.2310 and 51.2314 and requires no weighting

adjustment for multiple occupational paths if the Health Specialties Teacher, Postsecondary occupation is excluded. A small portion of the graduates may go into management or teaching positions. Program graduates from Florida Atlantic University and Florida International University were added to the supply calculations based on accreditation with the Council on Rehabilitation Education and website information. Both FAU and FIU offer a Rehabilitation Counseling specialization or major (CIP 13.1101) in their Department of Counselor Education.

The University of South Florida's program notes on its website that graduates can obtain licenses as Mental Health Counselors or Marriage and Family Therapists and can seek certification as Certified Addiction Professionals or Certified Rehabilitation Counselors. A portion of the graduates in Table 18B may therefore contribute as potential supply for the other counseling and therapy occupations included in this report. USF's 2013-2014 Annual Report to the Council on Rehabilitation Education provides the following information on licensing and certification outcomes for five years of graduates: of 179 total graduates for years 2009-2013, 25 students have obtained a license in any state (assumed to be the Mental Health Counseling or Marriage and Family Therapy license), 75 have obtained a provisional or intern license while accumulating supervised hours, and 116 have taken the Certified Rehabilitation Counselor (CRC) exam. Based on the five year figures, roughly 65% of graduates become Certified Rehabilitation Counselors and 55% seek licensure as Mental Health Counselors or Marriage and Family Therapists, suggesting some graduates seek both.

Florida State University's programs at all degree levels are currently suspended and may reactivate after reorganization. FSU had 3 master's graduates and 1 specialist graduate in 2012-2013. The University of Florida terminated a master's program in CIP 51.2314 in 2010, and the University of North Florida terminated a master's program in 2011. Both cited a loss of faculty and diminished resources as reasons for the terminations. USF has implemented a new PhD program in Rehabilitation Sciences targeting the preparation of future faculty for the rehabilitation disciplines.

Table 18C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 18C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.2310 Vocational Rehabilitation Counseling					
FSU					
Master's degree	11	9	8	1	0
Doctor's degree - research	8	4	5	3	3
USF					
Master's degree	179	170	168	150	127
Total					
Master's degree	202	179	176	151	127
Doctor's degree - research	8	4	5	3	3
51.2314 Rehabilitation Science					
UF					
Doctor's degree - research	0	37	35	38	33

Source: Board of Governors, State University Data System (SUDS)

Enrollments have declined as expected for the suspended programs at Florida State University. The master's program at the University of South Florida has also had a decline in enrollments since 2009. The USF enrollments also include the Mental Health Counseling and Marriage and Family Therapy specializations in the 52.2310 CIP, so it is unclear if the number of Rehabilitation Counseling students declined proportionately to the total. Likewise, the enrollments for the Counselor Education programs at FAU and FIU include other specializations at the master's level, and it is not possible to separate out the portion of Rehabilitation Counselor students (therefore, not included in Table 18C).

Gap Analysis

Table 18D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 18D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
211015	Rehabilitation Counselors	108	72	-36

The supply of 72 Rehabilitation Counselor graduates is a slight undersupply for the 108 projected annual openings. Unlike some of the other occupations in this report, Rehabilitation Counselors are not required to license and so an annual licensure figure is not available for comparison. When considered alone, the annual number of graduates from Florida's CORE-accredited Rehabilitation Counselor programs is not sufficient to meet the annual demand. A larger gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, it is also likely that a portion of individuals licensed at Mental Health Counselors and/or Marriage and Family Therapists also seek out certification as Rehabilitation Counselors and satisfy a portion of the occupational demand. This overlap in counseling supply and demand could mean that the sufficient supply of Mental Health Counselors spills over to fill any gaps in Rehabilitation Counseling.

Contextual Factors

Out-Migration of Graduates

Table 18E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes reporting to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 18E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.2310 Vocational Rehabilitation Counseling				
SUS (Master's)	74%	69%	\$36,136	6%
51.2314 Rehabilitation Science				
SUS (Doctoral)	65%	60%	\$72,080	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Sixty-nine percent of the master's graduates, who make up most of the occupation's supply, are found working full-time in Florida within a year of graduation and with average earnings for the occupation. Sixty percent of the doctoral graduates are found working full-time in Florida within a year of graduation and have significantly higher earnings.

Art and Music Therapists

Summary Observations

- Florida projects 82 annual openings for Other Therapists, including Art and Music Therapists from 2014 to 2022*.
- Florida produced 50 new graduates in Art and Music Therapy in 2012-2013*.
- Forty percent of the past five years of Art and Music Therapy graduates were found employed in Florida within a year of graduation.
- There is currently no Florida licensure for Art or Music Therapists.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED. A lack of licensure data means that in-migration estimates are not available. Additional supply from in-migration and a newly proposed program in Music Therapy at Florida Gulf Coast University are likely to fill any unmet demand over the projected period.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 19A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 19A. Florida DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291129	Therapists, All Other	21.9	46	36	82	\$65,853	\$45,094	Bachelor's degree
BLS Occupational Profile		All therapists not listed separately. (CIP-SOC crosswalks to Art and Music Therapy programs)						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Other Therapists, including Art and Music Therapists, is greater than the average growth rate for all jobs in Florida (12%), with 21.9% growth projected for Florida and 32% nationally. The entry wage for Other Therapists is a little

more than double the entry wage for all jobs, and the average wage is roughly \$25,000 higher than the average for all jobs. The BLS sets the typical education for entry into Art and Music Therapy at a bachelor's degree. The Florida Department of Economic Opportunity projects 82 annual openings from 2014 to 2022 to meet the projected demand for Other Therapists, including Art and Music Therapy. The 36 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 19B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 19B.

Table 19B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions			
	Bachelor's degree	Master's degree	Total
51.2301 Art Therapy/Therapist	0	15	15
SUS			
Florida State University		15	15
Non-SUS			
Eckerd College	0		0
51.2305 Music Therapy/Therapist	18	17	35
SUS			
Florida State University	15	14	29
Non-SUS			
University of Miami	3	3	6
Grand Total	18	32	50

Source: IPEDS with additional data and clarification provided by some universities

The Art and Music Therapy programs at Florida State University accounted for the total SUS supply and graduated 44 students in 2012-2013. The ICUF programs graduated 6 students in 2012-2013. Based on the CIP-SOC crosswalk, the supply of graduates is from the 51.2301 Art Therapy and 51.2305 Music Therapy CIPs and requires no weighting adjustment for multiple occupational paths.

Table 19C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 19C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.2301 Art Therapy/Therapist					
FSU					
Master's degree	26	29	29	30	30
51.2305 Music Therapy/Therapist					
FSU					
Bachelor's degree	83	88	99	107	119
Master's degree	27	34	38	43	55

Source: Board of Governors, State University Data System (SUDS)

The Art Therapy program at Florida State University has had steady enrollments from 2009 to 2013. The bachelor's and master's programs in Music Therapy at FSU have had increasing enrollments.

Gap Analysis

Table 19D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 19D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
291129	Therapists, All Other	82	50	-32

The Other Therapists, including Art and Music Therapists, occupation is likely undersupplied. The 50 graduates, including 35 Music Therapy graduates and 15 Art Therapy graduates, fall short of the 82 projected annual openings by 32 per year. It is possible that demand for other, non-specified therapists are included in the annual openings demand estimate. However, the Music and Art Therapy CIPs are the only programs identified by the CIP-SOC crosswalk that are graduating students. CIP 51.3601 for Movement Therapy was also included, but there were no Florida programs. Music and Art Therapy professionals are currently not licensed in Florida, but legislation has been proposed in 2015 to license Music Therapists in the state.

Contextual Factors

Out-Migration of Graduates

Table 19E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 19E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.2301 Art Therapy				
SUS (Master's)	39%	29%	\$32,412	11%
51.2305 Music Therapy				
SUS (Bachelor's)	45%	26%	\$26,952	40%
ICUF (Bachelor's)	40%	24%	***	0%
SUS (Master's)	39%	25%	\$35,416	6%
ICUF (Master's)	20%	0%	***	0%
***Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

Roughly one-quarter of the Art and Music Therapy graduates are found working full-time in Florida within a year of graduation. Those found are earning less than the average entry wage for the Other Therapist occupation, although the average earnings information may be confounded by additional therapist jobs that are not Art and Music Therapy in the catch-all category. A higher percentage of graduates are employed but not working full-time; but with the number found still less than half of the graduates, a supply gap is likely without significant in-migration.

Audiologists

Summary Observations

- Florida projects 25 annual openings for Audiologists from 2014 to 2022*.
- Florida produced 48 new graduates in Audiology in 2012-2013*.
- Roughly 50% of the past five years of pre-professional Audiology graduates were found employed in Florida within a year of graduation.
- Florida issued 74 new Audiologist licenses in 2014* (includes licenses issued to Florida graduates and in-migration); 59 with an active license remain in Florida the following year.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 20A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 20A. DEO 2014-2022 Projected Demand								
SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
291181	Audiologists	32.5	22	3	25	\$74,110	\$59,675	Doctoral degree
BLS Occupational Profile		Assess and treat persons with hearing and related disorders. May fit hearing aids and provide auditory training. May perform research related to hearing problems.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Audiologists is greater than the average growth rate for all jobs in Florida (12%), with 32.5% growth projected in Florida and 34% for Audiologists nationally. The entry wage for Audiology is three times the entry wage for all jobs, and the average wage is almost double the average for all jobs. The education required for licensure as an Audiologist in Florida is the professional doctorate, or Aud.D. degree.

The Florida Department of Economic Opportunity projects 25 annual openings from 2014 to 2022 to meet the projected demand for Audiologists. The 3 positions created from replacement openings may be a conservative estimate that could be revised upward in the near future.

Supply

Estimates of potential supply are included in Table 20B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 20B.

Table 20B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Doctor's degree - research	Doctor's degree - professional	Total
51.0202 Audiology/Audiologist		40	40
SUS		23	23
University of Florida		12	12
University of South Florida-Main Campus		11	11
Non-SUS		17	17
Nova Southeastern University		17	17
51.0204 Audiology and Speech-Language Pathology	8		8
SUS	8		8
Florida State University	5		5
University of Florida	2		2
University of South Florida-Main Campus	1		1
Grand Total	8	40	48

Source: IPEDS with additional data and clarification provided by some universities

The SUS programs graduated 31 pre-professional students in 2012-2013. The ICUF program, at Nova Southeastern University, graduated 17 students in 2012-2013. The supply of graduates is from the 51.0202 and 51.0204 CIPs. The supply of graduates from the 51.0202 CIP required no weighting for multiple occupational paths and all 40 graduates were included in the supply total. For CIP 51.0204, significant weighting for overlap with PhD programs in Speech and Language Pathology and Communication Sciences (based on a review of program websites) led to the supply being reduced to one graduate. The adjusted supply total for the gap analysis is 41 after this calculation. In addition, the supply in Table 20B has been adjusted by removing 38 post-professionals from UF's Aud.D. Distance Learning option for Working Professionals program in CIP 51.0202.

Table 20C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 20C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
51.0202 Audiology/Audiologist	(Doctor's degree – professional)				
UF	148	121	109	125	113
USF	32	46	52	53	50
Total	180	167	161	178	163
51.0204 Audiology and Speech-Language Pathology	(Doctor's degree – research)				
FSU	25	21	19	13	9
UF	19	17	20	24	21
USF	12	13	12	15	15
Total	56	51	51	52	45

Source: Board of Governors, State University Data System (SUDS)

The University of Florida program, the larger of the two SUS practice doctorate programs, had a small decline in enrollments over the past five years. A portion of these students are enrolled in the Distance Learning option for Working Professionals and already hold a license in Audiology. The University of South Florida's program increased enrollments overall from 2009 to 2013.

Gap Analysis

Table 20D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 20D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Adjusted Supply	Supply - Annual Openings
291181	Audiologists	25	41	16

The supply of 41 graduates, adjusted slightly for multiple occupational paths, exceeds the 25 projected annual openings by 16. A gap could be created if a high percentage of graduates leave the state and in-migration doesn't fill the demand. However, as shown in the tables below, 74 Audiologists were newly licensed in 2014 (with 59 remaining with a Florida address) compared to the supply estimate of 41, suggesting some in-

migration. Based on steady licensing each year above the number of DEO's projected openings and the number of licensees remaining in Florida each year, the occupation appears to be sufficiently supplied.

Contextual Factors

Out-Migration of Graduates

Table 20E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 20E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
Sector (degree)	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
51.0202 Audiology/Audiologist				
SUS (Doctoral - professional)	14%	13%	\$65,316	1%
ICUF (Doctoral - professional)	48%	48%	\$82,544	0%
51.0204 Audiology and Speech-Language Pathology				
SUS (Doctoral - research)	29%	23%	\$42,208	0%

Source: Florida Education and Training Placement Information Program (FETPIP)

Only 13% of the SUS graduates were found working full-time in Florida within a year of graduation. However, this figure includes students from the University of Florida's Distance Learning option for Working Professionals, who already hold a license in Audiology. It is better to estimate the Florida retention of pre-professionals using the outcomes of the University of South Florida and Nova Southeastern programs, whose graduates are not already licensed. Fifty-three percent of the graduates of the USF program were found employed, and 47% were found employed full-time in Florida within a year of graduation. Similarly, the program at Nova Southeastern had 48% of graduates found working full-time in Florida.

Licensing

Tables 20F and 20G include data collected by the Florida Department of Health from the professional licensing boards. Table 20F is a comparison between the Florida Department of Economic Opportunity's estimate of individuals currently working in the occupation, the number DEO projects to be working in 2022, and the number of individuals currently holding an active license in the profession. The number of license-holders can include individuals who are not actively practicing or not practicing full-time. Use of this number for supply, without adjustment, would in most cases over-estimate the occupation's employment. However, a large difference between DEO's total employment and the number of licenses can be one indication of an overly conservative demand estimate.

Table 20F. Comparison of DEO 2014-2022 Total Employment and Current DOH Licensure	
FL Department of Economic Opportunity	
2014 Total Employment	547
2022 Projected Total Employment	725
FL Department of Health, Medical Quality Assurance	
Total In-State Active Licenses (as of April 1, 2015)	936

Source: FDEO 2014-2022 Employment Projections and FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of in-state, active Audiologist licenses is above the DEO total employment and projected employment to 2022. This suggests that the demand estimate may be overly conservative. Alternatively, the number of license-holders not currently in practice, or practicing part-time, may be larger compared to some of the other health occupations.

Table 20G includes data on the number of new licenses issued each year, for the past six years. This provides additional context to the estimate of new, annual supply for the workforce. However, a percentage of the newly licensed leave Florida over time. The number retained is a snapshot of how many of the individuals licensed in previous years still (as of April 1, 2015) have a Florida practice address and hold an active, clear license. The majority of those licensed since 2009 and who were not retained have left Florida; their license status had not changed.

Table 20G. DOH Initial Licenses Issued, by year, and Retention			
Year of Initial License Issued	Number of Initial Licenses Issued	Sub-set of Column 2 Still In-State and Active as of April 1, 2015	% Retained In-State (Column 3/ Column 2 * 100)
2009	65	34	52%
2010	69	41	59%
2011	55	31	56%
2012	61	43	70%
2013	64	51	80%
2014	74	59	80%
Percent Change from 2009-2014	14%		

Source: FDOH Health Care Practitioner Data Portal (accessed April 1, 2015)

The number of Audiologist licenses issued each year has stayed steady, with a larger increase 2014. In 2014, 74 licenses were issued and 59 remain in the state. Based on the steady licensing and the retention of license-holders in Florida, the demand estimate of 25 projected openings would have to double to become a gap.

Epidemiologists

Summary Observations

- Florida projects 1 annual opening for Epidemiologists from 2014 to 2022*.
- Florida produced 31 new graduates in Epidemiology in 2012-2013*.
- Thirty-five percent of the past five years of Epidemiology graduates were found employed in Florida within a year of graduation.
- Licensure is not required in Florida, but the DEO estimates only 40 Epidemiologists are currently employed in Florida and the occupation will grow by 20% to 48 Epidemiologists employed in 2022.
- Based on available data, it appears that the projected annual openings are SUFFICIENTLY SUPPLIED.

* Most recently available data.

Demand

Demand for the occupation is estimated by the projected number of average openings for each year of an eight year period (2014-2022). The annual openings are a total of job openings due to growth in the occupation and replacement openings. The Florida Department of Economic Opportunity's projections of the percent growth, average annual openings, and wage information for the occupation in Florida are presented in Table 21A. The U.S. Bureau of Labor Statistics provides information on the typical education for entry into the profession and a profile of the occupation.

Table 21A. Florida DEO 2014-2022 Projected Demand

SOC	Occupation Title	2014-2022 Percent Growth	Average Annual Openings			2014 Average Wage	2014 Entry Wage	BLS Education Level
			Growth	Replacement	Total			
191041	Epidemiologists	20.0	1	0	1	\$71,531	\$44,262	Master's degree
BLS Occupational Profile		Investigate and describe the determinants and distribution of disease, disability, or health outcomes. May develop the means for prevention and control.						

Source: FDEO 2014-2022 Employment Projections and U.S. Bureau of Labor Statistics

The projected growth for Epidemiologists is greater than the average growth rate for all jobs in Florida (12%), with 20% growth projected in Florida and only 10% nationally. The entry wage for Epidemiologists is higher than the entry wage for all jobs, and the average wage is almost double the average for all jobs. Licensing is not a requirement

for Epidemiologists and the education for entry into the profession is a master's degree. The Florida Department of Economic Opportunity projects 1 annual opening from 2014 to 2022 to meet the projected demand for Epidemiologists. Changes in health care practice around disease prevention and infection control could increase the demand for Epidemiologists in the coming years. However, even if the demand is revised upward, the supply of 31 Epidemiology graduates and a large number of graduates from general public health programs around the state should be adequate to fill the demand.

Supply

Estimates of potential supply are included in Table 21B. The potential supply, or number of graduates for a given year, is broken out by the programs that align with the occupation. Supply is drawn from programs in the public and private sectors and the sub-totals for each (SUS and Non-SUS) are included in Table 21B.

Table 21B. 2012-2013 Graduates by CIP for SUS and Non-SUS (ICUF, CIE) Institutions	Master's degree	Doctor's degree - research	Total
26.1309 Epidemiology	27	4	31
SUS			
University of Florida		2	2
Non-SUS			
University of Miami	27	2	29
Grand Total	27	4	31

Source: IPEDS with additional data and clarification provided by some universities

The University of Florida graduated 2 doctoral students in 2012-2013. The University of Miami graduated 27 master's students and 4 doctoral students in 2012-2013. The supply of graduates is from the 26.1309 CIP and is a one-to-one for the occupation. This requires no weighting adjustment for multiple occupational paths if the Health Specialties Teacher, Postsecondary occupation is excluded. A portion of the doctoral graduates may go into management or teaching positions.

Table 21C shows five years of enrollments for the SUS programs supplying the occupation. Enrollment data on ICUF and CIE programs, by CIP, is not available in the IPEDS database and was therefore not included.

Table 21C. SUS Fall Enrollments by CIP	2009	2010	2011	2012	2013
26.1309 Epidemiology					
UF					
Master's degree	2	1	0	0	1
Doctor's degree – research	9	17	17	23	23

Source: Board of Governors, State University Data System (SUDS)

Enrollments in the University of Florida master's program have been very small (with no graduates in 2012-2013), but the doctoral program has had increasing enrollments. In addition to the Epidemiology program at UF, the SUS has programs in CIP 51.2201 General Public Health. There were six SUS institutions with master's programs (1,149 enrolled in 2013) and four SUS institutions with doctoral programs (241 enrolled in 2013).

Gap Analysis

Table 21D is a summary of the demand and supply presented above, with a calculation of the difference of these estimates. A negative value, in red, or a positive value closer to zero suggests a gap where the potential supply may not fill the projected demand.

Table 21D. DEO 2014-2022 Projected Demand and CIP Supply				
SOC	Occupation Title	Annual Openings	Supply	Supply - Annual Openings
191041	Epidemiologists	1	31	30

Changes in health care practice around disease prevention and infection control could increase the demand for Epidemiologists in the coming years. However, even if the demand is revised upward, the supply of 31 Epidemiology graduates and a large number of graduates from general public health programs around the state should be adequate to fill the demand.

Contextual Factors

Out-Migration of Graduates

Table 21E summarizes the Florida employment, earnings (annualized), and continuing education of graduates in the October-December quarter after graduation. The outcomes data reported to FETPIP on CIE graduates was insufficient to include in the analysis. The SUS and ICUF percentages and earnings include five years of graduates for a more stable estimate of outcomes. Data on graduates who are self-employed is not

included, which has the effect of under-estimating the percent employed and potential supply to the workforce.

Table 21E. FETPIP Post-Graduation Outcomes 2008-09 to 2012-13, by CIP				
26.1309 Epidemiology				
Sector	% Employed	% Employed Full Time	Full Time Average Earnings	% Continuing Education
ICUF (Master's)	38%	38%	\$105,016	3%
SUS (Doctoral – research)	33%	0%	***	0%
ICUF (Doctoral – research)	29%	29%	***	0%
***Small sample size				

Source: Florida Education and Training Placement Information Program (FETPIP)

Less than half of the Epidemiology graduates are found working full-time in Florida within a year of graduation, but those found had significantly higher earnings than the average entry wage for the occupation. By comparison, 41% of the master's graduates and 39% of the doctoral graduates for the SUS programs in CIP 51.2201 General Public Health were found employed full-time in Florida within a year of graduation. Based on the size of total employment and the low number of projected openings for Epidemiologists in Florida, graduates likely consider a national market for employment. There is no licensure for Epidemiologist in Florida so a good estimate of net migration is not available.

EMERGING AND EVOLVING OCCUPATIONS

As part of its environmental scan, the Health Initiatives Committee and Advisory Group considered emerging and evolving health occupations. Emerging occupations are newly forming occupations in which new skills and competencies in the workforce are becoming formally recognized. Evolving occupations are occupations that currently exist but are being redefined by changes in necessary skills and competencies.

One area of particular concern is personalized medicine and the need for a workforce with practice-oriented and increasingly complex biomedical knowledge and skills. Further review of programs that prepare graduates for the practice of personalized medicine, in subjects like Genetics, Pharmacogenetics, and Bioinformatics, may be warranted. Genetics and Bioinformatics may be program areas that are evolving and in the future it may be necessary to prepare more Genetic Counselors and more medical science graduates with practice-oriented skills in personalized medicine. Pharmacogenetics on the other hand may be an emerging area where student and workforce demand will grow as new technologies are developed.

Another area of concern is preventive and population health and an increasing need for community-based health workers. Occupational Health and Safety Specialists and Environmental Health Scientists were two occupations that could not be fully evaluated for this gap analysis based on the current classification of programs. The role of Health Educators, Community Health Workers (typically not required to have a Bachelor's degree), Epidemiologists, Occupational Health and Safety Specialists, and Environmental Health Scientists may evolve to be needed in a greater number of workforce settings and demand may increase as health promotion and prevention programs expand.

CONCLUSIONS AND NEXT STEPS

Nurses and Physicians are the most likely of the 21 occupational groups presented in the results section of this report to be under-supplied. Physical Therapists, Occupational Therapists, and Dentists had contextual factors that indicate they are sufficiently supplied but should be monitored for changes to supply or demand. For those occupations with Florida licensure, only Marriage and Family Therapists had fewer licenses issued in 2014 than the projected annual openings. However, considerable overlap in the counselor and therapy occupations leads to the conclusion that overall supply is sufficient to fill any unmet demand for the specific counselor and therapy

occupations. Several occupations had fewer graduates in 2012-2013 than the projected number of projected openings, but licensing data suggests that in-migration may offset this gap. Enough licenses for Physical Therapists, Occupational Therapists, and Veterinarians appear to be issued each year to meet the projected annual openings, but a gap could be created if in-migration falls, if a high percentage chooses not to work (or only part-time) in the field, or if demand increases above the projections.

Nurse Practitioners and Nurse Anesthetists appear to be under-supplied when the retention of license-holders in Florida is considered. This may not be a problem of producing enough Florida graduates, since 720 pre-professional Nurse Practitioners and Nurse Anesthetists graduated in 2012-2013 and the projected annual openings for both occupations is 497. Rather, retention of graduates and license-holders may be the problem, as more than half of the 2014 licensees (388 of 688) left the state within a year of licensing. Similarly, the annual licensing for Dentists also falls short of meeting the 511 projected annual openings when considering that only 443 of the 569 licenses issued in 2014 currently remain in-state and active. However, in this case, the addition of 100 new graduates a year from the Lake Erie College of Medicine Dental program should offset this shortage beginning in 2016.

The next steps of Health Initiatives Committee will be to consider the analysis and draw conclusions on which occupations are under-supplied. Population growth and the distribution of the population (and health care needs) around the state are two trends that influence all of the occupations reviewed for this report and are additional factors to consider as the Committee moves forward. Florida's population will continue to grow. The state's demographics are not expected to stabilize or to decrease, as other states project. Instead, all projections show continued increases in population as far out as these projections are made. Florida's health care needs are not evenly distributed throughout the state. Rural areas, in particular, can be under-supplied, even as the state as a whole has sufficient supply in any given health care occupation. For these reasons, the conclusions for this gap analysis may differ at the regional level or for the adequate care of specific populations.

Based upon the report's findings and consideration of additional factors, the Board will develop a *Strategic Plan for Health Initiatives* to advance the quality, coordination, and, where appropriate, growth of educational programs, across the State University System to better position Florida to respond to future workforce needs.