Oregon Healthcare Workforce Institute

Graduates from Oregon's Health Profession Training Programs

A Supply Trend Analysis of Select High-Demand Clinical Health Occupations

Oregon Healthcare Workforce Institute September 2010

Oregon Healthcare Workforce Institute

Advancing Solutions

Oregon Healthcare Workforce Institute

MISSION: To advance the development of a high-quality health care workforce in order to improve the health of every Oregonian.

Created out of an initiative from the Governor's office, the Oregon Healthcare Workforce Institute (OHWI) conducts research and collaborates with stakeholders to develop comprehensive statewide responses to the critical health care workforce needs in Oregon. OHWI is recognized by the Oregon State Legislature as a leader in addressing Oregon's health care workforce shortage and is designated as a workforce advisory entity to state agencies.

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COMMUNITY COLLEGES AND WORKFORCE DEVELOPMENT
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- September 2010 -

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Graduates from Oregon's Health Profession Training Programs: A Supply Trend Analysis of Select High-Demand Clinical Health Occupations

Oregon Employment Department data shows that Oregon is projected to have nearly 58,000 health care job openings* between 2008 and 2018.[1] Additionally, three of the state's top ten sectors projected to add the most jobs are in the health care industry: ambulatory health care, hospitals, and nursing and residential care. The growing and aging population, the increasing number of people living with chronic diseases, advances in medical technology, state and national health reform efforts and an aging health care workforce are major factors contributing to the health care workforce demand. The implications of this flood of factors require informed action to ensure that Oregonians have access to quality health care services.

Accounting for the supply of graduates from the health profession education pipeline informs workforce analysis efforts, improves strategic planning, and assists in targeting and evaluating investments in health workforce development. To that end, this report provides graduate numbers from 2007 through 2010 and projections for 2011 and 2012 of Oregon's educational programs for 16 identified high-demand clinical health care occupations.

In 2007, the Oregon Healthcare Workforce Institute (OHWI) published *Students Completing Healthcare Workforce Studies in Oregon: A Supply Trend Analysis*. With support from the Oregon Department of Community Colleges and Workforce Development, OHWI updated that information with this report. Many of the same occupations from the 2007 report appear in this update.

METHODOLOGY AND DATA SOURCES

This project consisted of three phases: selection of the high-demand clinical health occupations; identification of the schools in Oregon with training programs for these occupations; and collection and reporting of graduate data from these programs.

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* For purposes of this report, job openings are defined as those created as a result of new job growth and those created by individuals permanently leaving the occupation's labor force.

[1] Oregon Employment Department (2009). *Employment Projections by Industry and Occupation 2008-2018*. Available at http://www.qualityinfo.org/pubs/projections/projections.pdf.

High-Demand Clinical Health Occupations. High-demand health care occupations are defined as those that are projected to have more job openings through new job growth and replacement over a ten-year period than the median for all occupations.[2] Clinical health occupations are defined as those that typically diagnose, treat, or administer health care to patients.

To select the top 15 high-demand clinical health care jobs, this report builds off the work of the Oregon Employment Department's training prioritization methodology.[3] This methodology supports the decision-making efforts of the Oregon Workforce Investment Board, the state legislature and other policymakers and stakeholders to focus finite resources to address the state's highest workforce needs and provide the highest return on investment. Table 1 lists the top 15 clinical health care occupations selected for this graduate supply trend project.

Table 1: Statewide Top 15 Clinical Health Care Occupations: Occupational Prioritization for Training

Standard Occupational Classification Title	Total Projected Job Openings 2008-2018	Final Prioritization Rank
Medical & Clinical Laboratory Technologists	857	1
Pharmacists	1,226	2
Physicians and Surgeons	3,294	3
Dental Hygienists	1,590	4
Physical Therapists	785	4
Surgical Technologists	482	4
Registered Nurses	12,718	8
Occupational Therapists	389	10
Licensed Practical Nurses	1,490	16
Substance Abuse & Behavioral Disorder Counselors	986	16
Radiologic, CAT, MRI Technologists & Technicians	897	21
Medical and Clinical Laboratory Technicians	491	21
Mental Health Counselors	730	24
Medical & Public Health Social Workers	609	24
Dentists, General	582	24

Source: Oregon Employment Department (2010). *Training Oregonians for the Right Jobs: A Method to Prioritize Occupational Training*.

[2] Oregon Employment Department (2010). *Training Oregonians for the Right Jobs: A Method to Prioritize Occupational Training*. Available at http://www.qualityinfo.org/pubs/op4t/op4t.pdf.
[3] Ibid.

Although certified nursing assistants ranked 55th out of 716 occupations prioritized for training by the Oregon Employment Department methodology, the occupation is the second largest health care occupation, following registered nurses, with the greatest number of projected job openings statewide (over 4,500) between 2008 and 2018. Many regional workforce investment boards, community colleges, proprietary schools, and health care employers have invested in certified nursing assistant training programs. As such, information about nursing assistant training programs is included in this report.

Identification of Schools and Graduate Data Sources. Educational programs for the selected high-demand clinical health care occupations were identified through information from the Oregon Employment Department, OHWI's 2007 Supply Trend Analysis[4], the U.S. Department of Education's National Center for Education Statistics, the Oregon Department of Community Colleges and Workforce Development, health profession boards, and the educational institutions' Internet sites. In most cases, the graduate numbers for 2007, 2008 and 2009 were taken from reports by the National Center for Education Statistics; otherwise schools provided this data. For the number of 2010 graduates and projections for 2011 and 2012, the school deans, program faculty and/or administration were contacted directly. Information about certified nursing assistant training programs in Oregon and the number of students completing training between 2007 and July 2010 were obtained directly from the Oregon State Board of Nursing.

Where a zero is listed in a table for the number of program graduates, the program is in existence but did not produce any graduates that year. If the year's slot is blank, the program was not in existence or had not yet produced any graduates.

The projected numbers of graduates for 2011 and 2012 provided by the educational institutions are based on such factors as enrollment, trends and the economy and should be treated as educated guesses. In addition, the number of graduates from Oregon programs cannot be directly translated to new health care workers in Oregon. Migration to other states, non-clinical careers, transfers to other professions, licensure requirements, educational career pathways and other factors affect the number of graduates actually entering high-demand clinical health care careers in Oregon.

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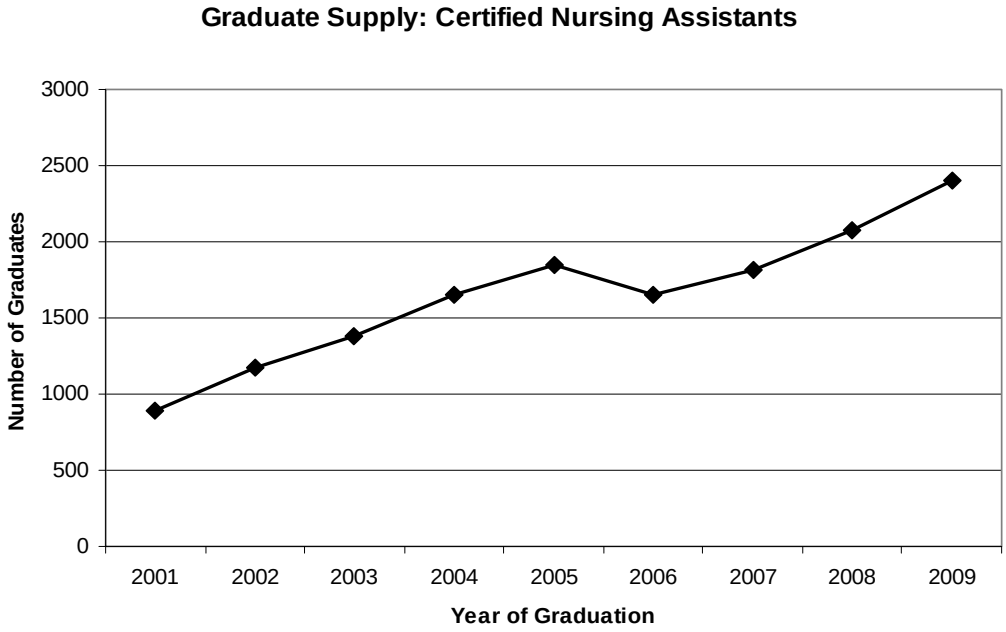
[4] Oregon Healthcare Workforce Institute (2007). *Students Completing Healthcare Workforce Studies in Oregon: A Supply Trend Analysis.* Available at http://www.oregonhwi.org/docs/pdfs/resources/reports/OHWI_Supply_Trend_Analysis.pdf

Certified Nursing Assistants

Certified nursing assistants (CNAs) provide direct hands-on care to patients and are found throughout the health care industry in long term care, out-patient and hospital settings. CNAs are the second largest health care occupation group in Oregon, following registered nurses. The demand is driven primarily by the growing long term care needs of an aging population.

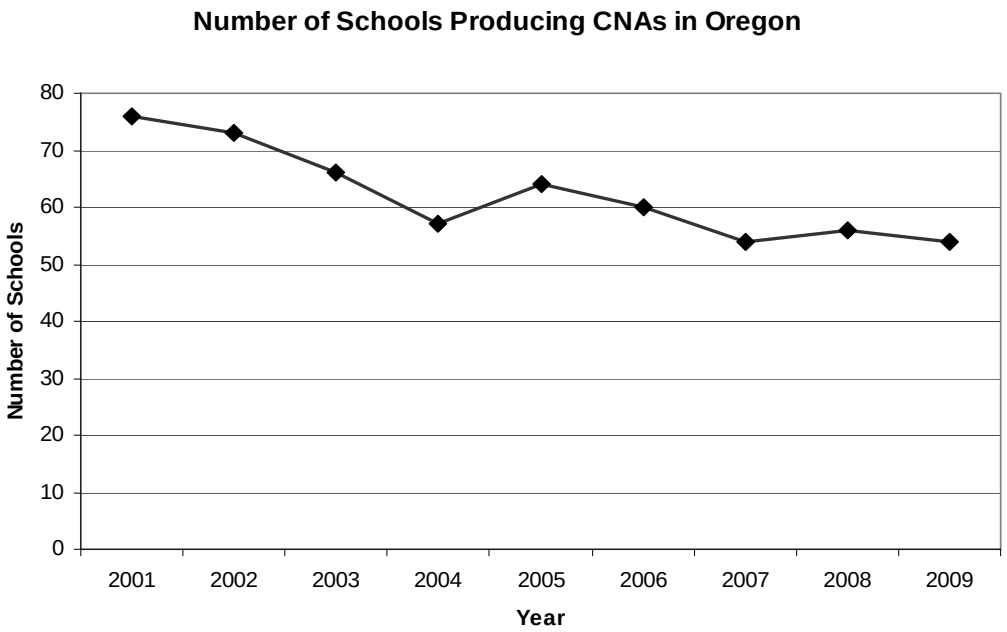
The Oregon Employment Department projected a need for 4,541 additional CNAs between 2008 and 2018. Two-thirds of these job openings are due to new job growth, while the remaining one-third are replacement openings created by those who permanently leave the CNA labor market.

Additionally, the Oregon Employment Department has projected a need for 3,141 new home health aides and 587 new psychiatric technicians between 2008 and 2018. These roles may be filled by individuals who have received training as certified nursing assistants.



Source: Oregon State Board of Nursing

Between 2001 and 2009, the number of graduates from CNA programs in Oregon has increased nearly three-fold, from 888 to 2,401. Over the same time period, the number of schools producing graduates has decreased from 76 to 54.



Source: Oregon State Board of Nursing

Not all students who graduate from CNA training programs choose to make the occupation their lifelong career. The occupation is characterized by low pay and physical and emotional demands, which are reflected in high vacancy rates and replacement job openings. Many use their certification and job experience as a career pathway into nursing programs or other health profession education. Additionally, in Oregon, several employers have developed educational benefit programs to support incumbent CNAs through nursing degree programs in exchange for dedicated employment service following graduation.

Graduate Supply: Certified Nursing Assistants

	School	Graduation Year 2007	2008	2009	As of July 20, 2010
Benton	Corvallis Manor Nursing Home	36			
	Samaritan Nurse Assistant	31	48	89	27
	County Total	67	48	89	27
Clackamas	Avamere Health Services, Inc.	84	157	75	9
	Clackamas Community College	53	69	51	20
	Clackamas Education Service District	0	0	11	
	Marquis Companies	85	150	166	48
	Quick! Nursing Assistant Training	14	57	34	8
	County Total	236	433	337	85
Clatsop	Clatsop Care Center	27	24	21	7
	Providence Seaside Hosp/Extended Care Unit	12	7	7	4
	Tongue Point Job Corps	12	17	5	
	County Total	51	48	33	11
Columbia	Meadowpark Health & Spec Care Center	22	12	22	0
	County Total	22	12	22	0
Coos	Baycrest Village	20	21	34	5
	North Bend High School & Hearthside Rehab	8	11	4	4
	Southwestern Oregon Community College	27	12	28	5
	Statewide Online BNA Program			12	8
	County Total	55	44	78	22
Deschutes	Central Oregon Community College	37	34	31	2
	Redmond High School	2	5	3	5
	County Total	39	39	34	7
Douglas	Lower Umpqua Hospital	12	5	4	0
	Roseburg Senior High School	5	0		
	Umpqua Community College	18	26	35	6
	County Total	35	31	39	6
Jackson	Hearthstone		16		
	Medford Rehabilitation & Healthcare Center	10	25	0	
	Rogue Community College	29	40	31	2
	County Total	39	81	31	2
Jefferson	Mountain View Hospital District	3	0		
	County Total	3			
Josephine	Pinnacle Health Care Inc./Highland House	2	0	0	0
	Royale Gardens	25	36	15	
	County Total	27	36	15	0
Klamath	Klamath Community College	28	28	22	15
	Merle West / Sky Lakes Medical Center	10	11	10	
	County Total	38	39	32	15

Graduate Supply: Certified Nursing Assistants

	School	Graduation Year 2007	2008	2009	As of July 20, 2010
Lake	Lake District Hospital & LTC	0	14	18	0
	County Total	0	14	18	0
Lane	Holy Cross Nursing Assistant ED	27	33	78	32
	Lane Community College Florence	1	4	5	0
	Lane Community College Non credit	92	80	109	27
	Nursing Quest NA 1 Education Program	23	3		
	Pinnacle Healthcare Inc	149	207	201	63
	Thurston High School	10			
	County Total	302	327	393	122
Linn	Linn-Benton Community College	62	59	92	31
	County Total	62	59	92	31
Malheur	Treasure Valley Community College	41	50	41	10
	County Total	41	50	41	10
Marion	Chemeketa Community College	34	54	91	16
	Marian Estates	64	51	73	9
	Oregon State Hospital	0	32	15	0
	Providence Benedictine Nursing Center	29	10	31	7
	Providence Benedictine Sheltered	5	24		
	Salem Hospital Nurse Assistant Pilot	1	16		
	Salem Hospital	7	8	41	5
	Sunnyside Care Center	15	0		
	County Total	155	195	251	37
Multnomah	American Healthcare Training			14	43
	Benson High School	18	8	5	5
	Caregiver Training Institute LLC		19	291	94
	Cascade Medical School	187	125	107	41
	Center for Advanced Learning MHCC		10		
	Cornerstone Care Option			5	4
	Mt Hood Community College	85	77	83	35
	Oregon Outreach Reach Out				3
	Pacific Healthcare School LLC			8	8
	Portland Community College	127	153	119	47
	Springdale Job Corps Center	19	6	18	5
	County Total	436	398	650	285
Polk	Dallas Retirement Village Healthcare Center	30	31	38	15
	County Total	30	31	38	15
Tillamook	Tillamook Bay Community College	0	10	3	0
	County Total	0	10	3	0

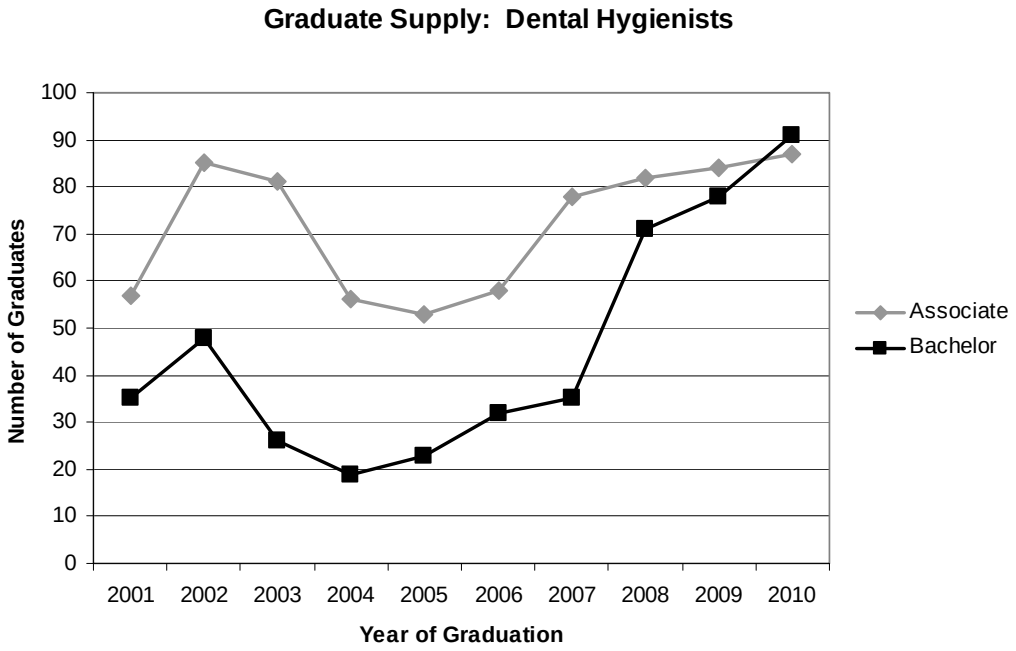
Graduate Supply: Certified Nursing Assistants

	School	Graduation Year 2007	2008	2009	As of July 20, 2010
Umatilla	Blue Mountain Community College	46	45	23	5
	County Total	46	45	23	5
Wallowa	Wallowa Valley Care Center	7	13	6	0
	County Total	7	13	6	0
Wasco	Columbia Gorge Community College	52	49	54	24
	County Total	52	49	54	24
Washington	Beaverton High School District	16	11	12	
	Caregiving Careers Inc		0	63	18
	Hillsboro Rehabilitation & Specialty Care	4	13		
	Hillsboro School District Health Occupations	0	3	2	1
	Jennings McCall Center				4
	County Total	20	27	77	23
Yamhill	Friendsview Manor	6	2	0	0
	Life Care Center of McMinnville		8	15	
	Newberg Care Home	10	11	8	
	Oakwood Country Place	37	23	22	7
	County Total	53	44	45	7
	Statewide Total	**1816**	**2073**	**2401**	**734** (as of 7/20/10)

Dental Hygienists

A growing population, the fact that older people are retaining more teeth than previous generations and an emphasis on preventative care contribute to the demand for dental hygienists. The Oregon Employment Department estimates that between 2008 and 2018, there will be 1,590 total job openings for dental hygienists in Oregon. Fifty-four percent of these openings are due to new job growth, the remaining 46% are replacement openings created by those who permanently leave the dental hygienist labor pool. Dental hygienists ranked 4th out of 716 occupations prioritized for training by the Oregon Employment Department methodology, tying with physical therapists and surgical technologists.

To practice in Oregon, dental hygienists must have graduated from an accredited dental hygiene program, pass national and state exams, and obtain licensure from the Oregon Board of Dentistry. Most dental hygienists practicing in Oregon do so under the general supervision of a licensed dentist. Expanded scope of practice functions, such as administering local anesthesia, is possible after additional instruction. The majority of dental hygienists work in dentists' offices. Other work settings include ambulatory care clinics, community health clinics, schools, long term care facilities, and academic and research settings. Flexible work schedules are a job feature for dental hygienists, and many work part-time in one or more locations.



Over the last ten years, the number of graduates from Oregon's dental hygiene schools ranged between a low of 75 in 2004 to a high of 178 in 2010.

Changes in Oregon's education programs for dental hygienists have resulted in an upward trend of the number of graduates. Oregon Institute of Technology's partnership with The ODS Companies and Eastern Oregon University first graduated dental hygiene students in 2007. Pacific University's dental hygiene program, located at the school's Hillsboro campus, began in Fall 2006 and first graduated students in 2008.

The Oregon Institute of Technology is starting a new bachelor degree dental hygiene program at Chemeketa Community College in September 2011. The first class is expected to have approximately 20 students and will graduate in March 2014.

Graduate Supply: Dental Hygienists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Associate Degree						
Lane Community College	15	21	25	27	26	31
Mt. Hood Community College	18	17	16	16	16	16
Oregon Institute of Technology*	25	23	23	25	23	26
Portland Community College	20	21	20	19	20	20
Total Associate Degrees	78	82	84	87	85	93
Bachelor Degree						
Oregon Institute of Technology*	35	43	50	57	46	42
Pacific University		28	28	34	34	30
Total Bachelor Degrees	35	71	78	91	80	72
Total All Degrees	**113**	**153**	**162**	**178**	**165**	**165**

* The graduate numbers listed for Oregon Institute of Technology include those from the school's partnership with The ODS Companies and Eastern Oregon University as well as the school's bachelor degree completion program.

Dentists

The Oregon Employment Department projects that between 2008 and 2018, there will be 771 job openings for general and specialty dentists in Oregon. Fifty-four percent of the projected job openings are due to replacement, indicative of Oregon's aging dental workforce and pending retirements. Dentists, along with mental health counselors and medical and public health social workers, ranked 24th out of 716 occupations and 13th among clinical health professions prioritized for training by the Oregon Employment Department methodology.

Oregon currently faces a documented shortage of dentists. As of September 2010, the Health Resources and Services Administration listed 76 dental health professional shortage areas in Oregon, including 4 counties, 1 service area, 29 population groups and 42 facilities.[5] These designations are based on specific population-to-dentist ratios. The Health Resources and Services Administration estimated it would take an additional 114 dentists to remove these designations and 163 dentists to achieve a target population-to-dentist ratio of 3,000:1.

To practice in Oregon, a dentist must have graduated from an accredited school of dentistry, pass national and state exams and obtain licensure from the Oregon Board of Dentistry. In addition to general dentistry, the Oregon Board of Dentistry recognizes eight dental specialties: public health, endodontics, oral pathology, oral and maxillofacial surgery, orthodontics, pediatric dentistry, periodontics, and prosthodontics. Most dentists work in dental offices in general practice and many are solo practitioners. Others work in settings such as public health clinics, HMOs, hospitals, and academic and research centers.

The Oregon Health & Science University has the only school of dentistry in the state and offers a Doctor of Dental Medicine degree.

Graduate Supply: Dentists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Doctorate Degree						
Oregon Health & Science University	74	60	78	76	73	73

[5] U.S. Department of Health and Human Services, Health Resources and Services Administration (September 2010). Designated Health Professional Shortage Area Statistics available at http://www.hrsa.gov/shortage.

Licensed Practical Nurses

According to the Oregon State Board of Nursing, licensed practical nurses (LPNs) provide general nursing care and work under the supervision of a registered nurse, licensed physician or dentist.[6] In Oregon, the majority of LPN jobs are in residential and long term care facilities.[7] Other work settings include out-patient clinics, hospitals, public health settings and schools.

The Oregon Employment Department projected 1,490 job openings for LPNs between 2008 and 2018, of which 60% are projected to be replacement openings created by those permanently leaving the LPN labor market. LPNs ranked 16th out of 716 occupations and 9th among clinical health care occupations prioritized for training by the Oregon Employment Department methodology.

To practice as an LPN in Oregon, a student must graduate from an approved program, pass the National Council Licensure Examination-Practical Nurse (NCLEX-PN) and obtain licensure from the Oregon State Board of Nursing.

The length of LPN training programs varies, but is generally less than one year. Currently, there are eight stand-alone LPN programs in Oregon (see table below). Additionally, there are six LPN programs embedded in registered nursing associate degree programs. These programs offer a curriculum that allows a practical nurse exit option during the first year. The Oregon State Board of Nursing reports that very few students in these programs actually take this option.[8] The six programs with this exit option are at the following community colleges: Central Oregon, Chemeketa, Clatsop, Columbia Gorge, Oregon Coast and Treasure Valley. Blue Mountain Community College ended its practical nurse exit option at the end of the 2010 school year.

As shown in the table (below) the supply of LPN graduates has increased from 101graduates in 2007 to 383 graduates in 2010.

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[6] Oregon State Board of Nursing (2010). *Types of Nursing Occupations Licensed/Certified in Oregon.* Available at http://www.oregon.gov/OSBN/about_us.shtml.
[7] Oregon Employment Department (2010). Occupational Report for Licensed Practical and Licensed Vocational Nurses (29-2061), Oregon Statewide. Available at http://www.qualityinfo.org/olmisj/OIC?action=menu&occtype=SOC&occ=292061
[8] Correspondence with J. Ingwerson, RN, MSN (2010). Oregon State Board of Nursing.

Valley Medical College's first practical nursing graduates were in 2008. The projected increases in the college's graduate rates are due to the addition of an evening program starting in September 2010. Pioneer Pacific College's program increased to two campuses in 2009: Wilsonville and Eugene-Springfield. Sumner College's program began in September 2009. Umpqua Community College transitioned to the Oregon Consortium for Nursing Education curriculum, which does not have a practical nurse exit option, and therefore had no practical nursing graduates in 2008 and 2009. The college reinstituted its stand alone practical nursing program in January 2010.

Klamath Community College plans to start a practical nursing program in March 2011 with a cohort of 16 students. Beginning in 2011, Rogue Community College is adding a bridge program to allow practical nurses to join the second year of its registered nursing program to fill any attrition slots.

Graduate Supply: Practical Nurses

Schools	2007	2008	2009	2010	Projected 2011	Projected 2012
Certificate Programs						
Apollo/Carrington College	32	86	82	85	85	85
Concorde Career College	0	17	59	65	35	68
Mt. Hood Community College		21	21	22	24	24
Pioneer Pacific College	49	50	126	126	150	150
Rogue Community College	16	15	14	15	16	16
Sumner College				32	64	80
Umpqua Community College	4			15	16	16
Valley Medical College	0	20	18	23	45	50
Total	**101**	**209**	**320**	**383**	**435**	**489**

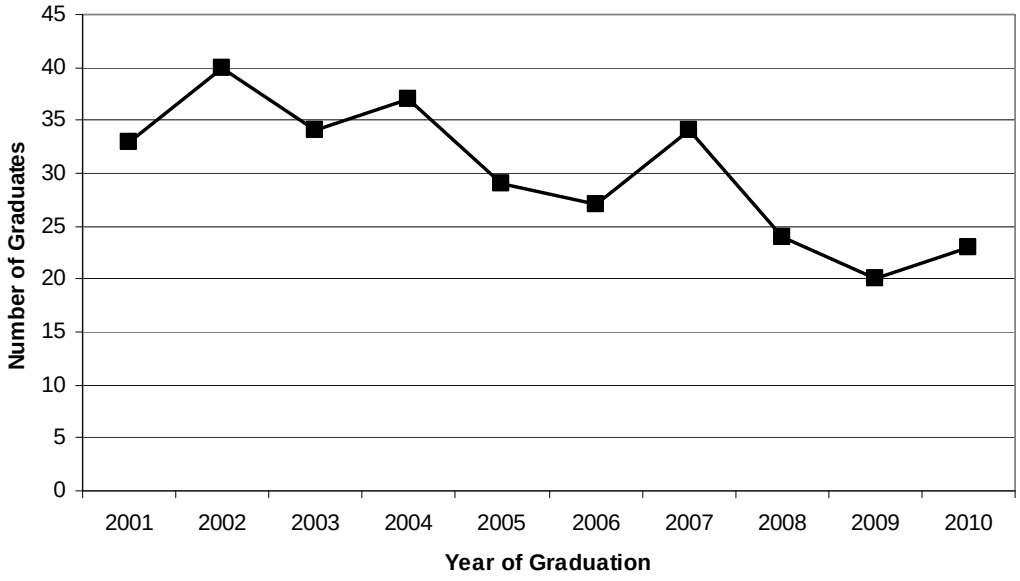
Medical & Clinical Lab Technicians

Medical and clinical laboratory technicians perform the more routine tests and procedures in labs on tissue, cells and bodily fluids. Usually under the supervision of medical and clinical lab technologists, technicians prepare specimens and vaccines, operate analyzers, conduct research, perform tests and calculate results.

There is no state license for medical and clinical lab technicians in Oregon; however, many employers prefer certification from a professional association.

With the invention of new tests and technology and a growing and aging population, the need for lab personnel is on the rise. Hospitals will likely continue to be the major employer of lab workers, but employment is expected to grow faster in medical and diagnostic labs and ambulatory clinics. The Oregon Employment Department projects that between 2008 and 2018 there will be 491 job openings for medical and clinical laboratory technicians in Oregon, 54% of which will be due to new job growth. Medical and clinical laboratory technicians, along with radiologic, CAT and MRI techs, ranked 21st out of 716 occupations and 11th among clinical health professions prioritized for training by the Oregon Employment Department methodology.

Graduate Supply: Medical and Clinical Lab Technicians



Since 2002, the total number of medical and clinical lab technician graduates from associate degree programs in Oregon has shown a downward trend, from a high of 40 in 2002 to a low of 20 in 2009.

Currently, Portland Community College is the only school in Oregon offering an associate degree for medical and clinical lab technicians. Carrington College-Portland (formerly Apollo College) graduated students only in 2007 and closed the program in part because of the difficulty in finding clinical training sites, a challenge for many health profession programs.

Graduate Supply: Medical and Clinical Lab Technicians

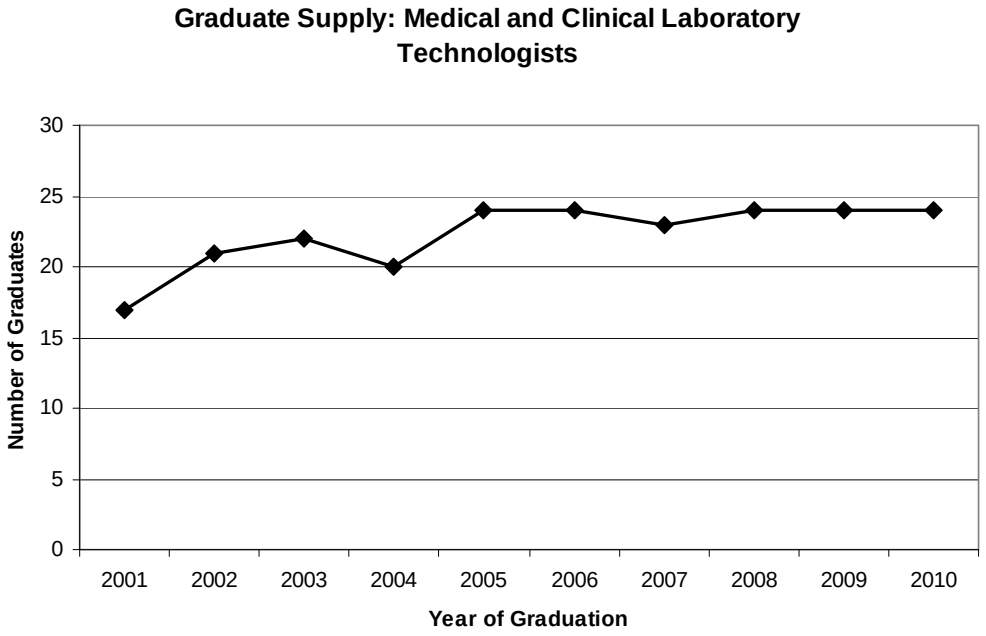
School	2007	2008	2009	2010	Projected 2011	Projected 2012
Associate Degree						
Apollo/Carrington College - Portland	11					
Portland Community College	23	24	20	23	24	24
Total	**34**	**24**	**20**	**23**	**24**	**24**

Medical & Clinical Lab Technologists

Medical and clinical laboratory technologists perform tests on tissue, cells and bodily fluids. Some medical and clinical laboratory technologists specialize in areas such as cancer, chemicals, hormones, blood transfusions and bacteriology. Medical and clinical laboratory technologists work in hospitals, out-patient clinics, medical and diagnostic labs, biotechnology labs, and in academic and research institutions.

A bachelor's degree from an approved program is generally required for this occupation. There is no state license for medical and clinical lab technologists in Oregon; however, most employers prefer those who have certification from a professional association.

The Oregon Employment Department estimates that between 2008 and 2018, there will be 857 job openings for medical and clinical laboratory technologists in Oregon. Fifty-two percent of the job openings are projected to be due to new job growth. Medical and clinical laboratory technologists ranked 1st out of all 716 occupations prioritized for training by the Oregon Employment Department methodology.



There is one approved bachelor-level program in Oregon for medical and clinical laboratory technologists. This program is offered in Portland as a joint degree program from the Oregon Institute of Technology and Oregon Health & Science University.

Graduate Supply: Medical and Clinical Lab Technologists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Bachelor Degree						
Joint degree from Oregon Institute of Technology and Oregon Health & Science University	23	24	24	24	34*	26

*The projected number of graduates in 2011 includes eight part-time students who are presently working as medical and clinical laboratory technicians.

Mental Health Counselors

The Oregon Employment Department projects that between 2008 and 2018, there will be 730 job openings for Mental Health Counselors in Oregon. Fifty-one percent of the job openings are due to replacement openings created by those who permanently leave the mental health counselor labor pool. Mental health counselors, along with dentists and medical and public health social workers, ranked 24th out of 716 occupations and 13th among clinical health care occupations prioritized for training according to the Oregon Employment Department methodology.

Factors contributing to the demand for mental health counselors include statewide networks to improve services for children and families with emotional health issues and the fact that more insurance companies are providing reimbursement to mental health counselors.

To become a licensed mental health counselor in Oregon, a master's degree is required. Three universities in Oregon offer degrees related to mental health counseling: George Fox University, Lewis & Clark University and Southern Oregon University. Prior to 2008, Southern Oregon University's program admitted students every other year, thus there were no graduates in 2007.

While a master's degree is considered the minimal entry-level education required to be licensed in this professional occupation, Mt. Hood Community College offers an associate degree in Mental Health Counseling and graduates from that program are included in the graduate supply table.

Graduate Supply: Mental Health Counselors

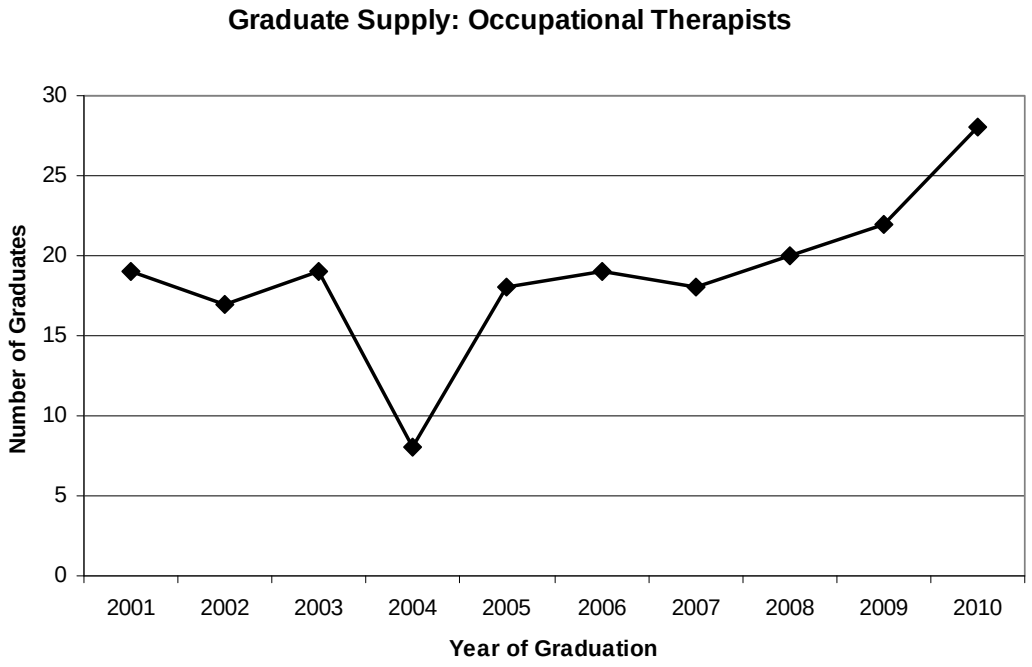
	2007	2008	2009	2010	Projected 2011	Projected 2012
Associate Degree						
Mt. Hood Community College	22	23	28	32	35	35
Master's Degree						
George Fox University	48	50	42	50	51	50
Lewis & Clark University		41	47	40	40	45
Southern Oregon University	0	21	20	15	20	24
Total Master's Degrees	**48**	**112**	**109**	**105**	**111**	**119**

Occupational Therapists

An occupational therapist assists people across the age spectrum in developing, regaining or maintaining the skills needed for daily activities in order to help them function at their highest level. Occupational therapists design and build specialized equipment and computer programs and modify patients' home and work environments for comfort, safety and functionality.

Occupational therapists work in hospitals, clinics, schools, out-patient clinics, nursing care and rehabilitation facilities, home health care agencies, and government agencies. The American Occupational Therapy Association identified six practice areas: mental health, productive aging, children and youth, health and wellness, work and industry, and rehabilitation, disability and participation.[9]

The Oregon Employment Department projects that between 2008 and 2018, there will be 389 job openings for occupational therapists in Oregon. Fifty-one percent of these job openings are due to new job growth. Occupational therapists ranked 10th out of 716 occupations prioritized for training by the Oregon Employment Department methodology.



[9] American Occupational Therapy Association. *Occupational Therapy Practice Areas in the 21st Century*. Available at http://www.aota.org/Practitioners/PracticeAreas.aspx.

Currently, a student must obtain at least a master's degree in occupational therapy to be eligible to practice. This higher level education requirement became effective in 2007. Nationally, according to the Midwest Center for Health Workforce Studies, the transition period from the baccalaureate entry-level degree to a graduate degree entry requirement resulted in a suspension on admissions for up to two years in some programs and the closure of six programs in 2006, causing a reduction in the total number of graduates in 2008.[10]

Like many health profession education programs, there is a shortage of occupational therapy faculty. Additionally, by July 2012, national accreditation standards for schools of occupational therapy will require that the majority of full-time faculty who are occupational therapists have a doctoral degree.[11] The Midwest Center for Health Workforce Studies reported that in 2005, 45% of occupational therapy faculty held doctoral degrees and that the median age of occupational therapy faculty was 50 years.[12]

To be eligible to practice in Oregon, an occupational therapist must graduate from an accredited program, pass the national board exam and obtain state licensure from the Oregon Occupational Therapy Licensing Board.

Oregon has one occupational therapy school, Pacific University, which offers the entry-level Master's Degree. Pacific University also offers a re-entry program for occupational therapists who have a lapsed professional license.

Graduate Supply: Occupational Therapists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Master's Degree						
Pacific University	18	20	22	28	29	30

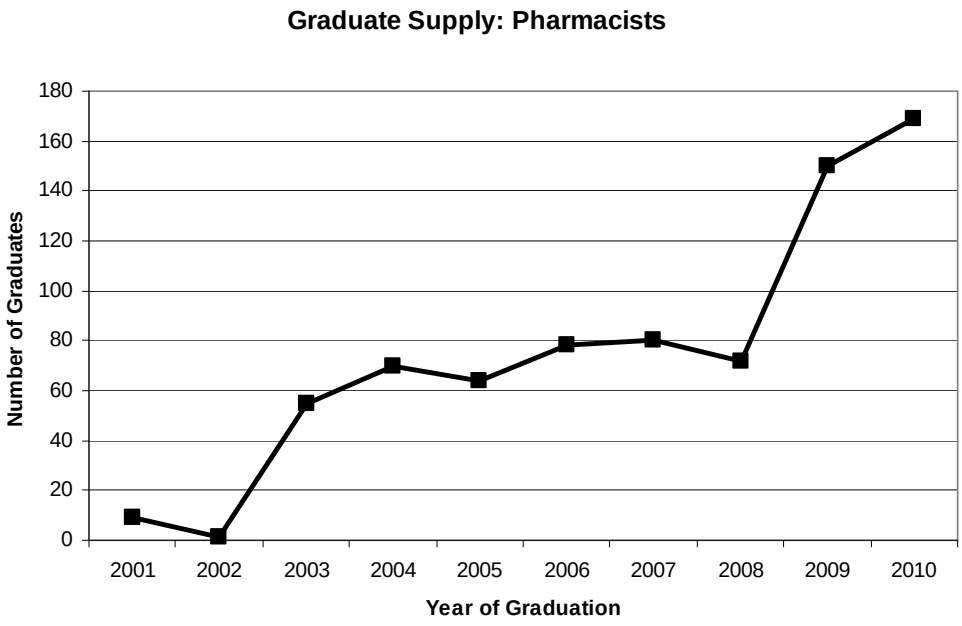
[10] Fisher, G., Keehn, M. (2007). Workforce Needs and Issues in Occupational and Physical Therapy. Midwest Center for Health Workforce Studies, University of Illinois at Chicago.
[11] American Occupational Therapy Association. ACOTE Accreditation. Information available at http://www.aota.org/Educate/Accredit.aspx.
[12] Fisher, G., Keehn, M. (2007). Workforce Needs and Issues in Occupational and Physical Therapy. Midwest Center for Health Workforce Studies, University of Illinois at Chicago.

Pharmacists

The advancements in pharmaceutical research, development of more drugs, an increase in prescription coverage, the growth in the number of retail pharmacies, the growing population, an increase in the number of people living with chronic health conditions, the aging of baby-boomers and an aging pharmacy workforce all contribute to the demand for pharmacists.

According to the Oregon Employment Department, there will be an estimated 1,226 job openings for pharmacists between 2008 and 2018. Sixty-two percent of these projected job openings will be to replace those who leave the pharmacist job market. This high number is indicative of the anticipated retirements among Oregon's older pharmacists. Pharmacists ranked 2nd out of 716 occupations prioritized for training by the Oregon Employment Department methodology.

Pharmacists work in a variety of settings, including retail stores (such as grocery and drug stores), hospitals, outpatient clinics, long term care facilities and agencies, pharmaceutical companies, public health agencies, and academic and research institutions.



In Oregon, Oregon State University and Pacific University offer Doctor of Pharmacy degrees. Pacific University's pharmacy program began in Fall 2006 and first graduated students in 2009.

Graduate Supply: Pharmacists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Doctorate Degree						
Oregon State University	80	72	85	84	90	90
Pacific University			65	85	95	98
Totals	**80**	**72**	**150**	**169**	**185**	**188**

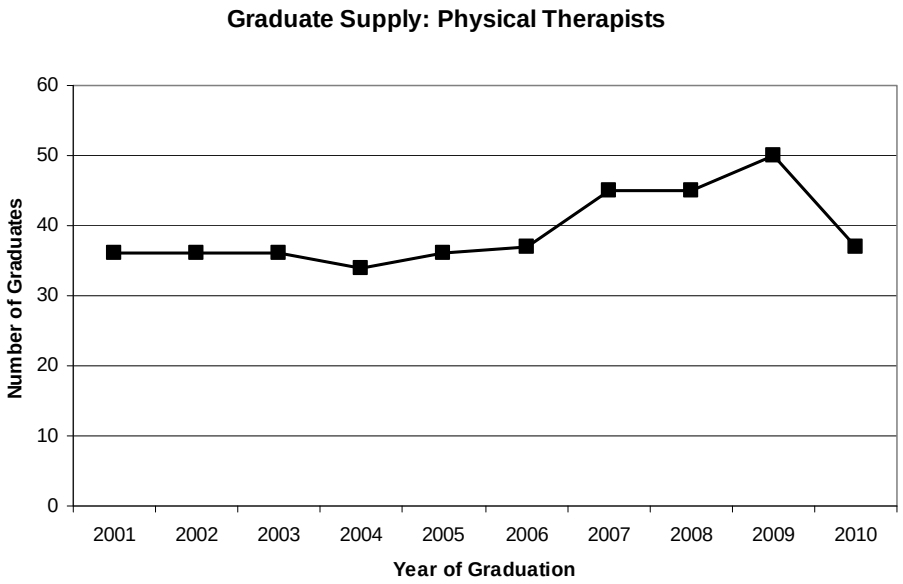
Physical Therapists

Physical therapists work in a variety of settings, including private physical therapy offices, out-patient clinics, hospitals, long term care and rehabilitation facilities, home health agencies, schools, sports facilities, and academic and research institutions.

The Oregon Employment Department projected that between 2008 and 2018 there will be 785 job openings for physical therapists in Oregon. Nearly two-thirds of the projected job openings are due to new job growth while the remaining one-third are due to replacement openings created by those who permanently leave the physical therapist labor pool. Physical therapists, along with dental hygienists and surgical technologists, ranked 4th out of 716 occupations prioritized for training by the Oregon Employment Department methodology.

The Oregon Employment Department's 2009 Oregon Job Vacancy Survey found that physical therapists ranked 17th among all occupations with the highest number of job vacancies (226). Further, 29 percent of those openings had been vacant for 60 days or more.

Currently, a master's or doctorate degree is required to become a physical therapist. Effective December 31, 2015, the Commission on Accreditation in Physical Therapy Education will require all educational programs to offer the Doctor of Physical Therapy degree.[13]



[13] More information regarding physical therapy educational program requirements is available at the Commission on Accreditation in Physical Therapy Education, http://www.apta.org/AM/Template.cfm?Section=CAPTE3&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=65&ContentID=49490.

To practice in Oregon, physical therapists must have graduated from an accredited school, pass the National Physical Therapy Examination and obtain licensure from the Oregon Physical Therapist Licensing Board.

Pacific University is the only educational institution in Oregon that offers a degree (DPT) in physical therapy.

Graduate Supply: Physical Therapists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Doctorate Degree						
Pacific University	45	45	50	37	40	38

Physicians and Surgeons

Oregon has a documented shortage of physicians. Population growth, an aging population, an increase in the number of people living with chronic health conditions, state and national health care reform efforts and an aging physician workforce are major factors contributing to the state's physician workforce shortage. The federal Health Resources and Services Administration identified 102 primary care health professional shortage areas in Oregon, including 5 counties, 17 service areas, 26 population groups, and 54 facilities.[14]

The pending retirements of Oregon's older physicians is expected to add to the state's current physician workforce shortage. According to the 2010 Oregon Medical Board licensing database, the average age of Oregon's active licensed physicians is 50 years of age and nearly 20% are age 60 and older. A survey conducted in 2009 by the Oregon Department of Human Services found that in Eastern Oregon, 31% of the physicians were over age 60. Additionally, the survey found that 22% of the state's physicians had plans to retire within five years.

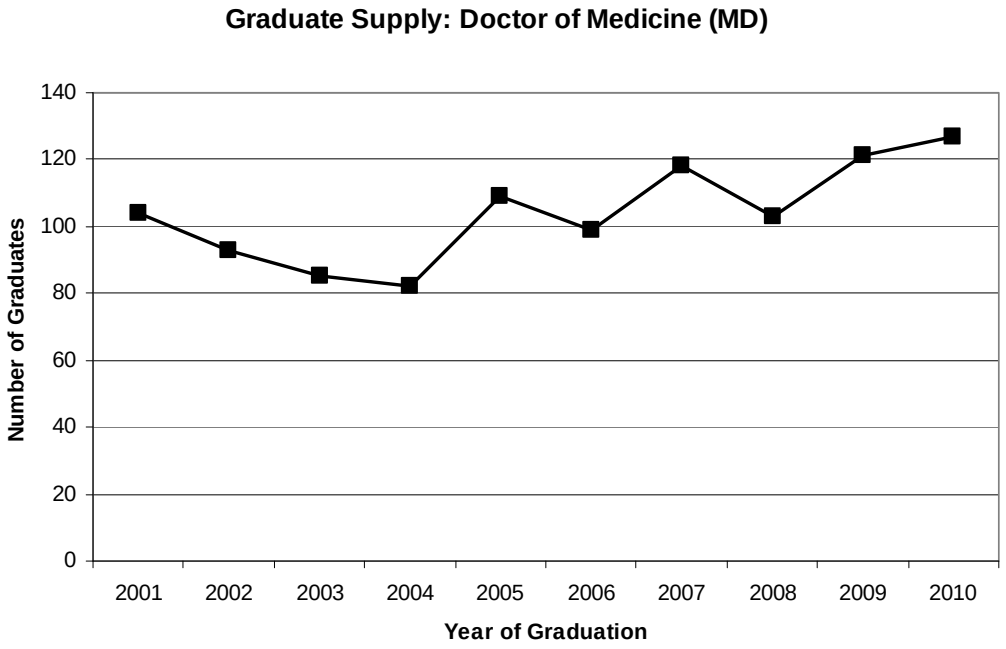
The Oregon Employment Department projects that between 2008 and 2018, there will be 3,294 job openings for physicians and surgeons in Oregon. Fifty-five percent of the projected job openings are due to new job growth. This forecast does not take into account the physician workforce required to provide care to the estimated 310,000 previously uninsured Oregonians who will be eligible for health care coverage as a result of state and national health care reform.

Physicians and surgeons ranked 3rd out of 716 occupations prioritized for training by the Oregon Employment Department methodology.

Doctor of Medicine (MD)

To practice medicine in Oregon, a physician must complete four years of medical school, followed by three to eight years (depending on area of specialty) of postgraduate residency training, pass national examinations and be licensed by the Oregon Medical Board.

[14] U.S. Department of Health and Human Services, Health Resources and Services Administration (September 2010). Designated health professional shortage area statistics available at http://www.hrsa.gov/shortage.



Oregon Health & Science University (OHSU) is the only school in Oregon that offers a Doctorate in Medicine degree (MD). In 2010, OHSU graduated 127 medical students.

Graduate Supply: MD Physician and Surgeons

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Doctor of Medicine Degree						
Oregon Health & Science University (MD)	118	103	121	127	118	118

For physicians who have left the practice of medicine and wish to return, OHSU offers a Physician Re-entry Program in general internal medicine and pediatrics with training in other disciplines as resources permit. Since its inception in March 2006, fourteen physicians have completed the program.

Doctor of Naturopathic Medicine (ND)

Naturopathic physicians are primary care practitioners emphasizing prevention and natural medicine. The National College of Natural Medicine in Portland is the only naturopathic medical school in Oregon.

Students attend four years of graduate-level schooling to obtain their doctorates and must be licensed by the Oregon State Board of Naturopathic Medicine to practice in the State of Oregon. According to the Board, the current scope of naturopathic medicine includes: clinical nutrition, botanical medicine, homeopathic medicine, physical medicine, oriental medicine, naturopathic obstetrics, psychological medicine, and minor surgery including repair of superficial wounds and removal of foreign bodies, cysts, and other superficial masses.

Graduate Supply: ND Physicians

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Doctor of Naturopathic Medicine Degree						
National College of Natural Medicine (ND)	73	71	77	82	93	100

Doctor of Osteopathic Medicine

The College of Osteopathic Medicine of the Pacific Northwest in Lebanon, Oregon will admit its first class of medical students in August 2011, graduating approximately 100 Doctors of Osteopathy (DOs) in 2015. This osteopathic medical school is the result of a partnership between Western University of Health Sciences in Pomona, California and Samaritan Health Services, which serves the mid-Willamette Valley.

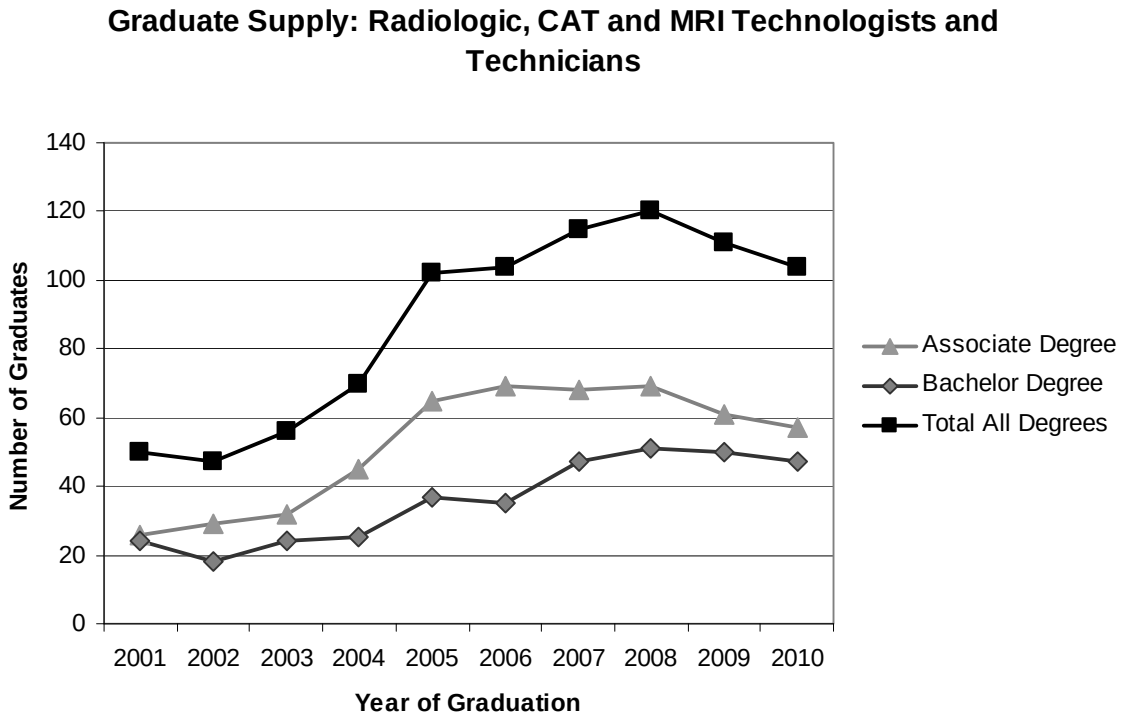
Osteopathic medical students from Western University of Health Sciences currently undertake clinical rotations at Samaritan Health Services facilities. Similarly, osteopathic medical students from A.T. Stills University in Arizona engage in clinical rotations in health facilities in the Portland Metro area.

To practice as an osteopathic physician in Oregon, a physician must complete four years of medical school followed by postgraduate residency training, pass national examinations and be licensed by the Oregon Medical Board.

Radiologic, CAT & MRI Techs

Radiologic, CAT and MRI technicians and technologists take images of patients for use in diagnosing health problems such as diseases and broken bones. These techs work in a variety of settings including hospitals, clinics and diagnostic and interventional imaging centers. To practice in this profession in Oregon, these techs complete a program of learning from an approved educational institution, obtain credentials from a designated national organization and gain licensure as required by the Oregon Board of Medical Imaging.

The Oregon Employment Department projected 897 job openings for radiologic, CAT and MRI techs in Oregon between 2008 and 2018. Fifty-nine percent of the job openings are due to projected new job growth. Radiologic, CAT and MRI techs, along with medical and clinical laboratory technicians, ranked 21st out of 716 occupations prioritized for training by the Oregon Employment Department methodology and 11th among clinical health care occupations.



Three public educational institutions in Oregon offer training in radiologic, CAT and MRI technology. Linn-Benton Community College and Portland Community College offer associate degrees. The Oregon Institute of Technology in Klamath Falls offers a baccalaureate degree.

Graduate Supply: Radiologic, CAT and MRI Technicians and Technologists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Associate Degree						
Linn-Benton Community College	22	25	27	25	25	25
Portland Community College	46	44	34	32	34	34
Total Associate Degrees	68	69	61	57	59	59
Bachelor Degree						
Oregon Institute of Technology	47	51	50	47	46	44
Total All Degrees	**115**	**120**	**111**	**104**	**105**	**103**

Registered Nurses

Oregon has a documented shortage of registered nurses.[15] In a 2009 survey, the Oregon Employment Department found that registered nurses, with 1,004 job openings, had the largest number of job vacancies of all occupations across the state and represented six percent of the total job vacancies in Oregon.[16] Of these openings, 11 percent had been vacant for 60 days or more. Additionally, population growth, an aging population, an increase in the number of people living with chronic health conditions, state and national health care reform efforts and an aging nursing workforce are major factors contributing to the demand for more registered nurses.

The Oregon Employment Department projected 12,718 job openings for registered nurses between 2008 and 2018, the 5th highest number of job openings for all occupations in Oregon. Of these projected openings, 6,771 (53%) are new jobs and 5,947 (47%) are replacement openings created by those who are predicted to leave Oregon's registered nurse labor market. Registered nurses ranked 8th out of 716 occupations and 7th among clinical health care occupations prioritized for training by the Oregon Employment Department methodology. This occupational category also includes advanced practice registered nurses such as nurse practitioners, clinical nurse specialists, certified nurse midwives, and certified registered nurse anesthetists.

Registered nurses work in a variety of clinical and non-clinical settings. Data from the Oregon Employment Department shows that of the 30,656 registered nursing jobs, nearly 57% were in private, non-profit and local government hospitals, 19% were in ambulatory health care settings and 5% were in nursing and residential care facilities.[17] Other work settings include public administration, insurance companies, schools and academic institutions.

The concerted efforts of the Oregon Center for Nursing, public and private schools of nursing, industry partners, and other nursing leaders and stakeholders have significantly increased the number of graduates from Oregon's associate and bachelor degree registered nursing programs

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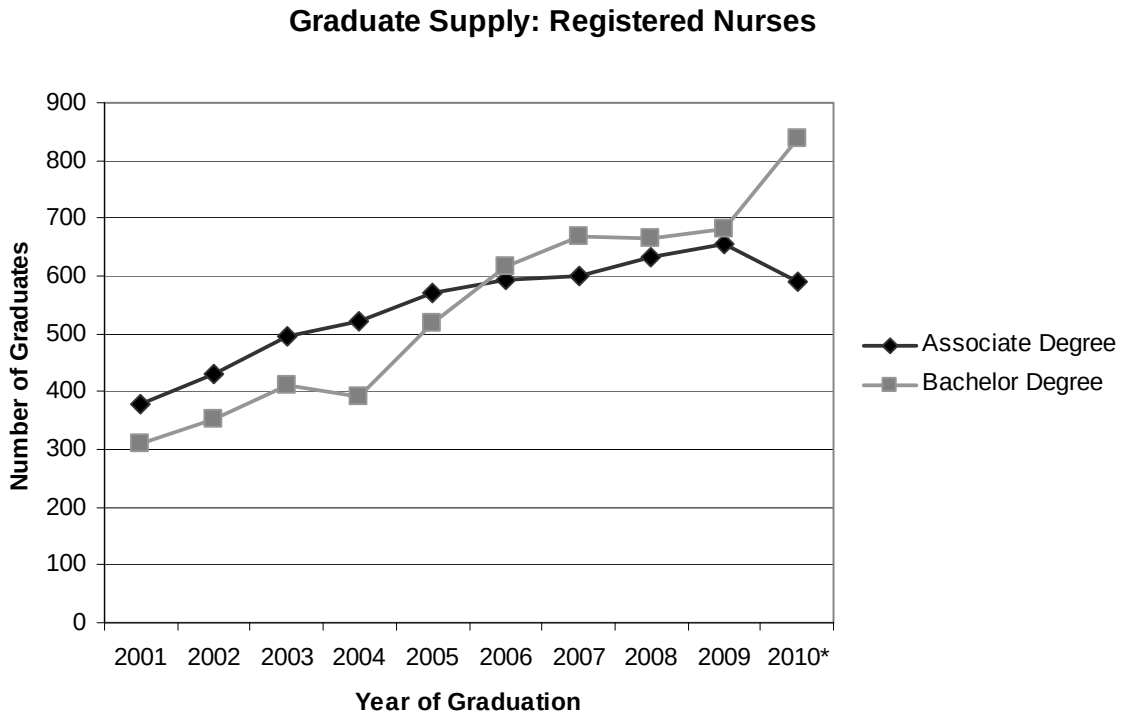
[15] Oregon Center for Nursing (2005). *When, Not If: A Report on Oregon's Registered Nurse Workforce*. Available at http://www.oregoncenterfornursing.org/documents/WHENNotIf.pdf.
[16] Oregon Employment Department (2009). *Oregon Job Vacancies*. Available at http://www.qualityinfo.org /pubs/vacancy/sw.pdf.
[17] Oregon Employment Department (2010). *Occupational Report for Registered Nurses (29-1111), Oregon Statewide*. Report accessed September 2010. Available at http://www.qualityinfo.org.

over the past ten years. In fact, the number of graduates from these degree programs has increased 105% from 2001 (696 graduates)[18] to 2010 (1,421 graduates).



* Count of graduates does not include numbers from an employer-sponsored associate degree cohort at Portland Community College expected to graduate in December 2010.

Within this same time period, the Oregon Center for Nursing reported that the ratio of nursing students per faculty has increased from 3.6 in 2001 to 6.8 in 2008.[19] This increase in the student-to-faculty ratio, coupled with the data on the average age of nurse educators (52 years), the limited supply of nurse educators trained at the graduate level, the difficulty in recruiting nurse educators, and the study's estimate that 75 of the 529 currently filled faculty positions will be vacated due to retirement by 2015 point to significant faculty issues which may ultimately affect Oregon's supply of registered nurse graduates.

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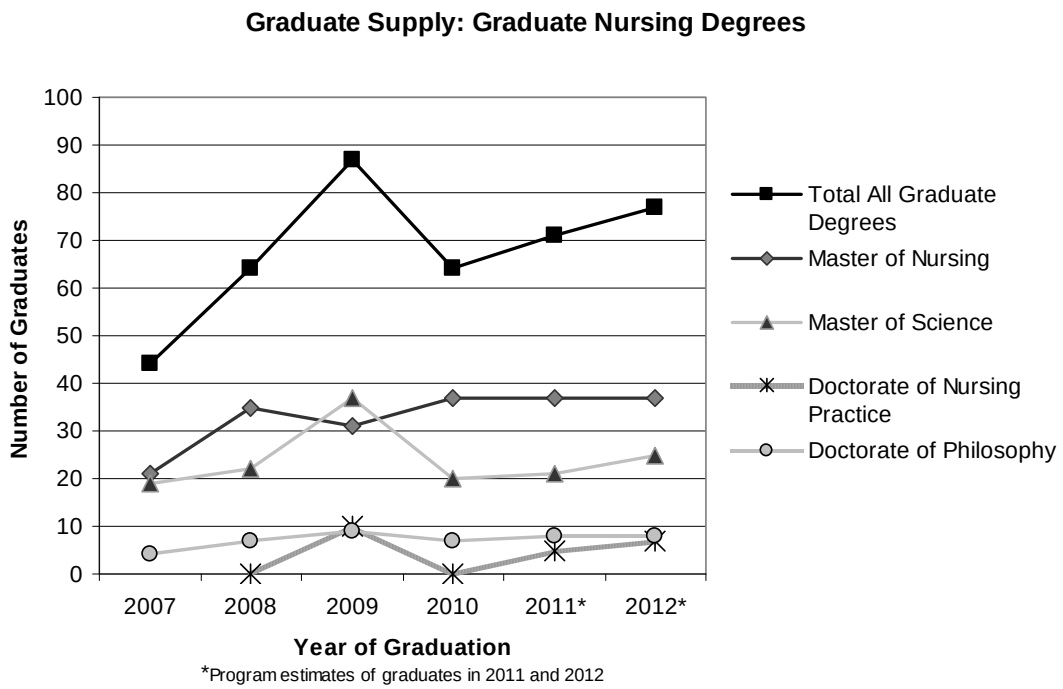
[18] Oregon Healthcare Workforce Institute (2007). *Students Completing Healthcare Workforce Studies in Oregon: A Supply Trend Analysis*. Available at http://www.oregonhwi.org/docs/pdfs/resources/reports/OHWI_Supply_Trend_Analysis.pdf.

[19] Oregon Center for Nursing (2009). *Oregon's Nurse Faculty Workforce*. Available at http://www.oregoncenterfornursing.org/documents/OCN%20Nurse%20Faculty%20Workforce%20Report%202009.pdf.



The University of Portland and Oregon Health & Science University are the only two educational institutions in Oregon that offer graduate nursing programs. Between 2007 and 2010, the number of graduate nursing degrees awarded ranged from a low of 44 in 2007 to a high of 87 in 2009.

Graduate Supply: Registered Nurses

	2007	2008	2009	2010	Projected 2011	Projected 2012
Associate Degree						
Blue Mountain Community College	25	26	26	22	30	30
Central Oregon Community College	33	36	30	34	48	48
Chemeketa Community College	59	46	61	40	64	48
Clackamas Community College	40	58	51	38	40	40
Clatsop Community College	26	16	20	16	16	16
Columbia Gorge Community College	17	21	19	18	18	18
Lane Community College	63	73	73	69	80	80
Linn-Benton Community College	44	38	45	43	47	45
Mt. Hood Community College	76	81	72	78	80	80
Oregon Coast Community College	0	18	16	18	23	16
Portland Community College	78	95	106	79	100	100
Rogue Community College	31	31	35	32	33	36
Southwestern Oregon Community College	26	25	30	33	24	34
Treasure Valley Community College	26	19	19	20	24	24
Umpqua Community College	56	48	51	51	60	60
Total Associate Degrees	600	631	654	591	687	675
Bachelor Degree						
Concordia University	22	38	28	30	40	40
George Fox University		35	34	33	35	38
Linfield College	187	184	168	210	225	280
Oregon Health & Science University*	246	204	211	291	251	251
University of Portland	168	152	190	223	220	220
Walla Walla University in Portland	47	51	49	43	67	66
Total Bachelor Degrees	670	664	680	830	838	895
Master of Nursing						
Oregon Health & Science University	21	35	31	37	37	37
Master of Science						
Oregon Health & Science University	11	15	21	10	10	10
University of Portland	8	7	16	10	11	15
Total Masters' Degrees	40	57	68	57	58	62
Doctorate of Nursing Practice						
Oregon Health & Science University			10	0	0	0
University of Portland					5	7
Total DNP Degrees		0	10	0	5	7
Doctorate of Philosophy						
Oregon Health & Science University	4	7	9	7	8	8

*Includes graduates from OHSU's nursing programs at Eastern Oregon University, Oregon Institute of Technology, Southern Oregon University, Western Oregon University and OHSU's online program.

Social Workers

The Oregon Employment Department estimates that between 2008 and 2018 there will be 609 job openings for medical and public health social workers in Oregon. The demand for these professionals is largely due to shorter hospital stays, a growing number of people living with chronic health conditions, and the growing elderly population. Fifty-seven percent of the job openings are projected to be replacement openings for those permanently leaving the medical and public health social worker labor pool.

Medical and public health social workers, along with dentists and mental health counselors, ranked 24th out of 716 occupations prioritized for training by the Oregon Employment Department methodology and 13th among clinical health care occupations.

The Oregon Employment Department also projected job openings for social workers in other specialty areas. Child, family and school social workers are expected to have 1,347 job openings between 2008 and 2018. Mental health and substance abuse social workers are projected to have 851 job openings. For all other social workers, 697 job openings are projected.

Standard Occupational Classification Title	Projected New Jobs 2008-2018	Projected Job Openings due to Replacement 2008-2018	Total Projected Job Openings 2008-2018
Medical & Public Health Social Workers	260	349	609
Child, Family & School Social Workers	453	894	1,347
Mental Health & Substance Abuse Social Workers	382	469	851
Social Workers, All Other	225	472	697
Total	1,320	2,184	3,504

Six institutions of higher education in Oregon offer baccalaureate degrees in Social Work. The supply of baccalaureate trained social workers increased as Portland State University recently reinstated its bachelor degree program in Social Work (BSW) with its first graduates in 2010. Its original BSW program was accredited in 1981 and terminated in 1984 to allow limited departmental resources to focus on its doctorate program. The new BSW program is expected to

receive final accreditation in June 2011. The program's admittance capacity grew after the first year.

Portland State University is the only school in Oregon that offers graduate degrees in Social Work and recently expanded its capacity for students in the Master's in Social Work program through distance education opportunities in Ashland and Salem (45 students total for 2009).

Graduate Supply: Social Workers

School	2007	2008	2009	2010	Projected 2011	Projected 2012
Bachelor Degree						
Concordia University	13	21	22	20	25	30
George Fox University	9	15	14	17	21	20
Pacific University	8	3	6	12	8	11
Portland State University				19	46	46
University of Portland	17	16	7	12	18	15
Warner Pacific College	7	5	5	9	9	8
Total Bachelor Degrees	54	60	54	70	81	84
Master's Degree						
Portland State University	193	158	191	203	203	203
Doctorate Degree						
Portland State University	6	4	7	4	4	4
Total Graduate Degrees	199	162	198	207	207	207

Substance Abuse & Behavioral Disorder Counselors

Substance abuse and behavioral disorder counselors assist people who have addictions and harmful behaviors. Factors contributing to the growth of treatment programs include the increasing knowledge of solutions for addiction and acceptance as an alternative to jail time.

The Oregon Employment Department estimates that between 2008 and 2018, there will be 986 job openings for substance abuse and behavioral disorder counselors in Oregon. Fifty-three percent of the job openings are projected to be replacement openings created by those who permanently leave the substance abuse and behavioral disorder counselor labor pool. Substance abuse and behavioral disorder counselors, along with licensed practical nurses, ranked 16th out of 716 occupations prioritized for training by the Oregon Employment Department methodology and 9th among clinical health care occupations.

Graduate Supply: Substance Abuse and Behavioral Disorder Counseling

Schools	2007	2008	2009	2010	Projected 2011	Projected 2012
<1 - <2 Year Certificate						
Central Oregon Community College*	3	3	3	4	3	3
Chemeketa Community College	0	1	0	2	8	8
Portland Community College	0	1	1	4	4	4
Rogue Community College	0	0	1	5	5	5
Total Certificates	3	5	5	15	20	20
Associate Degree						
Chemeketa Community College	5	7	6	7	12	12
Mt. Hood Community College	23	22	13	19	18	20
Portland Community College	12	16	9	18	18	18
Rogue Community College (Human Services)	5	6	13	17	35	35
Southwestern Oregon Community College†	1	1	0			
Total Associate Degrees	46	52	41	61	83	85
Graduate Certificate						
Portland State University	6	9	3	7	5	8
Master's Degree						
Lewis & Clark College	11	17	16	12	15	15

* Central Oregon Community College will also offer an associate degree in Addiction Studies starting Winter 2011.

† 2008-2009 was the last academic year in which the Southwestern Oregon Community College offered this degree.

Surgical Technologists

Surgical technologists are members of operating teams and work under the supervision of surgeons, nurses or other surgical personnel. Surgical technologists work in a variety of settings including hospitals, outpatient surgery centers and physician offices. Surgical technologists may advance in their careers by specializing in a particular kind of surgery. No statewide license is required for this occupation; however, most employers prefer to hire nationally certified surgical technologists.

The Oregon Employment Department estimates that between 2008 and 2018, there will be 482 job openings for surgical technologists in Oregon. Fifty-four percent of the projected job openings are due to replacement of those who permanently leave the surgical technologist labor pool. Surgical technologists ranked 4th out of 716 occupations prioritized for training by the Oregon Employment Department methodology, tying with physical therapists and dental hygienists.

Two schools in Oregon offer educational programs in surgical technology. Concorde Career College offers a certificate. Mt. Hood Community College offers an associate degree.

Graduate Supply: Surgical Technologists

School	2007	2008	2009	2010	Projected 2011	Projected 2012
1 - <2 Year Certificate						
Concorde Career College	49	39	40	46	48	48
Associate Degree						
Mt. Hood Community College	13	15	15	15	20	20
Total	**62**	**54**	**55**	**61**	**68**	**68**

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